MINUTES

COUNCIL MEETING

Tuesday 25 July 2023
6:00 pm

City Hall
57 Little Malop Street, Geelong 3220

LIVE STREAMED ON THE CITY'S WEBSITE:

www.geelongaustralia.com.au/meetings

COUNCIL:

Cr T Sullivan (Bellarine Ward) - Mayor
Cr A Aitken (Windermere Ward) - Deputy Mayor
Cr S Asher (Bellarine Ward)
Cr J Mason (Bellarine Ward)
Cr M Cadwell (Brownbill Ward)
Cr E Kontelj (Brownbill Ward)
Cr P Murrihy (Brownbill Ward)
Cr B Harwood (Kardinia Ward)
Cr B Moloney (Kardinia Ward)
Cr R Nelson (Kardinia Ward)
Cr S Hathway (Windermere Ward)

CITY OF GREATER GEELONG

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Present: Crs T Sullivan (Mayor), A Aitken, S Asher (Virtual), M Cadwell, S Hathway, E Kontelj, J Mason, P Murrihy, B Moloney

Also Present: K Phyland (Acting Chief Executive Officer, G Smith (Acting Executive Director City Planning and Design), A Locke (Acting Executive Director Community Service Delivery), D Greaves (Acting Executive Director City Infrastructure), B Prosser (Acting Executive Director Customer Community and Economy), V Allan (Chief Legal Counsel, Governance & Risk Officer), J Douglas (Acting Manager Governance), P Digby (Municipal Monitor)

1. PROCEDURAL MATTERS

1.1. Acknowledgement of Country

Council acknowledges the Wadawurrung People as the Traditional Owners of the Land, Waterways and Skies. We pay our respects to their Elders, past, present and emerging. We acknowledge all Aboriginal and Torres Strait Islander people who are part of our Greater Geelong community today.

1.2. Apologies

Cr Harwood (Leave of Absence), Cr Nelson

1.3. Leaves of Absence

Nil

1.4. Presentations

Nil

1.5. Declarations of Conflicts of Interest

Cr Kontelj declared a Conflict of Interest during Council Question Time in that the question relates to Balmoral Crescent where Cr Kontelj has family members residing and may be impacted by the development.

Cr Kontelj declared a Conflict of Interest during Council Question Time in relation to the Northern and Western Geelong Growth Areas – Strategic Assessment in that at least one of the developers of this area (McCann) is a customer of the business of which Cr Kontelj is a Director.

Cr Kontelj declared a Conflict of Interest in Item 2.4 Northern and Western Geelong Growth Areas – Strategic Assessment in that at least one of the developers of this area (McCann) is a customer of the business of which Cr Kontelj is a Director.

Cr Kontelj declared a Conflict of Interest in Item 2.5 Upcoming International Delegate Opportunities in that one of the group of companies of which Cr Kontelj is a Board Member of the Advisory Board has a business/commercial relationship with Hanwha.

1.6. Confirmation of Minutes

Cr Mason moved, Cr Kontelj seconded -

That the Minutes of the Council Meeting held on 27 June 2023 be confirmed.

Carried

1.7. Public Question and Submission Time

The following persons submitted questions prior to the Council Meeting on the following various subjects.

1. Dylan Paskos – Mobile Food Permits
2. John Glazebrook – Declaration of Nuclear Free Zone and Federal Funding of Geelong Public Hospital
3. Dean Huriston – Cost Shifting from State Government
4. Jinny – Heavy Vehicle Use in the City of Greater Geelong
5. Liz Bonner – Social Housing Plan 2020-2021
6. Andy Meddick - Hire of Council owned or managed properties – refusal of bookings
7. Charles Street – Energy from Waste (EfW) Incinerator in Lara
8. Bernie Frankie – Public Roads and Establishment of Fyansford Tip
9. Helen Clarke – C463ggee Balmoral Quay Stage 5
10. Vicki Perrett – Air Pollution and Energy from Waste (EfW) Incinerator in Lara
11. Mandy Bridges – Notice of Motion by Cr Nelson – Library Service Delivery
12. Mary Larah – Upcoming International Delegate Opportunities
13. Jenna Wade – Response to Anti-Social/Anti-Racist Behaviour within the City
14. Felicity Dales – G21 Subscription
15. Louis de Koker – Development Application for 2 Morven Court, Highton
16. Teagan Mitchell – Strategic Planning for the South of the City
17. Simone Tolson – Regional Projects Victoria (RPV) and the RGYC Sailing School Buildings
18. Diane Cunningham – Smart Cities

Liz Bonner asked the following:

Question 1:
Real Deal for Geelong are an alliance of community organisations, faith groups, unions and invested community members working to put people and communities at the centre of policy and politics. We have three areas of focus; Secure Housing, Meaningful Work and Affordable Living and, Care and Connection for All. Our questions today relate most directly to housing but the impacts flow into each of these three pillars. What progress has been made against the Social Housing Plan 2020-2041 - Recommended Strategies and Actions?

Thanks for the questions, Liz.

The City's Social Housing Plan outlines recommended strategies in Leadership, Planning, Investment and Partnerships.
The City has made progress in all of these strategy areas, this includes completing social housing planning requirements for five key strategic planning areas across the region, and negotiating for social and affordable housing contributions as part of new estates and housing projects.

In addition, Council has endorsed the establishment of the Affordable Housing Trust and is currently considering feedback on the potential use of three council owned sites for social housing. We are continuing to advocate collectively with other councils to influence Commonwealth Government policy, particularly the National Housing Accord.

The City are also advocating for mandatory planning controls and an appropriate framework for inclusionary zoning, which would be more effective than the current voluntary system.

The City support the work of the Victorian Government on delivering the Big Housing Build and implementation of the Social Housing Growth Fund and continue working with State Government agencies for urban renewal partnership opportunities.

Question 2:
Inclusionary zoning within the Social Housing Plan states "Increase the supply of social housing from the current 3% to 7% of total households by 2031, an estimated increase in supply of 6,000 dwellings and to 10% by 2041 (a further 6,000 dwellings)." – what is the current level being achieved and what is required for new developments?

As of March 2022, the City recorded a total of 4,988 social housing dwellings, representing 4% of the total dwellings in the city. This is a 16% increase in social housing since the adoption of the Social Housing Plan.

There are approximately 200 additional dwellings anticipated for Greater Geelong funded by the Big Housing Build. These dwellings are currently in the planning stages and delivery is expected to take place in the next 2-3 years.

There are 12,800 remaining social housing dwellings required to be built to achieve 7% of total dwellings forecasted in 2041. That will require 23.5% of all new dwellings to be delivered as social housing from now until 2041, which is a significant gap to fill.

The City remains committed to the strategies in the Social Housing Plan and will continue to seek the support from the State and Federal Government.

Andy Meddick asked the following:

Question1:
It has come to both mine and the broader community's notice, that the far right group "My Place" has not only established itself in Geelong, but is attending Council meetings of the various L.G.A's across the region. The groups are well known for their abusive and disruptive behaviour to Councils, Councillors and Council staff, largely based upon their misleading and misplaced conspiracy theories, their hatred, bigotry and transphobia, and their links to the political party Australia One. It has also come to notice that they are using the Newcomb Public Library meeting rooms to hold their regular meetings. Given their history, their exhibited behaviour and platform, all of which are at odds with Council's inclusive policies and platforms, it is abhorrent and would seem in contravention of those same policies to allow them to use any Council managed venue. Will the Councillors resolve to instruct all Council owned or managed properties to refuse bookings for My Place?

Thanks for the questions, Andy.

Council is committed to inclusive practices and to strongly responding where hatred, bigotry or transphobia occurs in public Council forums. Council has a responsibility to provide public meeting spaces to all and cannot deny a group access on the basis of their political affiliation.

While this enquiry relates to a space managed by the Geelong Regional Library Corporation, we can state that for any hire of Council halls, groups must behave in accordance with the relevant hire conditions and be respectful of the space and the people around them. In the case of any misconduct or disrespectful behaviour shown to other patrons or staff, they would be asked to leave.

Charles Street asked the following:

Question 1:
I am a retired biochemist and science teacher, now resident in Lara near my daughter and grandchildren. I refer to the proposal from Prospect Hill International (PHI) to construct and operate an Energy from Waste (EfW) incinerator in Lara. My family is deeply concerned about the potential health risks to ourselves and our community. PHI submitted a development licence application to the EPA for a 400,000 tonnes per annum waste-to-energy facility back in April 2021. I have read the 1900+ of pages in PHI's application and I am far from satisfied that the proponents have addressed the relevant issues. I have emailed you all a copy of our latest submission to the EPA, which outlines the multitude of flaws in the PHI application. Their numbers don't add up. I've calculated that Western Victoria has at most only 110,000 tonnes of realistically available red-top-bin and C&I waste.

So where will the other 290,000 tonnes come from? We fear they may import waste in ships into the Port of Geelong; an abuse of an EPA licence, we suggest. Q1. Has Council seen a proposed contract from the proponents for incineration of waste? Does Council know if the incinerator business will operate as a franchise, or similar? Has Council made any undertakings to supply PHI with waste in the future? Will Council resist any attempt to import waste into our region for incineration?

Question 2:
Most importantly tonight, I want to make you aware of the research findings of Dr Peter Tait and 10 other Health professionals from the Australian National University. Tait et alia found "a range of adverse health effects were identified, including significant associations with some neoplasia (cancers), congenital anomalies (birth defects), infant deaths and miscarriage. Ingestion (eating contaminated food) was the dominant exposure pathway for the public. Newer incinerator technologies may reduce exposure." They recommended that "new incinerators should be located away from areas of food production" and that "food grown near an incinerator should be avoided." They concluded, "based on a precautionary principle there is insufficient evidence to conclude that any incinerator is safe."

The consequences of incinerator contaminated food being produced in the City of Greater Geelong are unthinkable. And yet, the incinerator site is embedded in farming and residential areas. There are 9 childcare centres, 7 schools and 3 aged care residences within 5km of the facility.

As the representative from the Lara Care Group, will Council work with the community to oppose the Prospect Hill incinerator in Lara, and any other Big Incinerator proposals for the City of Greater Geelong? Reference: Tait et al (2020) Australian & New Zealand Journal of Public Health Vol 44, No. 1, pp 40-48.
Available at https://onlinelibrary.wiley.com/doi/full/10.1111/1753-6405.12939.

Thanks for the questions, Charles.

We understand the community concerns, however as a referral authority in this process the City is obliged to provide independent advice and feedback regarding the application's consistency with the Planning Scheme. As you would be aware, the planning permit for this application will be determined by the Minister for Planning. We encourage you and any concerned community members to direct your concerns to the Department of Transport and Planning to be considered as part of the process.

Cr Kontelj declared a Conflict of Interest in the following question and left the meeting room at 6.25pm prior to discussion.

Helen Clarke asked the following:

Question 1:
The Minister for Planning has been asked to authorise Amendment C463ggee, which is the combined amendment and planning permit application for Balmoral Quay Stage 5, however the authorisation has not yet been granted and is still being considered by the Minister and the Department of Transport and Planning. This amendment seeks, among other matters, to increase the permissible building height from the currently approved 13.5 metres to 28.2 metres, enabling the provision of 84 apartments. It also seeks to reduce the number of carparks. There will be considerable impact on the local residents and on the Rippleside community more broadly arising from, for example, a significant and untenable increase in traffic; loss of amenity; distortion of heritage values, and overshadowing. Could Council please advise whether the Minister for Planning has now approved the release of the Proposed Amendment and if so, the timing for public Exhibition?

Thanks for the questions, Helen.

Council was advised yesterday of the official authorisation of this amendment by the Minister and the Department of Transport and Planning. Officers will now work on a timeline for exhibition.

Cr Kontelj re-joined the meeting at 6.28pm.

Vicki Perrett asked the following:

Question 1:

Tonight I'm representing Geelong Sustainability members, who are very concerned about the massive incinerator proposed by Prospect Hill International in Lara.

Tonight I want to focus on the facility's toxic air pollution. According to the World Health Organization, air pollution is one of the greatest environmental risks to public health. All waste incinerators, regardless of technology, produce pollution.

It cannot be eliminated, only managed by extensive air pollution controls and regular maintenance. Some of the gases that PHI expects the facility will produce include: Carbon Monoxide, Nitrogen Dioxide, Ozone, Sulphur Dioxide, Coarse and Fine Particulate Matter (PM10 and PM2.5), Dioxins, Furans and heavy metals. Some of these chemicals have no safe exposure thresholds. Data prepared by the Centre for Air Pollution, Energy and Health Research shows that Lara and Greater Geelong regions already experience high levels of fine PM2.5 air pollution. Lara's average annual PM2.5 rating is 8 while the WHO safe level is 5 or below.

Exposure to Fine Particulate Matter increases the risk of lung diseases, cancer, pneumonia, stroke and neurological diseases. It's linked to adverse birth outcomes and it has worse impacts on children as they breathe more rapidly than adults.

Are Councillors aware that many suburbs in Geelong including Lara already have air pollution above the safe limits set by the World Health Organisation?

Question 2:
My second question relates to the lack of social licence within our community for this or any incineration project in our region. PHI does not have a social licence with affected communities. They have only held one community meeting on 13 July 2021. Covid is no longer an excuse. The community wants zero waste solutions. This inferior waste management approach would entrench a linear economy and take our region in totally the wrong direction. The European Commission now classifies waste incineration in the same category as nuclear and coal energy. Its removed all renewable energy subsidies and recommends old incinerators be decommissioned and no new ones built. Around the state (and the nation), communities are pushing back against a rush of incineration projects. If the state government is serious about transitioning to a zero-waste circular economy, it should not impose huge incinerators on communities that do not want or need them. The ACT has listened to community concerns and has banned incineration. In NSW, the Bayside and Randwick City Councils listened to community concerns and facilitated a successful campaign which has seen the NSW government ban a proposed 165,000 tonne facility at Matraville.

Will Council work with the community to oppose the Prospect Hill incinerator in Lara? Will the City help organise a similar community campaign to the NSW councils to stop incineration projects? Ref: https://www.bayside.nsw.gov.au/community/matraville-incinerator

Thank you for your questions and bringing this issue to Council's attention Vicki.

The City understands the community concerns, however as a referral authority in this process the City is obliged to provide independent advice and feedback regarding the application's consistency with the Planning Scheme. As you would be aware, the planning permit for this application will be determined by the Minister for Planning. We encourage you and any concerned community members to direct your concerns to the Department of Transport and Planning to be considered as part of the process.

Jenna Wade asked the following question:

Question 1:
In response to recent media coverage of negative/racist actions in Geelong our Norlane community members decided to take action to promote a safe, welcoming and inclusive community by painting banners and gathering together at the City Hall steps. However, acknowledgement of racism by leaders at every level, from community groups and representatives of local government is essential and necessary. With consistent and timely messaging around the council's support for social justice, equity and inclusion we can ensure that all community members feel safe and welcome.

At a 'meet your Councillor' event in Norlane, community members suggested that council respond to the negative/racist actions with a poster campaign to promote social justice, equity and inclusion. We want to see a strong and timely response from Geelong Council to support our voices of unity and solidarity for all community members.

Will the City of Greater Geelong's elected representatives listen to the voices of the community and prioritise a timely response to racism in Geelong?

Thanks for the question, Jenna.

Our response over the past week has been to proactively highlight Geelong's strong multicultural community with positive messages, rather than responding to or amplifying the voice of a very small minority.

The City issued a media release on Monday night (17 July) highlighting the 82 new Australian citizens we had just welcomed via a citizenship ceremony at City Hall, and we also shared those photos on our social media channels. All up we have now conferred close to 900 new Australian citizens so far this year – and we're proud to have welcomed all of those people as valued members of the Geelong community.

On Wednesday, at the Mayor's instigation, we arranged a photo on the steps of City Hall featuring councillors with community leaders and members from several different cultural groups. We shared this via our social media channels with positive messages of the benefits of multiculturalism.

We have absolutely no hesitation in saying that Geelong is a place where people of all cultural backgrounds are welcome and included.

Around 50,000 Greater Geelong residents were born overseas and our cultural diversity is one of our community's great strengths.

New arrivals to our region contribute individually to our community in a variety of ways, and collectively, add to the rich cultural fabric of our city.

This is something we value so much and will continue to foster and support.

You can read more about our support of cultural diversity via our Multicultural Action Plan, which is available on our website and currently under review. With regard to your suggestion of a poster campaign, this is an initiative the City will investigate internally.

Felicity Dales asked the following:

Question 1:
THE COGG membership of G21 is due to expire in April 2024, with the decision not to continue. My understanding is that it is a $500k subscription annually. Can you please outline what the ROI (return on investment) has been for this annual subscription since 2000, and what you consider to be successful from this expenditure along with what you wouldn't consider a great outcome for that investment?

Question 2:
What would you do differently knowing what you know now? Why have you decided not to continue? Are you redirecting those funds to something else?

Thanks for the questions, Felicity.

As this matter is confidential in nature I am unable to provide further details in relation to your questions this evening.
All allocations of funding are clearly articulated within the Councils Budget which is published to our website.

Louis De Koker asked the following:

Question 1:
The CoGG is considering a development application for 2 Morven Court (known locally as Frog Hollow) in Highton. When the previous application was considered the CoGG was provided with evidence of the presence of growling grass frogs at the property. Further evidence, including evidence from a herpetologist at the University of Melbourne, was provided during the subsequent VCAT hearing. Can the CoGG advise: (a) What steps the CoGG has taken to date in relation to that information? (b) Any steps the CoGG may propose to take, also in conjunction with State authorities; and (c) Any steps that can be taken to ensure the humane relocation of the frog colonies of Frog Hollow, should the property be developed?

Thanks for the questions, Louis.

The information provided to COGG and VCAT on the growling grass frog was not considered expert evidence. In accordance with the previous VCAT decision for the planning permit application at 2 Morven Court, VCAT made clear that If the growling grass frog is located on the site then the obligations under the Flora and Fauna Guarantee Act 1988 and the federal Environment Protection and Biodiversity Act 1999 (EPBC Act) both come in to play. These, however, are obligations the applicant needs to address regardless of the planning consideration under the planning scheme. (for reference this detail is referred to at paragraph 123-127 & 130 of the VCAT decision)
Based on VCATs direction, Council notes that the responsibility is on the applicant to ensure they are complying with their obligations under the Flora and Fauna Guarantee Act.

Question 2:
The CoGG is considering a development application for 2 Morven Court in Highton. The extensive property, especially the current vegetation and dam on the property, mitigate some of the increasing flooding risks in old Highton. The proposed development will add hard surfaces and fill in the dam. Flooding risks are linked to a portions of the old Highton drainage system that are aging and have limited capacity to deal with flooding during storm events. Flooding occurred in 2016 and 2022. While SBOs imposed in 2015 on affected properties require new dwellings to be built higher, existing home owners are exposed to increasing risks. The CoGG engineers confirmed that they did not have accurate and reliable rainfall data for Highton. Applications for developments in Highton furthermore continue to use the now dated 2014 report on the Highton Drainage/Flood Study commissioned by the CoGG. The loss of permeable areas and the increase in hard surfaces in the area due to infill developments since that date have increased the volume and velocity of water during storm events. Given the lack of reliable data it is challenging to ensure that development of 2 Morven Court does not increase risks of flooding. What rights of recourse will affected residents of existing dwellings have if the storm water management conditions related to the development turn out to be insufficient and damage is suffered?

An updated flood impact report and stormwater management strategy was submitted with the recent planning application. These reports have been reviewed by Council's Drainage Engineers and assessed by an external third-party engineer. Both of these reports have been deemed accurate and acceptable and the documents were then made available through the public notice period of the planning application (Planning application number PP-9-2023).

In terms of evidence, the flood impact report has determined through flood modelling the proposed development can occur without creating impacts on the neighbouring properties or creating any flood hazards.
The report also found that the development would be capable of conveying stormwater runoff generated through a flood event, including the 1% Annual Exceedance Probability (AEP).

Cr Kontelj declared a Conflict of Interest in the following question and left the meeting room prior to discussion at 7.00pm.

Teagan Mitchell asked the following:

Question 1:
As shown in "The Northern And Western Geelong Growth Areas Framework Plan, August 2020." The report highlights growth and areas that the council needs to work on to ensure a clever and connected community. While this report focuses on Northern and Western growth, with Armstrong creek having 5 mentions (2 in a map), North- 544 times and Western - 236 times, while your Our Community Plan 2021–25 shows that the South suburbs (Armstrong Creek, Mount Duneed and Claremont) are actually going to be the top three growth areas between now and 2041. Yet the Armstrong creek area has only two council capital programs and developments running at this point, and our community feel that some key services are missing. If you have the North covered, is the South going to see similar development and long-term planning from the council, if there is planning, where is it and when can we see the south corridor get the same community focus as the North with the same opportunity for community design and feedback for development.

Question 2:
Following my first question, Will we see the Three Multi-Purpose community centres that incorporate a neighbourhood house, flexible community meeting spaces and community gardens continuing to be funded, to a level that suits the community need and will there be more funding for them in the future given the last budget? Is the South going to continue to be left in the dark for their own community centre?

Thanks for the questions, Teagan.

The Armstrong Creek Urban Growth Plan sets the high-level vision for the development in Armstrong Creek like the Northern and Western Geelong Growth Area Framework Plan does for the new growth areas.

In accordance with the detailed plans for Armstrong Creek, Council has so far delivered the Armstrong Creek East Community Hub on Central Boulevard in 2019 and the Poa Banyul Community Hub on Unity Drive in Mount Duneed – 2023. The Armstrong Creek Library and Community Hub is under construction and will open in 2024 in the town centre. The total investment in these projects is around $40 million with funding coming from developers, state Government and council.

The Horseshoe Bend Community Hub in Precinct Rd, Charlemont is the next hub that will be delivered in the Armstrong Creek growth area. It is planned to open in 2027. Planning and construction is funded in Council's budget. Community engagement on the planning for the Horseshoe Bend Hub will occur later in 2023.

Additional Community Hubs are planned over the coming decade, to be located in Whites Road, Mt Duneed, Warralily Boulevard and Burvilles Road both in Armstrong Creek. Funding for design of these hubs is included in Councils 2022/23 – 2026/27 Budget.

Cr Kontelj re-joined the meeting at 7.04pm

Simone Tolson asked the following:

Question 1:
In relation to questions raised a number of meetings ago on the South Geelong to Waurn Ponds Duplication project (in particular the Fyans St/Carr St rail bridge), the following was provided by Council: The City has regular meetings with RPV and the Alliance about the Waurn Ponds to South Geelong Rail Duplication. Officers have reviewed the traffic models and reports regarding the impacts to local traffic. The City is still completing design reviews and continues to advocate for a good outcome for our community. I currently am awaiting my FOI request package from RPV but they are well over time in completing. Could you clarify where COGG is at with providing the information sought by RPV in relation to the request, and where COGG is at with the Integrated Comprehensive Transport Plan (and who now has carriage of this with the dropping of G21 involvement).

Thanks for the questions, Simone.

The City is unable to provide an update on a Freedom of Information request from another agency. Your query should be redirected to the agency managing this request.

Question 2:
Why has there not been commencement of the Sailing School buildings at the RGYC, considering funding was assigned over 2 years ago, and how does this equate with the resources set aside for the completion of a Soccer Strategy and the nearly $2millon purchase of a soccer club in Batesford (completed in the current budget)? What is the reason that the sailing school project has not been furthered?

The redevelopment of the Sailing School Building is part of the Geelong Waterfront Safe Harbour Precinct project. The Safe Harbour project is jointly funded by the Federal Government, State Government, Council and the Royal Geelong Yacht Club.

The City's funding contribution ($3m) to the Safe Harbour project was specifically allocated to the public realm aspects of the project, namely Wangim Walk and improvements to the footpath along Eastern Beach Road.

Wangim Walk was opened to the public in December 2020.

The Sailing School Building development is directly managed by the Yacht Club with funding from the State Government and the Yacht Club. The club is working with the State Government and other stakeholders to commence the building works as soon as possible.

The Safe Harbour project has no impact on the resources set aside for Soccer.

Felicity Dales asked the following question on behalf of Diane Cunningham:

Question 1:
I recently attended a COGG 'Smart City' Forum, which was organized by the 'Smart City' Representative - Adam Mowlam, in response to many questions from Community Groups in the COGG who are very concerned about this Global initiative and its ties with the World Economic Forum (WEF). This initiative can also be known as '15min/20min' cities. The Mayor Trent Sullivan and other Council officials were also in attendance. Many concerns were raised and have also been raised many times at Council meetings since earlier in the year. A major point that came up twice on the evening was the lack of knowledge most of the residents of COGG have of this Initiative.
A petition a small group ran on the subject revealed that 95% of those approached had never heard of the initiative. There needs to be more transparency from the Council, given this has the potential to impact the community in many ways going forward.

I would like to ask the following:

1. What does Council propose to do to raise the awareness within the community about this initiative?

Thanks for the questions, Diane.

This is a really good question.

The Smart City Program being misrepresented has a range of negative consequences both for residents and council. In response to raising awareness, the Council has undertaken the following:

- *The Smart City Information Session was aimed at providing factual information about the program and address some of the concerns.*
- *The Smart City Department is the smallest in Council and have completed four media releases in the last two months.*
- *Updated smart city information across the corporate website, social media and actively seeking promotional opportunities for current projects.*

Lastly it should be noted that urban innovation crosses many council department areas, and the awareness of smart cities is often tied up within a broader project such as the use of mobile apps to identify tree hollows or the use of data to inform parking in the Geelong CBD. And this best represents the Geelong vision of using data and technology to improve the liveability, sustainability and economic prosperity of Greater Geelong.

2. Will Council also communicate progress by informing the Community regularly of steps/stages and timelines, including what has already been implemented?

The formal progress report will be delivered (approximately) two years after the strategy adoption, and is included in the Smart City Department Plan for 2023/24. The progress report will cover all activities and initiatives that are part of the work program, which is outlined in the Smart City Implementation Plan, that can be viewed on the corporate website.

1.8. Petitions

Nil

2. REPORTS

2.1. Windemere Ward Councillor Sarah Hathway - Affirmation of Office

Source:	**Strategy, Governance and Corporate**
Chief Legal Counsel, Governance & Risk Officer:	**Vesna Allan**

Purpose

1. To record the Affirmation of Office undertaken by Windermere Ward Councillor Sarah Hathway.

Background

2. An extraordinary vacancy in the Windermere Ward occurred as a result of the resignation of Councillor Kylie Grzybek on 29 May 2023.

3. The Victorian Electoral Commission (VEC) conducted a countback of all the formal votes for Windermere Ward from the 2020 Greater Geelong City Council Election to fill the extraordinary vacancy.

Key Matters

4. A person elected to be a Councillor is not capable of acting as a Councillor until they have taken the Oath or Affirmation of office in accordance with Section 30 of the *Local Government Act Vic 2020* (the Act).

5. The VEC declared Councillor Sarah Hathway as the elected representative for Windermere Ward on 28 June 2023.

6. David Greaves, Acting Chief Executive Officer, administered the Affirmation on

7. 28 June 2023.

8. A copy of the dated and signed Affirmation of Office is included as **Attachment 1**.

RESOLUTION - Item 2.1

Cr Sullivan moved, Cr Aitken seconded -

That Council note the Affirmation of Councillor Sarah Hathway as per Attachment 1.

Carried

Financial Sustainability

9. There are no financial implications associated with this report.

Community Engagement

10. A copy of the prescribed Affirmation will be available to the community as part of formal Council minutes.

Social Equity and Sustainability

11. There are no social equity implications associated with this report.

Relevant Law/Policy/Legal Implications

12. The Affirmation was undertaken in accordance with s 60 of the Act and as prescribed in the *Local Government (Governance and Integrity) Regulations 2020*.

Alignment to Community Plan and Vision

13. This report aligns with *Our Community Plan 2021-2025* strategic priority: High-performing council and organisation.

Conflict of Interest

14. No officer involved in the preparation of this report declared a general or material conflict of interest.

Risk Assessment

15. For a person to act as a Councillor they must take the Oath or Affirmation of office; this report ensures compliance with the Act.

Environmental Sustainability

16. There are no environmental implications associated with this report.

Attachments

1. Councillor Sarah Hathaway - Affirmation of Office [**2.1.1** - 1 page]

THE CITY OF
GREATER GEELONG

AFFIRMATION OF OFFICE

CITY OF GREATER GEELONG

I, Sarah Hathway, solemnly and sincerely declare and affirm, that I will undertake the duties of the office of Councillor in the best interests of the municipal community.

I will abide by the Councillor Code of Conduct and uphold the standards of conduct set out in the Councillor Code of Conduct.

I will faithfully and impartially carry out and exercise the functions, powers, authorities and discretions vested in me under the **Local Government Act 2020** and any other Act to the best of my skill and judgment.

Sarah Hathway

Declared at Geelong before me this 28th day of June 2023.

David Greaves
A/Chief Executive Officer

2.2. North Bellarine Aquatic Centre - Stage 2

Source: **Community Service Delivery**
Executive Director: **Robyn Stevens**

Purpose

1. To seek approval for a concept design for North Bellarine Aquatic Centre – Stage 2 (NBAC2).

Background

2. In April 2021, Council resolved to '*proceed with the detailed design and construction of the 50 metre outdoor pool, while also identifying potential avenues of funding to advocate for a future Stage 2 to complement the outdoor pool with an indoor aquatic centre that includes warm water pool, aqua play, hydrotherapy and associated facilities to service the needs of the North Bellarine community*'.

3. In October 2021 the Federal Member for Corangamite (Libby Coker MP) pledged $20 million for a Stage 2 indoor aquatic facilities. In October 2022, the State Member for Bellarine (Alison Marchant MP) confirmed a pre-election commitment for $20 million for an indoor aquatic facility (total $40 million).

4. In November 2022, Council endorsed the policy parameters and process to guide the design options for Stage 2. The policy parameters included design options to align with the funding envelope; uses in alignment with the April 2021 resolution; and a deliberative engagement process via the establishment of a Community Advisory Panel (CAP). A CAP was formed via a public expression of interest process and 12 community members appointed in early 2023.

Key Matters

5. Five Principles were established to guide decision-making for facility concept centred on sustainability, equity and enhancing health, wellbeing and social connection.

6. Minutes from the first CAP meeting held on 15 March 2023 noted direction from state and federal funding to include indoor pool, hydro and learn to swim.

    6.1. In a subsequent meeting with the Acting Chief Executive Officer and City officers, it was clarified that the pool must have a minimum six-lane 25 metre pool and preferably eight lanes.

7. The CAP identified the top three priorities for facility components to be a 25 metre pool with ramp access, café and social spaces and a warm water pool. Lower priority facilities were learn to swim, health and fitness and water play.

8. Over the course of four months, a total of nine concepts were developed by Mantric Architects, and each concept was quantity surveyed by Zinc Cost Management. Each concept was developed in response to CAP feedback, alignment to the principles, the need for value management to fit within the funding envelope and component impact on ongoing operating performance.

9. At the final CAP meeting on 5 July 2023, Scenario 'I' (the ninth concept) was unanimously endorsed by all members of the CAP. The components of Scenario 'I' include: (indoor) eight lane 25 metre pool, warm water pool, health and wellness and associated facilities. (Refer Attachment 1: NBAC2_Scenario_I.)

10. The quantity surveyor has costed Scenario 'I' at $40.3 million, which is $300,000 above the state and federal funding envelope of $40 million. It is proposed that the $300,000 additional capital expense can be managed through the detailed design phase and internal project efficiency and prioritisation measures.

RESOLUTION - Item 2.2

Cr Sullivan moved, Cr Mason seconded -

That Council:

1. **Approve the concept design – Scenario 'I' for North Bellarine Aquatic Centre – Stage 2; and**

2. **Thank the members of the Community Advisory Panel for their contributions during the concept design phase for North Bellarine Aquatic Centre – Stage 2.**

Carried

Financial Sustainability

11. The cost of Scenario 'I' is $40.3 million which is $300,000 above the funding envelope available from the state and federal government.

12. Whilst Scenario 'I' is costed above the funding envelope, it includes components that will be commercial drivers in the operating model. An indoor facility budget drafted by consultants Sport and Leisure Solutions, estimates that the health and fitness components will offset the operating subsidy by $600,000 per annum at maturity. Learn to swim is also expected to deliver a program surplus up to $700,000 per annum. Both areas will work to offset the operating deficit that the outdoor and indoor pools will generate.

13. It is proposed that the $300,000 additional capital expense can be managed through a combination of:

    13.1. Value management during the detailed design phase;

    13.2. Reducing the delivery timeframe to avoid cost escalations; and

    13.3. Standard governance processes to seek additional funding through internal capital project efficiency and prioritisation measures.

Community Engagement

14. A deliberative community engagement process has been undertaken via the establishment of a Community Advisory Panel (CAP). The CAP met five times from March 2023 to July 2023 and were consulted during each of the nine concept developments. The CAP unanimously endorsed Scenario 'I' as their preferred concept.

Social Equity and Sustainability

15. The design concepts included a business case that considered and assessed against the following five principles:

    15.1. Enhancing community health, wellbeing and social connection;

    15.2. Equitable access to facilities;

    15.3. Sustaining high quality facilities;

    15.4. Affordable development and sustainable operation; and

    15.5. Maximise use of existing and future assets.

16. The business case also included an assessment of demand analysis, operating viability, network analysis (the impact of NBAC2 on the swim sport and leisure network) and community benefit.

Relevant Law/Policy/Legal Implications

17. A policy framework was adopted at the November 2022 Council meeting to underpin the development of options for NBAC2.

Alignment to Community Plan and Vision

18. This report aligns with Our Community Plan 2021-2025 strategic priority:
Healthy, caring and inclusive community.

19. This report aligns with the Community led 30-year Vision, “Greater Geelong: A Clever and Creative Future” community aspiration:
An inclusive, diverse, healthy and socially connected community.

Conflict of Interest

20. No officer involved in the preparation of this report declared a general or material conflict of interest.

Risk Assessment

21. There are no known risks attributable to the preparation of design concepts for NBAC2.

Environmental Sustainability

22. The detailed design options will consider opportunities for emissions reduction and outline opportunities regarding reducing energy consumption (electricity, gas and fuel); emissions; water use; stormwater quality; and waste generation.

Attachments

Attachment 1: NBAC2_Scenario_I
1. NBA C 2 Scenario I [**2.2.1** - 1 page]

AREA SCHEDULE

ZONE 1 - ENTRY/ADMIN

1.01 - Airlock	10sqm
1.02 - Lobby/Control	470sqm
1.04 - Reception	19sqm
1.05 - Admin Room	88sqm
1.09 - Staff Room	26sqm
1.10 - Cafe Prep	38sqm
1.11 - Cafe Serve	17sqm
1.12 - Cafe Seating	154sqm
1.14 - Public Circulation	139sqm
1.15 - 50m Pool Terrace	135sqm
1.16 - Entry Canopy	184sqm

ZONE 2 - CHANGE AREAS

2.02 - Accessible Change 1 (Aquatic)	9sqm
2.03 - Accessible Change 2 (Aquatic)	9sqm
2.04 - Accessible Change 3 (Aquatic)	10sqm
2.05 - Changing Places 1 (Aquatic)	18sqm
2.06 - Changing Places 2 (H&F)	17sqm
2.07 - Mens Change (Aquatic)	44sqm
2.08 - Womens Change (Aquatic)	44sqm
2.10 - MP/Group Change 1	37sqm
2.11 - MP/Group Change 2	37sqm
2.14 - Mens Change (H&F)	44sqm
2.15 - Womens Change (H&F)	50sqm
2.16 - Accessible Change (H&F)	10sqm
2.17 - First Aid (H&F)	13sqm
2.18 - Cleaners	8sqm

ZONE 4 - INDOOR AQUATIC

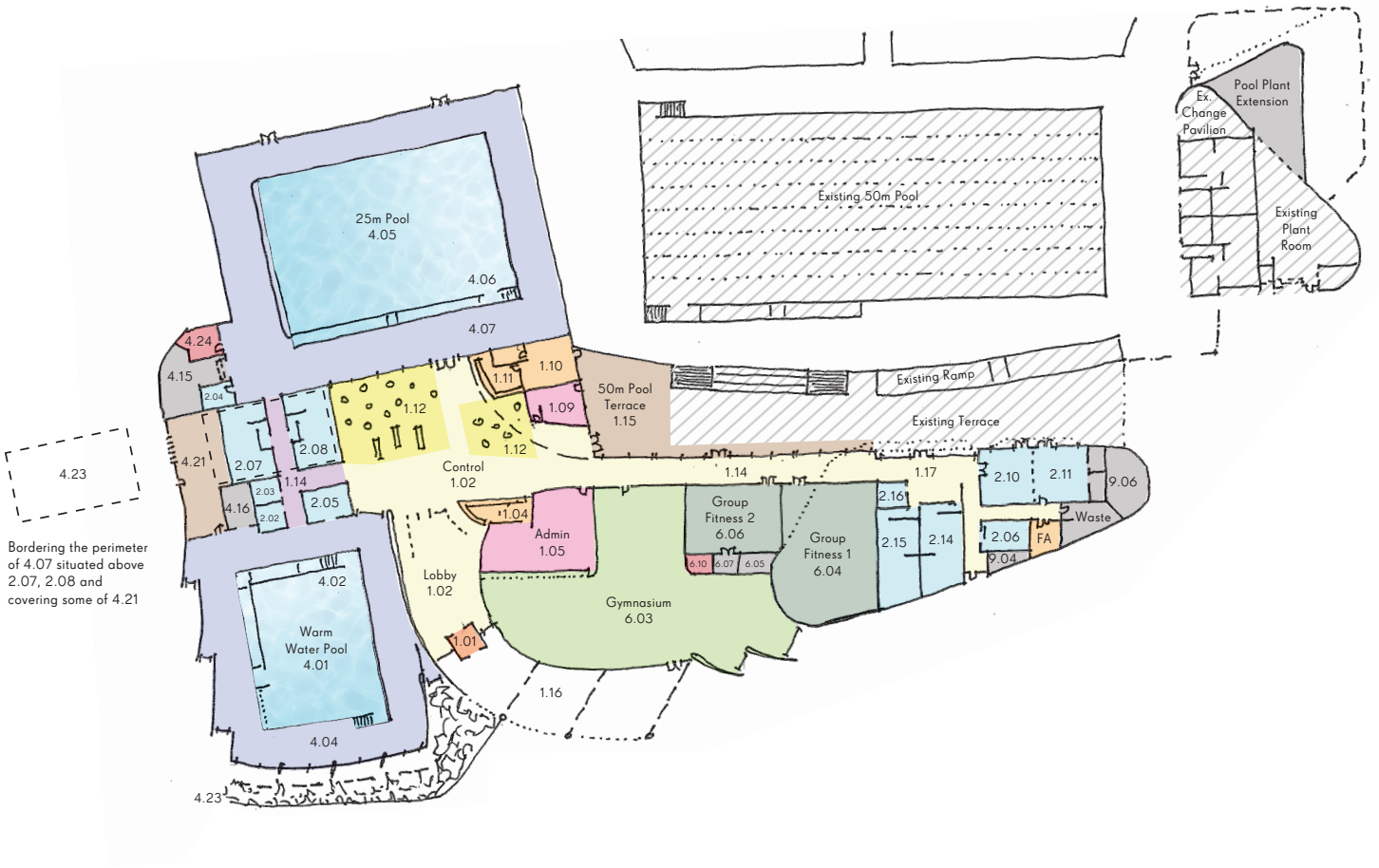
4.01 - Warm Water Pool	245sqm
4.02 - Warm Water Pool Ramp	30sqm
4.04 - Warm Water Pool Concourse	350sqm
4.05 - 25m Pool (8 lane @2.25m)	450sqm
4.06 - 25m Pool Ramp & Steps	38sqm
4.07 - 25m Pool Concourse	542sqm
4.15 - Equipment Store 1	38sqm
4.16 - Equipment Store 2	16sqm
4.21 - Pool Plant Expansion	71sqm
4.23 - Mechanical Plant Roof Well	110sqm
4.24 - Aquatic Office	14sqm

ZONE 6 - HEALTH & FITNESS

6.03 - Gymnasium	410sqm
6.04 - Group Fitness 1	160sqm
6.05 - G. Fitness Store 1	8sqm
6.06 - Group Fitness 2	77sqm
6.07 - G. Fitness Store 2	6sqm
6.10 - Assessment Room 1	6sqm

ZONE 7 - BUILDING SERVICES

9.04 - Data & Comms	8sqm
9.06 - Hot Water Service	35sqm
9.07 - Waste Management (outdoor)	25sqm



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WWW.MANTRIC.COM.AU

NORTH BELLARINE AQUATIC CENTRE
STAGED OPTION I

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459 COPYRIGHT

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PD-03

2.3. G21 and Football Victoria - Regional Football (Soccer) Strategy 2023-2033

Source: **Customer, Community and Economy**
Acting Executive Director: **Bryce Prosser**

Purpose

1. The purpose of this report is to note the draft G21 and Football Victoria Regional Football Strategy 2023-2033 and the public exhibition process for all G21 Local Government Authorities.

Background

2. Football Victoria in partnership with local government authorities within the G21 region commissioned the preparation of the G21 and Football Victoria Regional Football Strategy 2023 – 2033.

3. The draft strategy builds on the efforts and achievements realised since the initial 2012 strategy and aims to provide a roadmap for the continued enhancement of facilities provision, participation in Football (Soccer).

4. The draft provides clubs and associations, local government authorities and other stakeholders in the G21 region the opportunity to align planning, investment, and development priorities across the region for the next 10 years.

5. The draft strategy highlights the previous strategies achievements and indicates new initiatives in response to changes and trends since 2012.

Key Matters

6. The growth in football across the City of Greater Geelong has increased significantly over the past 10 years, with an overall growth of 67 percent.

7. The draft strategy has highlighted a range of issues that Football Victoria and G21 Local Government Authorities face, particularly related to growth in participation. This strategy seeks to develop a plan that drives participation and enhances the experience of all participants, while identifying the priorities for investment in related infrastructure.

8. The draft strategy has considered a range of regional and local issues specific to the City of Greater Geelong including:

    8.1. Deliver the Armstrong Creek West sub-regional football facility.

    8.2. Improve the quality and capacity of existing pitches where shortfalls exist.

    8.3. Improve the quality to player and referee change facilities, so they are suitable for all genders.

    8.4. Provide or support access to existing indoor facilities to support increased participation in futsal.

    8.5. Active new and existing sites where provision shortages exist, demand necessitates, particularly within growth areas.

RESOLUTION - Item 2.3

Cr Kontelj moved, Cr Aitken seconded -

That Council:

1. **Note the Draft G21 and Football Victoria Regional Football (Soccer) Strategy 2023 –2033;**

2. **Approve the release of the draft strategy for public exhibition for a period of 6 weeks; and**

3. **Receive a further report and the final strategy following the consultation period.**

Carried

Financial Sustainability

9. The strategy outlies the priorities for the sport (Football/Soccer). The strategy will act as guidance to the City when considering a range of social infrastructure priorities in future budget planning.

Community Engagement

10. The draft strategy has been endorsed by the G21 Sport & Recreation sub working group and is being presented to each Council for the purposes of community engagement.

11. The draft strategy will be aligned across all five G21 local government authorities with public exhibition scheduled for six weeks between 30 July 2023 to 10 September 2023.

12. At the conclusion of the public exhibition period, community feedback will be assessed, with a final revised strategy to be considered by Football Victoria, G21 and the respective Councils later in 2023.

Social Equity and Sustainability

13. Ensuring social equity in investment is one of the key principles underpinning some of the strategic priorities in this draft strategy, including (but not limited to) an investment in inclusive, gender-neutral facilities to accommodate the rapidly increasing and extensive numbers of females participating in football and futsal.

Relevant Law/Policy/Legal Implications

14. There are no known legal or statutory impediments to the arrangement proposed in this report.

Alignment to Community Plan and Vision

15. This report aligns with Our Community Plan 2021-2025 strategic priority:
Healthy, caring and inclusive community.

16. This report aligns with the Community led 30-year Vision, “Greater Geelong: A Clever and Creative Future” community aspiration:
An inclusive, diverse, healthy and socially connected community.

Conflict of Interest

17. No officer involved in the preparation of this report declared a general or material conflict of interest.

Risk Assessment

18. The finalisation and endorsement of the strategy will not be possible without the draft strategy being released for public exhibition as proposed.

19. At the time of release, the draft strategy includes the City of Greater Geelong within the G21 membership group. Noting membership with the G21 will cease in April 2024. Identified priorities within the draft strategy for the City will not change because of cessation of membership and will remain relevant for the duration of the strategy.

Environmental Sustainability

20. The development of any new and upgraded facilities will need to consider the City's Sustainability Framework and Universal Design Principles.

Attachments

1. G 21 Regional Football Strategy 2023-2033 - Final Draft - April 2023 [**2.3.1** - 51 pages]

G21
GEELONG REGION ALLIANCE

G21 REGIONAL FOOTBALL (SOCCER) STRATEGY

2023-2033

DRAFT REPORT

FOOTBALL VICTORIA
Surf COAST SHIRE
GOLDEN PLAINS SHIRE
Colac Otway SHIRE
CITY OF GREATER GEELONG

G21
GEELONG REGION ALLIANCE

ACKNOWLEDGEMENT OF COUNTRY

In the spirit of Reconciliation, Football Victoria acknowledges the Traditional Custodians of Country throughout Australia and their connections to land, sea and community. We pay our respect to their Elders past, present and emerging, and extend that respect to all First Nations Peoples today.

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FOREWORD

Football Victoria are delighted to introduce the G21 Regional Football Strategy, which outlines the region's vision and roadmap for the development and growth of football over the next decade. This updated strategy takes into account the latest Football Victoria and Football Australia strategic frameworks, and focuses on key areas such as Female Football, Facilities & Infrastructure, the Fair Access Policy, Club & Game Development, and other critical factors across the G21 Football Community.

"Football is more than just a sport; it brings people together, fosters a sense of community, and promotes physical activity and mental wellbeing."

The G21 region has a rich football history, and this strategy builds on that legacy by providing a clear direction and plan for the future. The region is home to many talented players, coaches, administrators, and volunteers, and this strategy aims to support them in achieving their potential and to create an environment where football can thrive.

"The updated strategy places a strong emphasis on Women & Girls Football, which has experienced significant growth in recent years leading into the 2023 FIFA Women's World Cup hosted in Australia & New Zealand."

We recognise the need to provide equal opportunities and support for women and girls in football, and this strategy outlines specific initiatives to achieve this goal. The strategy also includes the implementation of the new Fair Access Policy, which ensures that football is accessible to everyone regardless of their background, abilities, or circumstances.

"In 2023, Football in the G21 Region is expected to see more participants than ever before. At present, our registrations are 18% higher than they were in 2022."

The COVID-19 pandemic has had a significant impact on community sport, and the football community has not been immune to this impact. The pandemic has presented unprecedented challenges for clubs, players, coaches, and administrators. Nevertheless, the football community has shown resilience and adaptability in responding to these challenges, and this updated strategy recognises the need to build on these strengths.

The Geelong Football Community is made up of a diverse range of clubs, including both those with an entrenched community history and newer clubs that have been formed in the region's growth corridors, and this strategy recognises the importance of supporting these clubs to grow and develop in a sustainable way.

The strategy also recognises the significant population growth being experienced in the G21 Region. As the region grows and evolves, it is essential that the football community continues to meet the changing needs and expectations of the community.

"The strategy provides a roadmap for the development of football that is responsive, adaptable, and sustainable."

Finally, this strategy recognises that football is constantly evolving, and we must adapt and respond to changes in the wider football landscape. The strategy takes into account the latest Football Victoria and Football Australia strategy documents and seeks to align our region's priorities with those of the wider football community.

In conclusion, I would like to thank everyone who has contributed to the development of this strategy, including the G21 Geelong Region Alliance, Local Government Representatives, Football Victoria Staff, our Community Partners, Clubs, and the broader Geelong Football Community. The G21 Regional Football Strategy provides a clear direction and plan for the future of football in our region, and I am excited to see the positive impact it will have on our community.

Sincerely,
Lachlan Cole
Head of Growth & Development
Football Victoria

EXECUTIVE SUMMARY

INTRODUCTION

By 2033, Football in the G21 Region has a vision to be united, diverse, inclusive and focused on growing all facets of the sport alongside its clubs, partners and community.

The 2012 G21 Football (Soccer) Strategy saw significant outcomes in facility investment and participation growth. The Strategy requires updating to ensure the sport and its stakeholders can respond to emerging trends and changing environmental influences.

Football in the G21 region has

5,600
PARTICIPANTS
+2,300 since 2015

+114%
INCREASE IN FEMALE PARTICIPATION
since 2015

25%
OF ALL PARTICIPANTS ARE FEMALE
in 2022

Football in G21 is well placed to leverage its popularity alongside forecasted population increases – a recipe to see the sport continue to thrive. The 2023–2033 Strategy provides the pathway for the future needs of football and futsal and ensures a collaborative approach and collective voice moving forward.

The Strategy builds on the priorities that Football Victoria are already working towards, including:

- A 50/50 gender equity in football goal by 2027
- The directions within the Football Victoria Facilities Strategy to 2026
- Football Victoria's Strategic Plan
- Football Victoria's Vision for Women & Girls

The Strategy's implementation will include undertaking continuous monitoring and a formal annual review of its progress.

Five key priorities that will have the greatest impact on football participation in the G21 region by 2033.

- Delivery of the Armstrong Creek West Active Open Space including Sub-Regional Football Facility
- Improved quality of existing football pitches
- Improved quality of all gender change rooms for players and referees
- More training and support for the recruitment, development and retention of coaches, referees and volunteers
- Greater access to indoor facilities for futsal
- Greater promotion and delivery of programs to support all ages, genders, abilities and cultures

OUR G21 FOOTBALL JOURNEY

The 2012 G21 Regional Football (Soccer) Strategy was established to guide the development and delivery of football and futsal to 2022.

This included a rationale for the future of facilities, participation opportunities and collaborative approaches to working with stakeholders and funding partners.

A regional approach to planning continues to benefit all stakeholders, with significant investment being secured since the initial Strategy's inception. Football Victoria recognises the contributions made to date, particularly by G21 Local Government Authorities and the Victorian Government.

To 2033, the refreshed G21 Regional Football Strategy will assist in addressing:

- A changing, diverse and growing population forecast, seeing the G21 region experience areas of exponential growth, as well as pockets of stagnation.
- Participation increases, particularly within designated growth areas, creating greater demand for facilities for training, games and events.
- Greater demand for data driven, prioritised investment, particularly within the current economic climate and alongside competing demands.
- Participation trends and demand for social and flexible formats of the game, including futsal.
- COVID-19 recovery and the impact on community sport including the attraction and retention of players, volunteers, coaches and referees.

Key outcomes and achievements of the 2012 Strategy

37
Football infrastructure projects completed

>80%
Strategic actions completed or underway

114%
Increase in female football participation

$54M
Investment in G21 football facility infrastructure

70%
Increase in overall football participation

48%
Growth in junior football (<18yo) participation

THE G21 REGION: A SNAPSHOT

The G21 Region offers the best of regional, rural and coastal lifestyles and will see strong population growth between 2023 and 2033.

The G21 Region encompasses the following LGAs and their respective geographic areas:

- City of Greater Geelong
- Surf Coast Shire
- Golden Plains Shire
- Colac Otway Shire
- Borough of Queenscliffe

368,891
2023 – G21 region population

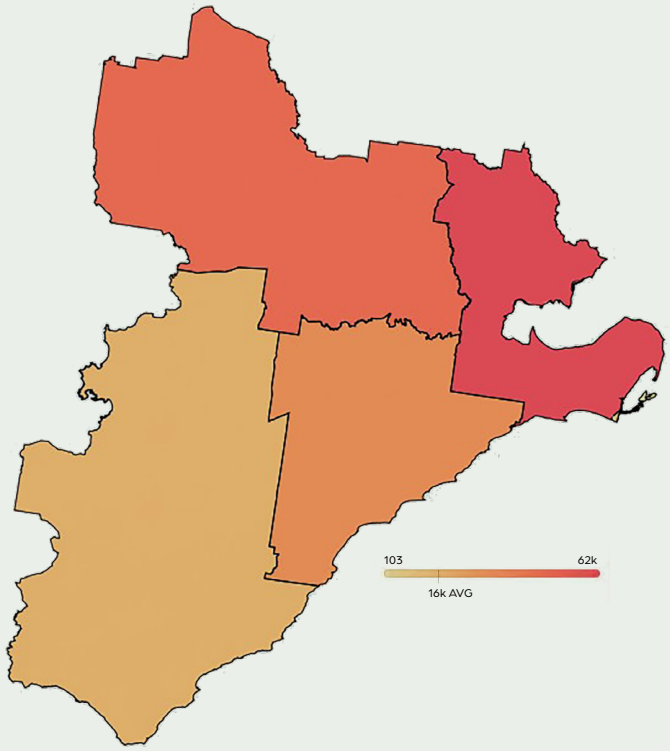
408,609
2028 – G21 region population
+39,718 from 2023

453,373
2033 – G21 region population
+84,482 from 2023

25-39
Largest G21 region age cohort 2023

3 out of 5 G21 LGAs (City of Greater Geelong, Surf Coast Shire and Golden Plains Shire) appear in the top 10 fastest growing Victorian municipalities.

Source: www.population.gov.au



WHAT IS INFLUENCING THE NEW STRATEGY

Many factors are influencing the 2023-2033 G21 Regional Football Strategy that require a coordinated response. These influences have been identified via the activities associated with the delivery of this report and through extensive stakeholder consultation.

PARTICIPATION GROWTH

Forecasted participation growth will see more than 1,500 additional football and futsal players over the next 10 years. A high proportion of participants will be female, with a goal to achieve 50/50 gender representation by 2027.

In some instances, participation growth in the region is inhibited by a lack of football facilities. The delivery of new, and activation of existing venues presents the opportunity to increase greater than forecasted participation outcomes.

POPULATION CHANGES

80,000 additional people are expected to reside in the G21 region by 2033. A high proportion of these people will be aged within the key demographic for organised sport.

DIVERSITY & INCLUSION

The strategic drivers of government and sport continue to evolve however both have an underpinning objective to create more inclusive and welcoming environments for all genders and all abilities.

To enable this, key focus areas for sport and government include:

- Increasing women and girls participation
- Multi-use and multi-generational facilities
- Fair and equal access to facilities
- Prioritising investment where it's needed most
- Collaborative investment partnerships
- Increasing opportunities for participation by people of all abilities, genders and cultural identities

CLUB AND GAME SUSTAINABILITY

Through consultation, the following issues were identified as being critical to football's success and sustainability within the G21 region, including:

- Attracting and retaining volunteers
- Attracting, retaining and developing coaches
- Attracting, retaining and developing referees
- A review of the current competition structure
- Improving the connection between football and futsal

FACILITY PROVISION AND DELIVERY

- Consultation and facility audits identified that 36% of existing football pitches in the G21 region are considered to be in 'poor' condition.
- A lack of multi-pitch facilities, including those with hybrid and synthetic surfaces, limits the region's ability to attract events and tournaments.
- There is an uneven distribution of football facilities across the region seeing a high concentration of venues in the north, and limited venues in the south and west.
- In most G21 municipalities there is a deficit in football pitches when considered against best practice population to provision ratios.

ADVOCACY, LEGACY & PROMOTION

With major events including the FIFA 2023 Women's World Cup and the 2026 Commonwealth Games upcoming, football has significant opportunity to work with its partners in capitalising on participation, marketing and infrastructure opportunities that will be as a direct result or as part of the legacy of these events.

THE STRUCTURE OF G21 FOOTBALL

Football in G21 is delivered via Football Victoria, the sport's peak body, alongside the Geelong Region Football Committee who are an official advisory group.

The G21 region football consists of 21 clubs competing across several competitions including "National Premier League (NPL) and State League at senior levels, Junior Boys & Girls National Premier League (JBNPL & JGNPL) at junior levels, and via the local community competitions at senior and junior levels.

Football Victoria is responsible for the administration, promotion and delivery of football and presently have one full-time staff member, among a broader team of centralised staff, who oversee the coordination of all regional football activities.

The Geelong Region Football Committee is an official advisory group consisting of volunteer membership. Presently, the GRFC consists of one elected representative from each eligible G21 region football club. The GRFC's role is to provide advice to FV on regional matters, as well as advocate to government for improved outcomes for football.

Geelong Futsal is an independent organisation who is affiliated with Football Victoria and considered the preferred provider of futsal within the region. Geelong Futsal has one full time staff member as well as numerous casual staff who support the program's delivery. At present, there is one futsal competition within the region.

FOOTBALL VICTORIA

- Administration
- Promotion
- Delivery of football
- Support for delivery of futsal
- Delivery of schools programs
- Delivery of referee and coaching training

FOOTBALL VICTORIA
GEELONG REGION

GEELONG REGION FOOTBALL COMMITTEE

- Advisory Committee of Football Victoria
- Promotion and development of football
- Advocacy body to government on behalf of G21 region football clubs

FUTSAL GEELONG

GEELONG FUTSAL

- A recognised provider delivering futsal competitions who are affiliated with Football Victoria

INFRASTRUCTURE PRIORITIES BY LGA

G21 LGA PRIORITIES FOR FOOTBALL

As the land owners and managers of most grassroots sporting facilities, Local Government Authorities (LGAs) are integral stakeholders to football. They are also key partners in the production and implementation of the G21 Regional Football Strategy. A summary of football in each LGA, including high level strategic priorities are outlined on the following pages.

The summaries include what is considered the key infrastructure focus areas for each municipality to 2033. These priorities should be considered against the regional strategic framework on page 19 and its implementation guide on page 27.

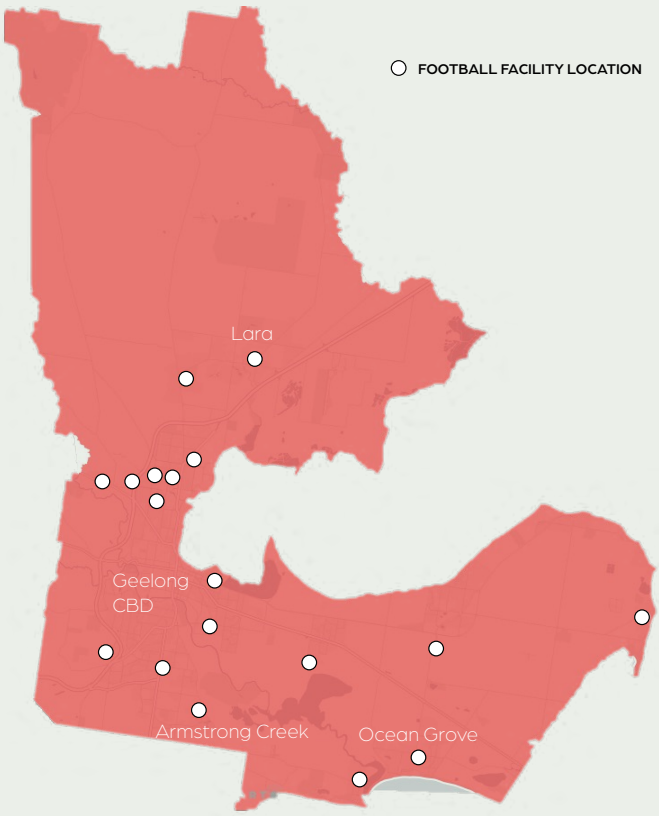
Further information regarding LGA population forecasts and participation forecasts, facility condition and provision information can be found within the Appendices section of this report.

City of Greater Geelong

Population (2023): **280,450**
Population forecast (2033): **342,706**
5–39 y.o change (2023–33): **+28,828**
Existing Sites/Pitches: **18 sites / 40 pitches**
Football & futsal participation (2022): **5,252**
Futsal & futsal participation (2033): **5,690**
Current football pitch to population ratio*: **1 : 7,011**

KEY INFRASTRUCTURE PRIORITIES TO 2033

1. Deliver the Armstrong Creek West Active Open Space Sub-Regional Football Facility
2. Improve the quality and capacity of existing football pitches where shortfalls exist
3. Improve the quality of player and referee change facilities so that they are suitable for all genders
4. Provide and/or facilitate access to existing indoor facilities to support increased participation in futsal
5. Activate new and existing sites for football where provision shortages exist, and demand necessitates, particularly within designated growth areas



Note: pitch to population ratio used is based on benchmarking, best practice and from G21 LGA's preferences.
Standard pitch to population ratio is considered to be 1 : 5,000

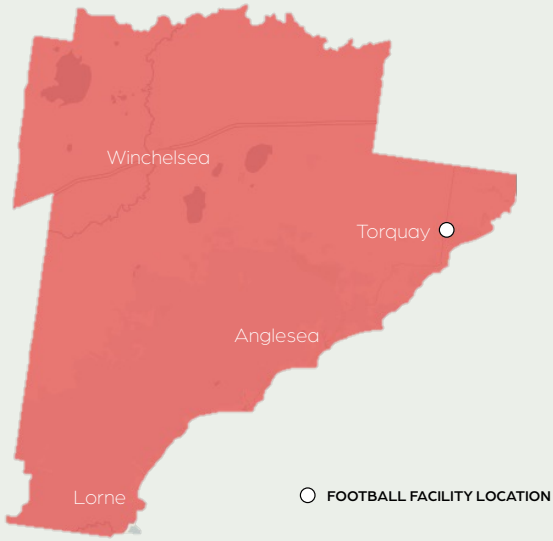
Population and demographic data for the City of Greater Geelong, Golden Plains Shire and Colac Otway Shire sourced from forecast.id. Surf Coast Shire sourced from REMPLAN. Borough of Queenscliffe sourced from Victoria in Future (2019)

Surf Coast Shire

Population (2023): **37,694**
Population forecast (2033): **49,774**
5–39 y.o change (2023–33): **+3,413**
Existing Sites/Pitches: **1 site / 3 pitches**
Football & futsal participation (2022): **583**
Football & futsal participation (2033): **698**
Current Football Pitch to Population ratio*: **1 : 11,610**

KEY INFRASTRUCTURE PRIORITIES TO 2033

1. Support opportunities for increased participation in football, and if demand exists, consider options to activate existing recreation reserves for new clubs within Surf Coast Shire
2. Provide and/or facilitate access to existing indoor facilities to support increased participation in futsal
3. Support regional advocacy for the Armstrong Creek West Active Open Space Sub-Regional Football Facility

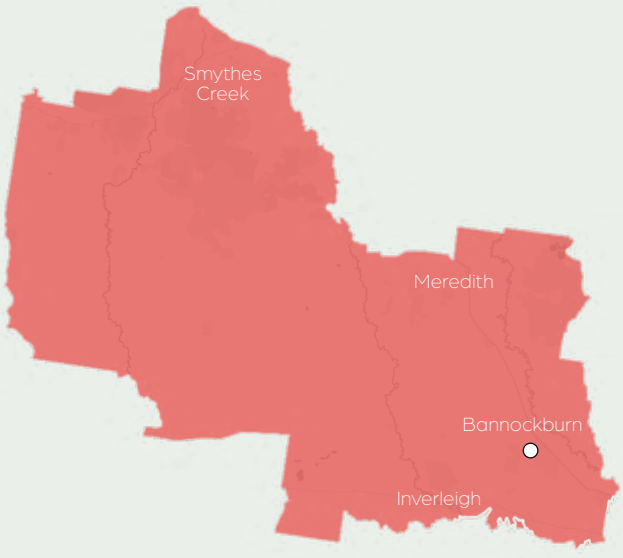


Golden Plains Shire

Population (2023): **24,943**
Population forecast (2033): **32,800**
5–39 y.o change (2023–2033) **+3,834**
Existing Sites/Pitches: **1 site / 2 pitches**
Football & futsal participation (2022): **481**
Football & futsal participation (2033): **615**
Current Football Pitch to Population ratio*: **1 : 12,472**

KEY INFRASTRUCTURE PRIORITIES TO 2033

1. Activate a new recreation reserve within Golden Plains Shire to support more football participation
2. Provide and/or facilitate access to existing indoor facilities to support increased participation in futsal
3. Support regional advocacy for the Armstrong Creek West Active Open Space Sub-Regional Football Facility



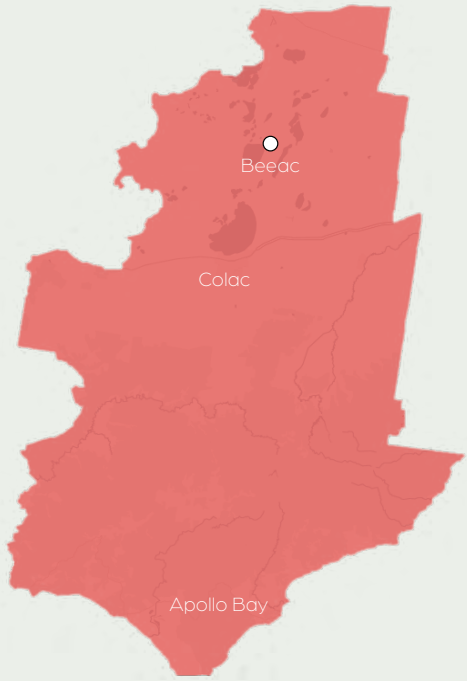
Note: pitch to population ratio used is based on benchmarking, best practice and from G21 LGA's preferences. Standard pitch to population ratio is considered to be 1 : 5,000

Colac Otway Shire

Population (2023): **22,471**
Population forecast (2033): **24,657**
5–39 y.o change (2023–33): **+777**
Existing Sites/Pitches: **1 site / 1 pitch**
Football & futsal participation (2022): **64**
Football & futsal participation (2033): **70**
Current Football Pitch to Population ratio*: **1 : 22,471**

KEY INFRASTRUCTURE PRIORITIES TO 2033

1. Plan and deliver infrastructure to enable greater provision of multi-use football facilities to meet current and future demand for training and competition in the Colac area
2. Provide and/or facilitate access to existing indoor facilities to support increased participation in futsal
3. Improve the quality and capacity of existing football pitches and player and referee change facilities where shortfalls exist
4. Support regional advocacy for the Armstrong Creek West Active Open Space Sub-Regional Football Facility



Borough of Queenscliffe

Population (2023): **3,333**
Population forecast (2033): **TBC**
Existing Sites/Pitches: **None**
Football & futsal participation (2022): **56**
Football & futsal participation (2033): **60**
Current Football Pitch to Population ratio*: **0 : 3,037**

KEY INFRASTRUCTURE PRIORITIES TO 2033

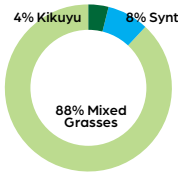
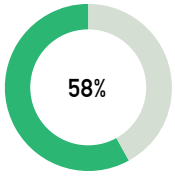
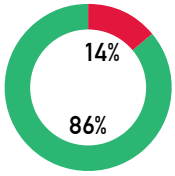
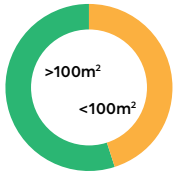
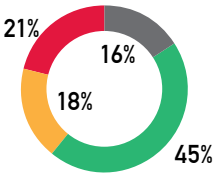
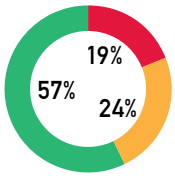
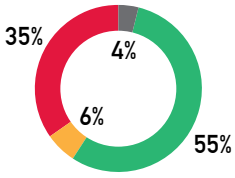
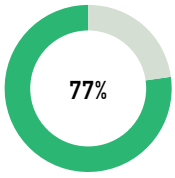
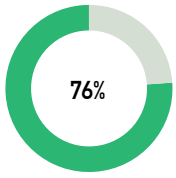
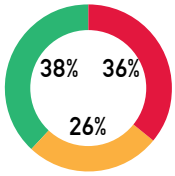
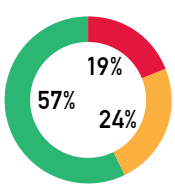
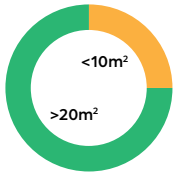
1. Support regional advocacy for the Armstrong Creek West Active Open Space Sub-Regional Football Facility

Note: pitch to population ratio used is based on benchmarking, best practice and from G21 LGA's preferences. Standard pitch to population ratio is considered to be 1 : 5,000

FACILITIES & PARTCIPATION REPORT CARD

G21 FOOTBALL FACILITIES: CONDITION SNAPSHOT

A summary of G21 football facility condition is provided below. A summary of individual venues can be found in the Appendices section of this report.

Sites	Playing Fields	Change Facilities	Pavilion/Referee Rooms
21 Sites	 Pitch surface types	**28** Player change rooms	**24** Pavillions
40 Playing fields	 Irrigation	 Player change size compliance	 Social room size compliance
1:9,143 Region population to pitch ratio	 Drainage	 Player change shower type	**18** Referee change rooms
1:140 Region participant to pitch ratio	 100+ Lux playing field lighting	 Gender neutral player change	 Gender neutral referee change
Indicates provision does not meet or is below requirements Indicates provision meets requirements however limitations identified Indicates provision meets or exceeds requirements Indicates that accurate assessment could not be obtained "	 Overall condition of playing field	 Overall condtion	 Referee size compliance

G21 PARTICIPATION SNAPSHOT

Football

Since the initial G21 Strategy, football participation in the G21 region has increased significantly. The following snapshot is a summary of (resident[1]) football participation from 2015 to 2022. Individual LGA participation summaries can be found in the Appendices section of this report.

5,600
G21 football participants in 2022

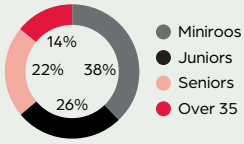
+70%
Overall participation growth 2015 to 2022

+114%
Female participation growth 2015 to 2022

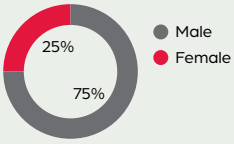
+62%
Additional Miniroos (0–11 year olds) 2015 to 2022

48
Football referees in 2022

65%
Of participants in 2022 are juniors (i.e. <18 years old)



Age cohort participant % in 2022



Male/female participant % in 2022

1. Resident participation – all known participants living in the G21 Region and participating in football anywhere.

G21 PARTICIPATION SNAPSHOT

Futsal

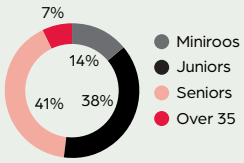
A summary of current futsal participation in the G21 region is provided below. Individual LGA participation summaries can be found can be found in the Appendices section of this report.

865
Futsal participants in 2022

1,450
Average number of annual participants from 2016 to 2022
Excluding seasons 2020 and 2021 which were heavily impacted due to COVID-19.

7%
Female futsal participation in 2022

21 years
Average age of futsal participant in 2022



Age cohort participant % in 2022

52%
Of futsal participants are aged under 18 in 2022

STRATEGIC FRAMEWORK

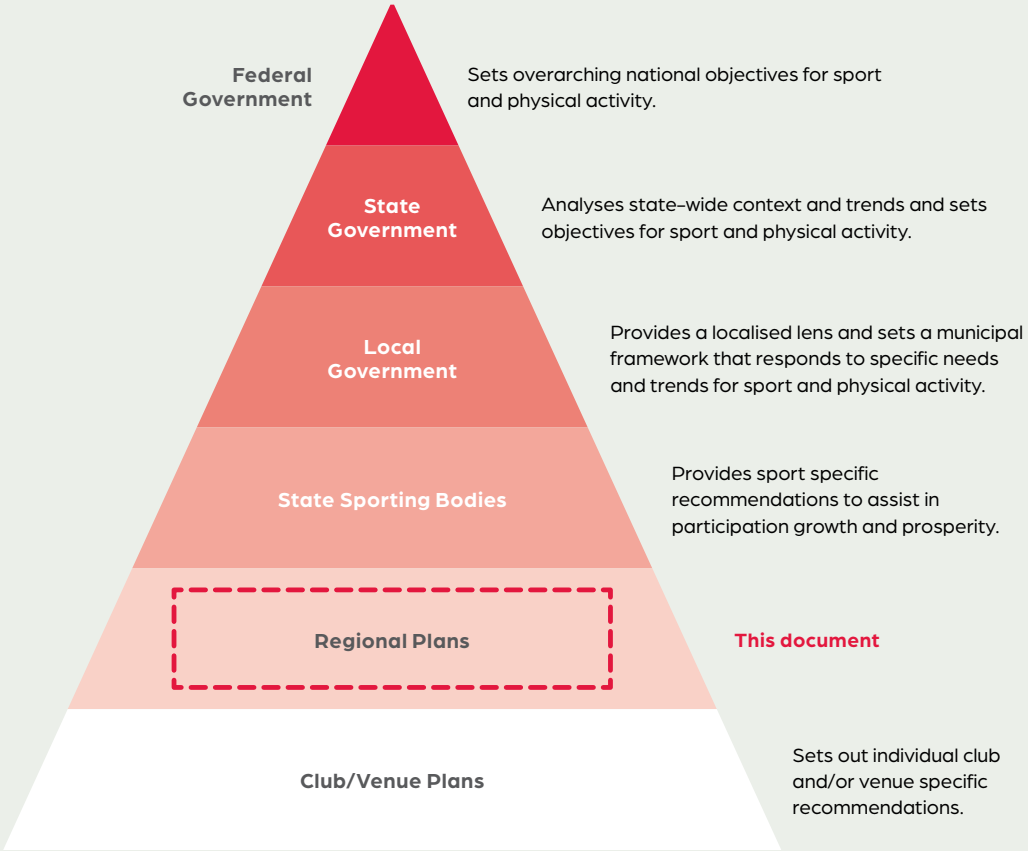
THE BENEFITS OF A REGIONAL PLAN FOR FOOTBALL

A regional sports plan plays an integral role in the hierarchy of strategic documents for key stakeholders and partners.

A regional plan incorporates the strategic directions of all levels of government, along with the objectives of relevant peak sporting bodies to set specific, achievable and measurable recommendations.

Utilising relevant data, insights and consultation, a regional plan provides project stakeholders with a clear vision and strategy for the collaborative delivery of sport over a 10 year period. Engaging a range of partners enables coordinated, well planned and equitable investment in programming and infrastructure.

The G21 Regional Football Strategy will not provide infrastructure development cost estimates or a proposed capital works program. These will continue to be developed at the discretion of LGAs, in consultation with users, pending analysis of identified facility gaps, venue usage requirements and available investment opportunities.



FOOTBALL AND GOVERNMENT POLICY OBJECTIVES

The following themes and directions of government and sport will support the vision and priorities for G21 football to 2033

National, State and Local Government objectives for sport

Attract, retain, grow and sustain participation in sport and physical activity

The provision of, and equal access to, fit for purpose, safe sustainable and inclusive infrastructure

Inspire and encourage women and girls' participation in non-traditional sport settings

Proactively plan for growth and demand

Drive collaboration in investment and delivery

Enhance the quality and availability of participation data

Drive asset utilisation and demonstrate responsible financial management

Football Victoria objectives for football and futsal

50/50 gender equity goal by 2027

Creating an inclusive, welcoming and diverse game

Expanding football's footprint and engagement with schools

Advocating and support for providing fit-for-purpose facilities

Establishing and continually improving relationships with government

Increasing the exposure of football and futsal and leveraging opportunities through major events i.e. FIFA WWC23

Utilise and improve data collection methods to drive decision making and monitor trends

G21 Football's Vision and Priorities 2023-2033

Vision

Football in the G21 region is united, diverse and inclusive. We are focused on growing all facets of football alongside our clubs, partners and community.

Priorities

1. **CLUB DEVELOPMENT**
   Grow a diverse and sustainable G21 football community
2. **FACILITIES & INFRASTRUCTURE**
   Plan and deliver functional, sustainable and fit for purpose football facilities
3. **GAME DEVELOPMENT**
   Implement initiatives to deliver programs, competitions, events and pathways for all
4. **ENGAGEMENT & PROMOTION**
   Increase the engagement and promotion of football to inspire and ignite participation
5. **PARTNERSHIPS & COLLABORATION**
   Work with our partners to advocate, support and deliver football across the region

STRATEGIC PRIORITY 1: CLUB DEVELOPMENT

Focus areas

Grow a diverse and sustainable G21 football community

- We will support our affiliates to attract and retain volunteers as the lifeblood of not-for-profit clubs and organisations.
- We will educate and support our clubs to be better equipped in their management and operations.
- We will strive to achieve our 50/50 gender equity goal by 2027.
- We will support clubs to become more inclusive through more programs and opportunities for people of all abilities, genders and cultural identities.
- We will support our clubs in the development of strategies that assist them to deliver our combined objectives.
- We will work with our partners to develop participation strategies in areas of growth and decline.
- We will deliver formats of football that appeal to a broad cross section of the community.

Key Actions for Strategic Success

1. Support clubs to access resources that improve volunteer attraction and retention.
2. Leverage Football's Legacy 23 volunteer planning following the 2023 FIFA Women's World Cup.
3. Request that clubs undertake the Football Australia Game Changer Club Development Program on an annual basis. Monitor results to create support and development programs.
4. Partner with Regional Sports Assemblies to deliver targeted training and club education workshops.
5. Support clubs in funding applications that directly impact and improve outcomes in inclusion, equity, access, participation, sustainability and diversity.
6. Continue to drive female participation growth in the region by supporting specific club-led female initiatives and programs.
7. Work with LGA partners to identify support mechanisms needed to deliver participation strategies in areas of growth and/or decline.
8. Support the activation of additional and/or existing football facilities in the Surf Coast Shire, Colac Otway Shire and Golden Plains Shire to drive participation growth.

STRATEGIC PRIORITY 2:
FACILITIES & INFRASTRUCTURE

Focus areas

Plan and deliver functional, sustainable and fit for purpose football facilities

- We will advocate for inclusive and modern facilities that support the diversity of participants attracted to the game.
- We will support our LGA partners to understand needs and gaps in facility provision, and where infrastructure is needed most.
- We will address the demand for sub-regional/regional football facilities.
- We will advocate for increased access to indoor facilities to support the growth of futsal.
- We will leverage the legacy of 2026 Commonwealth Games infrastructure.
- We will support clubs and LGAs in the development and implementation of the Fair Access Policy to create equitable usage of infrastructure for women and girls.

Key Actions for Strategic Success

1. Advocate for continued investment into creating more sustainable football facilities including improved playing surfaces, sports lighting and change rooms.
2. Support the ongoing planning and development of sub-regional/regional football facilities. The Armstrong Creek West Active Open Space facility is seen as the immediate priority. The provision of future sub-regional/regional facilities should include a focus on the provision of pitches with hybrid and synthetic surfaces.
3. Support LGAs to roll out the Victorian Government's Fair Access Policy.
4. Partner with LGAs to advocate for 2026 Commonwealth Games infrastructure that can support football and futsal post-Games.
5. Identify and advocate for new or improved local football facilities that support population and participation growth. This includes investigation into the provision of pitches with hybrid or synthetic surfaces to promote greater use and function.
6. Activate existing suitable indoor facilities for futsal. Noting a preference for indoor facilities that are accessible and suitable for wheelchair participation.
7. Assist clubs to deliver venue improvement plans for local football venues that outline collaborative infrastructure priorities.
8. Continue to utilise the Sports Facility Auditor program to collect annual facility information to analyse facility development progress, performance and need.

STRATEGIC PRIORITY 3: GAME DEVELOPMENT

Focus areas

Implement initiatives to deliver programs, competitions, events and pathways for all.

- We will provide more support, training and development for existing and prospective coaches and referees to ensure a high standard across the region, and to assist in attraction and retention.
- We will review the current G21 football competition structure to ensure there are opportunities for players to access every level of the game.
- We will deliver more programs that enhance participation opportunities for people of all cultures, abilities and genders.
- We will support futsal to expand their programs into new LGAs to drive participation outcomes.
- We will increase our footprint in local schools to continue to promote and introduce new people to the game.
- We will support our talented players by increasing the visibility of the pathway into NPL and semi-elite competition.
- We will create more positive game day environments through club and spectator education.

Key Actions for Strategic Success

1. Increase the number of training and development opportunities for coaches across the region.
2. Review findings and recommendations within Football Victoria's Optimal Referee Model Review and identify opportunities to further support the recruitment and retention of referees.
3. Review the existing football competition structure with a view to address key issues.
4. In conjunction with Action 2.5 (see Implementation Guide) support the trialling of futsal in existing indoor centres to increase the exposure and availability of flexible and social formats of the game.
5. Increase FV's focus and resourcing to drive school engagement via the FV Schools Program.
6. Increase FV's focus to deliver programs that support participation outcomes for all abilities, gender and cultures (see Implementation Guide for further detail).
7. Position the G21 region as the preferred location for significant football events.
8. Enhance the education and awareness of positive on and off field behaviours on game day. Provide an avenue to report and escalate incidents.

STRATEGIC PRIORITY 4: ENGAGEMENT & PROMOTION

Focus areas

Increase the engagement and promotion of football to inspire and ignite participation.

- We will leverage promotional opportunities associated with the FIFA 2023 Women's World Cup to energise and encourage female football participation.
- We will seek out and improve cross-promotional opportunities for football and futsal.
- We will develop an annual state of play report for the G21 region to monitor participation trends, track strategy implementation and highlight achievements.

Key Actions for Strategic Success

1. Develop a marketing plan in partnership with the GRFC to understand how to best promote football across the region .
2. Leverage promotional and potential funding opportunities associated with the FIFA 2023 Women's World Cup.
3. Work with the GRFC and Geelong Futsal to cross-promote both sports.
4. Undertake an annual state of play report in consultation with stakeholders to illustrate and monitor participation trends, investment outcomes, strategy implementation and ongoing priorities.

STRATEGIC PRIORITY 5: PARTNERSHIPS & COLLABORATION

Focus areas

Work with our partners to advocate, support and deliver football across the region.

- We will identify Football Victoria's regional staffing requirements and deliver additional resources as required.
- We will continue to partner with stakeholders to advocate for football, and be co-ordinated and united in our approach to leveraging investment and grant funding opportunities.
- We will host an annual G21 LGA football forum to strengthen our partnerships and improve communication.
- We will identify support mechanisms for the GRFC.

Key Actions for Strategic Success

1. Prioritise the delivery of additional Football Victoria human resource requirements throughout the G21 region where shortfalls are identified.
2. Utilise the Strategy as a vehicle to enhance communication with stakeholders to ensure a collaborative approach to investment.
3. Create an annual G21 LGA football forum to strengthen partnerships, communicate priorities and understand regional and local issues.
4. Continue to support the GRFC as the voice of G21 region football clubs. Ensure that the GRFC is resourced to assist in the Strategy's delivery as an official committee of FV.

IMPLEMENTATION GUIDE

HOW WILL THE STRATEGY BE DELIVERED?

The Strategy will rely on its partners and stakeholders to help deliver key actions. The following organisations are considered critical to the Strategy's implementation and success.

FOOTBALL VICTORIA

Football Victoria will play a lead role in the Strategy's implementation, including:

- Coordinating, delivering, supporting and evaluating actions.
- Convening and facilitating stakeholder groups to engage, interpret and prioritise actions.
- Identifying investment opportunities and resources to leverage external funding opportunities.
- Advocating to all levels of government for support to achieve the Strategy's objectives.
- Collaborating with LGAs in the delivery of actions where identified.

G21 LOCAL GOVERNMENT AUTHORITIES

- Support Football Victoria in the delivery of actions where identified
- Continue to be responsible for the management and delivery of identified recreation reserves including the coordination of new infrastructure within greenfield sites.
- Incorporate the directions and actions, where appropriate, into other relevant LGA strategies and policies.
- Identifying investment opportunities and resources to leverage external funding opportunities.

GEELONG REGION FOOTBALL COMMITTEE

- Support Football Victoria in the Strategy's implementation where identified.
- Continue to advocate for the needs of football in line with the Strategy's directions.
- Continue to be the conduit between G21 football clubs and Football Victoria.

REGIONAL SPORTS ASSEMBLIES

- Help create more welcoming and diverse sporting environments.
- Support to deliver club capacity building initiatives including education.

VICTORIAN GOVERNMENT

- Provide investment opportunities to help deliver the Strategy and its actions.
- Guide LGAs and FV in policy development through identifying trends for sport and recreation.
- Promote the benefits of the Strategy and be involved in the Strategy's evaluation.

G21 FOOTBALL CLUBS & COMMUNITY

- Continue to deliver club related activities
- Support the delivery of the initiatives outlined within the Strategy where identified

IMPLEMENTATION GUIDE

STRATEGIC PRIORITY 1: CLUB DEVELOPMENT

Grow a diverse and sustainable G21 football community

TIMEFRAMES

Short	0–3 years
Medium	3–5 years
Long	5+ years

No.	Recommendation	Timeframe	Frequency	Deliverer	Supporter
1.1	Create awareness of existing resources, such as those on www.clubhelp.org.au that offer templates and guides to assist clubs with volunteer attraction and retention strategies.	Short	Annually	FV	GRFC, Leisure Networks, Clubs Sports Central
1.2	Utilise Football Australia and Football Victoria's 'Legacy 23' project which aims to connect 2023 FIFA WWC volunteers to local clubs.	Short	2023	FV	GRFC, Clubs
1.3	Request that clubs undertake annual health checks utilising the Football Australia Game Changer Club Development Program. Monitor results to assist with creating content for Action 1.4.	Short	Annually	FV	GRFC, Clubs
1.4	Partner with Regional Sports Assemblies to deliver targeted training and bi-annual club education workshops that address gaps and issues identified from Action 1.3.	Short–Medium	Bi-annually	Leisure Networks, Sports Central, FV	GRFC, Clubs
1.5	Support the delivery of participation programs that remove barriers for women and girls, culturally diverse communities, young people, First Nations people, LGBTIQ+ community older adults and people with a disability. Deliver in conjunction with Action 4.3	Short–Medium	Annually	FV	GRFC, Clubs
1.6	Communicate funding opportunities and support clubs in applications that directly impact and improve outcomes in inclusion, equity, access, sustainability and diversity.	Ongoing	As required	FV	GRFC, LGAs, Victorian Government
1.7	Work with LGA partners to identify support mechanisms needed to deliver participation strategies in areas of growth and/or decline. Assist LGAs in mapping the establishment and distribution of new clubs particularly in urban growth areas.	Medium	As required	FV, LGAs	GRFC
1.8	Support the activation of additional and/or existing football facilities in the Surf Coast Shire, Colac Otway Shire and Golden Plains Shire (see Action 2.5, 2.6 & 2.7) to drive participation growth.	Medium–Long	As required	FV, LGAs	Victorian Government, GRFC

STRATEGIC PRIORITY 2: FACILITIES & INFRASTRUCTURE

Plan and deliver functional, sustainable and fit for purpose football facilities

TIMEFRAMES

Short	0–3 years
Medium	3–5 years
Long	5+ years

No.	Recommendation	Timeframe	Frequency	Deliverer	Supporter
2.1	Advocate for continued investment into creating more sustainable football facilities including improved pitch surfaces (including alternate surface types), drainage and LED lighting as well as inclusive, all gender player and referee facilities (see page 47 for current venue condition audits). Advocate to LGAs to enhance or create cyclical upgrade programs (where appropriate) and contribute to a works plan of pitch improvements.	Ongoing	Ongoing	FV, LGAs	GRFC, Victorian Government
2.2	Partner with the City of Greater Geelong to support the ongoing planning, development and advocacy for sub-regional and regional football facilities. The Sub-Regional Football Facility within the Armstrong Creek Active Open Space precinct is seen as an immediate short term priority to support football participation in the region. A future Armstrong Creek facility will be a multi-pitch, multi-use facility capable of accommodating a range of different sports. This facility will investigate the viability of synthetic and hybrid surfaces to improve programmability and usage.	Short-Medium	Ongoing	FV, City of Greater Geelong	Victorian Government, LGAs, GRFC
2.3	Partner with LGAs to advocate for 2026 Commonwealth Games infrastructure that can support football and futsal usage post-Games, particularly within the City of Greater Geelong.	Short	Ongoing	FV, LGAs, City of Greater Geelong	Victorian Government
2.4	Support LGAs to roll out the Victorian Government's Fair Access Policy through club education and support, as well as fixturing assistance.	Short-Medium	Ongoing	LGAs, Victorian Govt.	FV, Clubs
2.5	Work with the City of Greater Geelong to deliver new, and increase access to existing facilities where shortfalls in football pitch provision is identified (see Appendices on page 49)	Medium-Long	Ongoing	FV, City of Greater Geelong	Victorian Government
2.6	In line with participation projections, explore opportunities to activate an additional existing site for football within the southern corridor of Surf Coast Shire when demand necessitates.	Short-Medium	As required	FV, Surf Coast Shire	Victorian Government

STRATEGIC PRIORITY 2: FACILITIES & INFRASTRUCTURE (CONTINUED)

Plan and deliver functional, sustainable and fit for purpose football facilities

TIMEFRAMES

Short	0–3 years
Medium	3–5 years
Long	5+ years

No.	Recommendation	Timeframe	Frequency	Deliverer	Supporter
2.7	Support the delivery of multi-use football facilities to meet current and future demand for training and competition in the Colac area of Colac Otway Shire	Medium–Long	As required	FV, Colac Otway Shire	Victorian Government, GRFC
2.8	Support the activation of a new football facility in Golden Plains Shire to service increasing demand. Preference should be afforded to a site within the Bannockburn area as the main population centre.	Medium	As required	FV, Golden Plains Shire	Victorian Government, GRFC
2.9	Activate suitable indoor facilities for futsal within the City of Greater Geelong including the reactivation of Corio Leisuretime Centre. Work with the City of Greater Geelong to create opportunities for futsal to be expanded into other indoor venues, particularly within the Armstrong Creek area.	Short	Ongoing	FV, Geelong Futsal, City of Greater Geelong	GRFC
2.10	Trial futsal within suitable indoor facilities within Surf Coast Shire, Colac Otway Shire and Golden Plains Shire. These facilities may include Bluewater, Wurdi Baierr Stadium and Bannockburn YMCA.	Short–Medium	Ongoing	FV, Geelong Futsal	Surf Coast Shire, Colac Otway Shire, Golden Plains Shire
2.11	Assist clubs to deliver venue improvement plans for local football venues that have identified infrastructure gaps. The venue improvement plans should be delivered in collaboration with LGAs to outline mutual infrastructure priorities and opportunities for investment in line with FV's facility development guidelines.	Medium–Long	Ongoing	FV, Clubs	LGAs, Clubs
2.12	Continue to utilise the Sports Facility Auditor program to undertake annual audits to monitor facility development progress, performance and need.	Annually	Annually	FV	LGAs

STRATEGIC PRIORITY 3: GAME DEVELOPMENT

Implement initiatives to deliver programs, competitions, events and pathways for all

TIMEFRAMES
Short 0–3 years
Medium 3–5 years
Long 5+ years

No.	Recommendation	Timeframe	Frequency	Deliverer	Supporter
3.1	Increase the number of training and development opportunities for coaches across the region and ensure these are affordable and accessible. Goal to increase number of registered coaches by 25%.	Annually	Annually	FV	GRFC
3.2	Review findings and recommendations within Football Victoria's Optimal Referee Model Review, and identify opportunities to further support the recruitment and retention of referees. Work with Geelong Futsal to identify where football referees can also be trained for futsal and vice versa. % growth target for referees?	Short	2023	FV	Geelong Referee Association, GRFC, Geelong Futsal
3.3	Review the existing football competition structure with a view to address key issues such as negating extensive travel requirements, retention of players not succeeding at NPL level, female participation, all abilities participation and reduction of affiliation fees.	2023 - 2024	As required	FV	GRFC
3.4	In conjunction with Action 2.9 & 2.10 support the trialling of futsal in existing indoor centres to increase the exposure and availability of flexible and social formats of the game.	Short-Medium	As required	FV, Geelong Futsal	GRFC, LGAs
3.5	Increase FV's focus and resourcing to drive school engagement via the FV Schools Program. Ensure these programs drive linkages into local clubs. Goal to deliver 50 programs annually.	Short-Medium	Annually	FV	GRFC, Clubs, Dept. of Education
3.6	In conjunction with Action 1.5 deliver programs that enhance and increase participation opportunities for all. This includes more uptake in programs such as GoFutsal, GoProud (LGBTIQ+), GoDeadly (First Nations), GoSoccerMums, Walking Football.	Short	As required	FV	GRFC, LGAs
3.7	Position the G21 region as the preferred location for significant football events. Events include, but are not limited to, CLFA Country Championships Tournament, FV SAP Gala Day, FV TIDC Gala Day, Geelong Community Cup etc.	Ongoing	As required	FV	GRFC

STRATEGIC PRIORITY 4: ENGAGEMENT & PROMOTION

Increase the engagement and promotion of football to inspire and ignite participation

TIMEFRAMES

Short	0–3 years
Medium	3–5 years
Long	5+ years

No.	Recommendation	Timeframe	Frequency	Deliverer	Supporter
4.1	Develop a marketing plan to outline an approach to the promotion of football across the region (including for players, referees and coaches). Aim to publicise football as the sport of choice, and highlight information on how to get involved.	Short–Medium	As required	FV	GRFC
4.2	Consider utilising local football social media channels with existing followings as part of marketing activities. Increase visibility and promotion of the GRFC	Short	As required	FV	GRFC
4.3	Leverage promotional and potential funding opportunities associated with the FIFA 2023 Women's World Cup that target female participation. Support the development of a calendar of events, in conjunction with the timing of the WWC that are specific for females only across the region.	Short	2023–2024	FV	GRFC, LGAs
4.4	Work with the GRFC and Geelong Futsal to cross-promote both sports. Enhance local content on playfootball.com.au as the central point that connects the community to football and its providers. Identify the best club and organisation representatives that are equipped to field enquiries and who can buddy/mentor potential participants.	Short–Medium	As required	FV	GRFC, Geelong Futsal
4.5	Undertake an annual state of play report in consultation with GRFC, LGAs, Geelong Futsal and Leisure Networks to illustrate and monitor participation trends, investment outcomes, Strategy implementation and ongoing priorities	Short	Annually	FV	GRFC, LGAs, Geelong Futsal, Leisure Networks

STRATEGIC PRIORITY 5: PARTNERSHIPS & COLLABORATION

Work with our partners to advocate, support and deliver football across the region

TIMEFRAMES
Short 0–3 years
Medium 3–5 years
Long 5+ years

No.	Recommendation	Timeframe	Frequency	Deliverer	Supporter
5.1	Football Victoria Executive and staff undertake an environmental scan of the G21 region and its associated human resources. Identify any shortfalls and develop business cases for additional support.	Short–Medium	As required	FV	GRFC
5.2	Formalise engagement methods between FV, GRFC and Geelong Futsal to strengthen partnerships and increase collaboration	Ongoing	Immediate	FV	GRFC, Geelong Futsal
5.3	Deliver an annual G21 Local Government forum which brings together key football stakeholders and LGA staff. Forum topics include G21 Strategy implementation progress, annual facility audit findings (see Action 2.12), regional and local football issues and opportunities.	Ongoing	Immediate	FV	GRFC, LGAs
5.4	Work with the GRFC and Geelong Futsal to cross-promote both sports. Enhance local content on playfootball.com.au as the central point that connects the community to football and its providers. Identify the best club and organisation representatives that are equipped to field enquiries and who can buddy/mentor potential participants.	Short–Medium	As required	FV, Geelong Futsal, GRFC	LGAs
5.5	Undertake quarterly(?) meetings with the GRFC as a way of sharing information, understanding current operational and strategic issues and monitoring G21 Strategy implementation.	Ongoing	Quarterly	FV	GRFC

APPENDICES

FACILITY DEVELOPMENT OPPORTUNITIES

Football Victoria's facility development guidelines recommend a range of initiatives to increase the capacity of venues, improve financial and environmental sustainability and ensure facilities attract diversity in participation. The following design trends are recommended to be strongly considered in the upgrade, redevelopment or provision of new football facilities in the G21 region.

INCLUSIVE CHANGE FACILITIES

Change facility design has improved to provide spaces that support all participants and officials. The Football Victoria Building Development Guide outlines inclusive design principles for community facilities, including the provision of private spaces to shower and change, replacing urinals with toilet cubicles and improvements to safety and security.

While the growth in female participation has accelerated the need to rethink change facility design, the provision of inclusive change facilities benefits all users.

SYNTHETIC AND HYBRID PLAYING SURFACES

Synthetic and Hybrid playing surfaces have become a viable option to increase facility capacity, particularly in areas of high facility use and limited green space availability. Established population areas are generally good candidates for the use of synthetic surfaces, as they can cater for up to three times the use of natural turf.

Football Victoria has an established synthetic surfaces program that outlines the technical requirements for synthetic playing fields.

MODULAR BUILDING CONSTRUCTION

Growing participation is putting pressure on existing facilities and increasing the need to find new venues. The emergence of modular building construction provides an opportunity to deliver new change and pavilion facilities in a timely and cost effective manner, whilst still meeting recommended design standards.

Modular construction provides opportunities to expand existing building footprints to cater for growth, as well as increasing options for new venues to be established efficiently.

ENVIRONMENTAL SUSTAINABILITY

Improvements in facility design are allowing more efficient use of resources and decreasing environmental impacts. Water re-use systems, drought tolerant turf, LED sports lighting and solar panels are now becoming standard components within community football facilities.

Ongoing improvements to the environmentally sustainable design of facilities will be vital in managing the ongoing impacts that climate change will have on community football.

STAKEHOLDER ENGAGEMENT SUMMARY

Engagement with the G21 region football community has aimed to understand current challenges, issues and opportunities to help inform future priorities.

The football stakeholder survey opened between September and October 2022.

The survey received 22 responses.

Key feedback from the survey is outlined below and on the subsquent page.

What our football community told us:

"The lack of referee numbers is a huge factor in our region"

"Volunteers are scarce and eventually are burnt out and lost to many clubs"

"Not enough sub/regional pitches and venues, as well as synthetic surfaces when turf gets muddy or water logged"

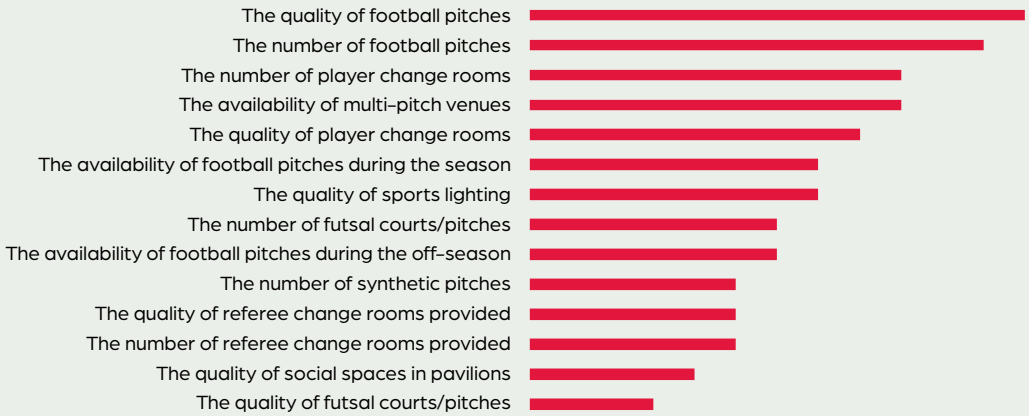
'Many clubs need more pitches or better quality pitches with improved drainage"

"We need to recruit and retain coaches to increase participation. This is also true for the volunteer base to run clubs"

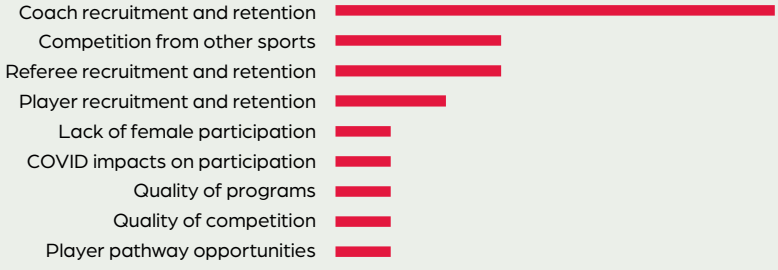
"Not enough help for smaller clubs with facility upgrades, marketing or fundraising"

FOOTBALL STAKEHOLDER SURVEY SUMMARY

Highest dissatisfaction rating of football infrastructure according to G21 football clubs



Greatest challenges for G21 football clubs outside of infrastructure



Needs for football over the next 10 years according to G21 football clubs

1. More football pitches
2. Improved quality of existing pitches
3. Participation growth and development
4. A regional/sub-regional facility
5. Referee and coach attraction and retention
6. Competition structure and development
7. Improved club infrastructure
8. More promotion and marketing of G21 football

FOOTBALL PARTICIPATION SUMMARY - BY LGA

The following participation trends have been identified through the analysis of data provided by Football Victoria. The summary also includes an overview of participant age groups, gender and penetration rates (i.e. participation/population).

LGA	2022 PARTICIPANT AGE				2022 - Total	2022 - Male	2022 - Female	2022 Penetration Rate	Change From Season 2021-2022	Change From Season 2015-2022	(%) Change From Season 2015-2022
	Miniroos (0-11)	Juniors (12-18)	Seniors (19-35)	Over 35's							
Colac-Otway	19	14	26	2	61	57	4	0.27%	+3	-5	-8%
Golden Plains	235	136	59	34	464	353	111	1.88%	+26	+335	+260%
Greater Geelong	1,599	1,203	1,062	639	4,503	3,384	1,115	1.64%	+314	+1,805	+67%
Surf Coast	224	151	74	67	516	351	165	1.37%	+56	+153	+80%
Queenscliffe	26	17	1	12	56	37	19	1.73%	+9	+25	+81%
TOTAL	**2,103**	**1,521**	**1,222**	**754**	**5,600**	**4,182**	**1,414**	**1.58%***	**+408**	**+2,313**	**+70%**
							Victorian average penetration rate	1.18%			

FOOTBALL PARTICIPATION SUMMARY - BY LGA

The table below outlines the trends in football participation in each G21 LGA from 2015 to 2022.

The tables summarise participation data in two different formats, being:

1 – **RESIDENT PARTICIPATION** – Participants who live in G21 but participate anywhere.

2 – **CLUB PARTICIPATION** – Participants who play at clubs within the municipality and live anywhere (either within or outside of the region).

Understanding both data sets will assist in formulating participation insights including player migration within and outside of individual LGAs and the broader region.

Resident Participation

LGA	2015 TOTAL	2016 TOTAL	2017 TOTAL	2018 TOTAL	2019 TOTAL	2020 TOTAL	2021 TOTAL	2022 TOTAL
Colac-Otway	66	70	63	52	41	32	58	61
Golden Plains	129	148	152	158	200	490	438	464
Greater Geelong	2698	2982	3172	3269	3523	4052	4189	4503
Surf Coast	363	375	421	401	399	426	460	516
Queenscliffe	31	39	36	39	45	39	47	56
TOTAL	**3,287**	**3,614**	**3,844**	**3,919**	**4,208**	**5,039**	**5,192**	**5,600**
Annual % change	-	+10%	+6.4%	+2%	+7.4%	+19.7%	+3%	+7.9%

Club Participation

LGA	2015 TOTAL	2016 TOTAL	2017 TOTAL	2018 TOTAL	2019 TOTAL	2020 TOTAL	2021 TOTAL	2022 TOTAL
Colac-Otway	69	69	59	41	41	36	73	57
Golden Plains	89	159	161	150	150	407	329	352
Greater Geelong	2780	3037	3235	3377	3377	3967	4225	4527
Surf Coast	407	433	468	439	439	333	420	481
Queenscliffe	N/A – No football clubs located within the municipality							
TOTAL	**3,345**	**3,698**	**3,923**	**4,007**	**4,280**	**4,743**	**5,047**	**5,417**
Annual % change	-	+10.6%	+6%	+2.1%	+6.8%	+10.8%	+6.4%	+7.3%

FOOTBALL PARTICIPATION PROJECTIONS 2023 – 2033

Participation in football is projected to grow by an additional 1,282 players and 88 teams by 2033.

Assumptions around future forecasts have been made based on the current penetration rate of each LGA remaining the same to 2033. Should this change, the forecast will be subject to fluctuation.

The table below shows that player numbers will increase by approximately 1,282 players and 88 teams by 2033. This is based on an average team size of 15 players. This average team size is a typical number, considered in the context that players under 11 years of age are likely to be part of a Miniroos offering (i.e. not team based) and participants over the age of 50, for example, may take part in a walking football version of the game.

The City of Greater Geelong's population forecast is estimated to see an additional 60,000 residents over the next 10 years. Within the municipality there are 15 individual planning areas. To provide a more accurate understanding of these future football participation forecasts, a breakdown of each planning area has been provided on page 49.

LGA	POPULATION			FORECASTED ADDITIONAL PARTICIPANTS AND TEAMS					
	2023	2028	2033	2028 – Additional participants	2028 – Additional teams	2033 – Additional participants	2033 – Additional teams	If +1% On Current Pen. Rate: 2028 Additional Participants	If +1% On Current Pen. Rate: 2033 Additional Participants
Colac–Otway	22,471	23,515	24,657	+3	0	+6	0	+235	+247
Golden Plains	24,943	27,540	32,800	+48	+3	+146	+10	+275	+328
Greater Geelong	280,450	311,298	342,706	+495	+33	+1,000	+67	+3,113	+3,427
Surf Coast	37,694	43,173	49,774	+75	+5	+165	+11	+432	+498
Queenscliffe	3,333	3,400	3,436	-4	0	+2	0	+31	+34
TOTAL	**368,891**	**408,926**	**453,373**	**+603**	**+41**	**+1,282**	**+88**	**+4,086**	**+4,534**

FUTSAL PARTICIPATION SUMMARY

Overall Futsal Participation Summary

	2016 TOTAL	2017 TOTAL	2018 TOTAL	2019 TOTAL	2020 TOTAL	2021 TOTAL	2022 TOTAL
TOTAL	1,685	1,782	1,500	1,459	468	345	865
Annual % change	-	+5.8%	-16%	-2.7%	-68%	-26.3%	+150%

Futsal Participation Forecast

	2022 Penetration Rate	2028 Additional participants	2033 Additional Participants	If +0.5% On Current Pen. Rate: 2028 Additonal Participants	If +0.5% On Current Pen. Rate: 2033 Additional Participants
TOTAL	0.24%	+126	+237	+1,077	+1,195

2022 G21 LGA Futsal Player Breakdown

Colac-Otway	Golden Plains	Greater Geelong	Surf Coast	Queenscliffe	Other (outside of G21)
3	17	749	67	4	25

UNDERSTANDING FACILITY PROVISION

Facility provision ratios within this section of the report are used as a guide to assist in understanding the potential capacity of existing facilities, as well as identifying any shortfalls or overprovision.

These ratios cannot be used as a standalone measurement however and must be considered amongst other influencing factors such as:

- The proximity and geographical spread of sporting infrastructure
- Population demographics and activity preferences
- Localised demand for sport
- Facility access and/or ownership limitations
- Condition of existing assets and their level of capacity

RATIOS

The following ratios have been used as a guide to inform the Strategy:

Pitch to population ratio (1 : 5,000) – this ratio has been derived from reviewing relevant G21 LGA documentation that note provision ratios for football, as well as benchmarking of several LGAs across metropolitan, regional and rural Victoria.

Pitch to player ratio (1 : 170) – this ratio assists to understand how demand for pitches can change based on participation levels as opposed to population alone. Within this report, the pitch to player ratio has been applied to both resident and club participation given there is evidence of player migration which may influence the analysis. This ratio has been identified as a best practice approach as is indicative only.

ANALYSIS OF EXISTING FOOTBALL FACILITIES

Existing facilities included in the venue analysis (see page 47) are those which have been identified as 'Tier 1 (i.e. NPL venues)' and 'Tier 2 (i.e. community venues') only. This report does not consider venues used for training, overflow or potential future venues.

FOOTBALL FACILITIES RATING SUMMARY (BY LGA)

The following section provides individual facility assessment scores by LGA. The below ratings outline subsequent scores.

- Indicates core provision strongly aligns with all requirements
- Indicates core provision does not meet or is below requirements

CLUB ROOM FACILITIES RATINGS

MAIN PAVILION (out of 10)	
Excellent condition (as new)	10
Good condition (some wear)	8
Moderate condition (considerable wear but still comfortable for users)	6
Poor (multiple quality issues identified)	4
Very poor (multiple quality issues identified, and immediate intervention required)	2
Unable to provide accurate assessment	0

CHANGE ROOMS (out of 10 for main home and away change facility)	
Excellent condition (as new)	10
Good condition (some wear)	8
Moderate condition (considerable wear but still comfortable for users)	6
Poor (multiple quality issues identified)	4
Very poor (multiple quality issues identified, and immediate intervention required)	2
Unable to provide accurate assessment	0

GENDER NEUTRAL/FEMALE FRIENDLY (score provided for home and away change facility)	
Yes – Gender Neutral compliance (including pan toilets, cubicle showers and a safe, modern	2
No – Gender Neutral compliance (facility does not meet above standards)	0

MATCH OFFICIALS' FACILITIES (out of 10 for main and secondary (if applicable match officials' facilities)	
Excellent condition (as new)	10
Good condition (some wear)	8
Moderate condition (considerable wear but still comfortable for users)	6
Poor (multiple quality issues identified)	4
Very poor (multiple quality issues identified, and immediate intervention required)	2
Unable to provide accurate assessment	0

GENDER NEUTRAL/FEMALE FRIENDLY – Match Officials Facilities	
Yes – Gender Neutral compliance (including pan toilets, cubicle showers and a safe, modern	2
No – Gender Neutral compliance (facility does not meet above standards)	0

Indicates core provision strongly aligns with all requirements

Indicates core provision does not meet or is below requirements

PITCH RATINGS

DRAINAGE SCORE (out of 4)	
Drainage in good condition – operating and efficient	4
Drainage functional but requires improvement	2
Drainage system present but dysfunctional	1
No drainage provided	0
Unable to make accurate assessment	0

IRRIGATION SCORE (out of 2)	
Automatic irrigation system	2
Synthetic surface (no irrigation required)	2
Hose or manual system	1
No irrigation	0
Unable to make accurate assessment	0

IS THERE A CRICKET WICKET ON THE PLAYING FIELD	
No	2
Yes	0

PITCH CONDITION (out of 10)	
Excellent condition (as new)	10
Good condition (some wear)	8
Moderate condition (considerable wear but still playable)	6
Poor (multiple quality issues identified)	4
Very poor (multiple quality issues identified, and immediate intervention required)	2
Unable to provide accurate assessment	0

SPORTS LIGHTING (out of 20)	
500+ lux	20
300–499 lux	15
200–299 lux	12
150–199 lux	10
100–149 lux	8
50–99 lux	6
Less than 50 lux	4
Lighting provided but unable to provide accurate assessment	0
No lighting provided	0

OVERALL RATINGS

	CLUB ROOMS TOTAL RATING	PITCHES TOTAL RATING	RECOMMENDATION
Low	0–20	0–10	Major shortfalls in infrastructure identified. Immediate planning and investment required.
Moderate	21–30	10–25	Some shortfalls in infrastructure identified. Short term planning and investment required.
High	30–40	25–30	Infrastructure mostly meets requirements. Minor improvements may be required.
Very High	40+	30+	Infrastructure is meeting requirements. Continue to monitor performance.

FOOTBALL FACILITIES RATING SUMMARY – CLUB ROOMS (BY LGA)

	Rate overall condition of the home change room facilities	Is the home change room suitable for all-gender use? Yes = 2 No = 0	Rate overall condition of the away change room facilities	Is the away change room suitable for all-gender use? Yes = 2 No = 0	Rate overall condition of main match official change room facilities	Is the main match officials' change room suitable for multi-gender use? Yes = 2 No = 0	Rate overall condition of secondary match officials' change room facilities	Is the secondary match officials' change room suitable for all-gender use? Yes = 2 No = 0	Rate overall condition of general facilities within the main clubroom	**TOTAL** (Maximum total score for club room facilities = 58)
CITY OF GREATER GEELONG										
Armstrong Creek East	10	YES	10	YES	10	YES	10	YES	10	58
Barwon Heads Village Park	4	YES	4	YES	0	0	0	0	6	18
Bell Park Sports Club^	2	NO	2	NO	2	NO	2	NO	10	18
Deakin University*	8	YES	8	YES	2	NO	4	NO	0	26
Drysdale Sport Precinct	6	YES	6	YES	6	YES	0	0	6	30
Elcho Park*	10	YES	8	YES	6	YES	0	0	8	38
Estuary Reserve	10	YES	10	YES	10	YES	10	YES	10	58
Evans Reserve	4	YES	4	YES	2	YES	0	0	6	22
Grovedale Recreation Reserve	8	YES	8	YES	10	YES	0	0	8	40
Howard Glover Reserve	2	NO	2	NO	2	NO	0	0	4	10
Hume Reserve	10	YES	10	YES	10	YES	0	0	10	46
Lara Reserve	10	YES	8	YES	8	YES	0	0	10	42
Leisuretime Centre	10	YES	10	YES	0	0	0	0	0	24
Myers Reserve	6	YES	6	YES	6	YES	4	YES	8	38
Shell Road Reserve	8	YES	8	YES	8	YES	0	0	8	38
St Leonards Lake Reserve	8	YES	8	YES	6	YES	0	0	8	36
Stead Park	8	YES	8	YES	6	NO	0	0	10	36
White Eagle House*	2	NO	2	NO	2	NO	0	0	4	10
SURF COAST SHIRE										
Banyul Warri Fields	8	YES	6	YES	8	YES	8	YES	8	46
GOLDEN PLAINS SHIRE										
Bannockburn Rec Reserve	8	YES	8	YES	8	YES	8	YES	8	50
COLAC OTWAY SHIRE										
Beeac Recreation Reserve*	4	NO	4	NO	0	0	0	0	6	14

* indicates non-Council owned facility. ^ Indicates change room redevelopment currently underway at the time of writing the report.

FOOTBALL FACILITIES RATING SUMMARY - PITCHES (BY LGA)

	PITCH 1						PITCH 2					
	Drainage score	Irrigation score	Does the Pitch have centre cricket wicket Yes = 2 No = 0	Rate overall playing surface condition	Provide sports lighting rating	**TOTAL** Maximum total score for = 38	Drainage score	Irrigation score	Does the Pitch have centre cricket wicket Yes = 2 No = 0	Rate overall playing surface condition	Provide sports lighting rating	**TOTAL** Maximum total score for = 38
CITY OF GREATER GEELONG												
Armstrong Creek East	1	2	0	4	0	7	1	2	0	4	6	13
Barwon Heads Village Park	2	0	0	2	6	10	-	-	-	-	-	-
Bell Park Sports Club	2	2	2	4	4	14	4	2	2	4	4	16
Deakin University	4	0	2	8	12	26	-	-	-	-	-	-
Drysdale Sport Precinct	2	2	2	6	8	20	2	2	2	6	8	20
Elcho Park	4	2	2	8	8	24	2	2	2	8	6	20
Estuary Reserve	1	2	2	2	8	15	2	2	0	4	0	8
Evans Reserve	4	0	0	4	10	18	4	2	0	4	10	20
Grovedale Recreation Reserve	4	2	2	4	8	20	2	2	2	4	8	18
Howard Glover Reserve	1	2	2	6	4	15	0	0	2	4	0	6
Hume Reserve	4	2	2	8	8	24	4	2	2	8	8	24
Lara Reserve	4	2	2	8	8	24	4	2	2	8	8	24
Leisuretime Centre	4	0	2	10	12	28	-	-	-	-	-	-
Myers Reserve	2	0	2	6	8	18	4	0	0	6	8	18
Shell Road Reserve	0	0	2	4	8	14	0	0	2	4	8	14
St Leonards Lake Reserve	1	0	0	4	10	15	-	-	-	-	-	-
Stead Park	4	2	2	10	12	30	4	2	2	10	12	30
White Eagle House*	0	1	2	2	4	9	0	1	2	2	4	9
SURF COAST SHIRE												
Banyul Warri Fields	4	2	2	6	12	26	4	2	2	6	15	29
GOLDEN PLAINS SHIRE												
Bannockburn Rec Reserve	4	2	2	8	8	24	4	2	2	8	8	24
COLAC OTWAY SHIRE												
Beeac Recreation Reserve*	0	0	0	4	0	4	-	-	-	-	-	-

* indicates non-Council owned facility. ^ Indicates change room redevelopment currently underway at the time of writing the report.

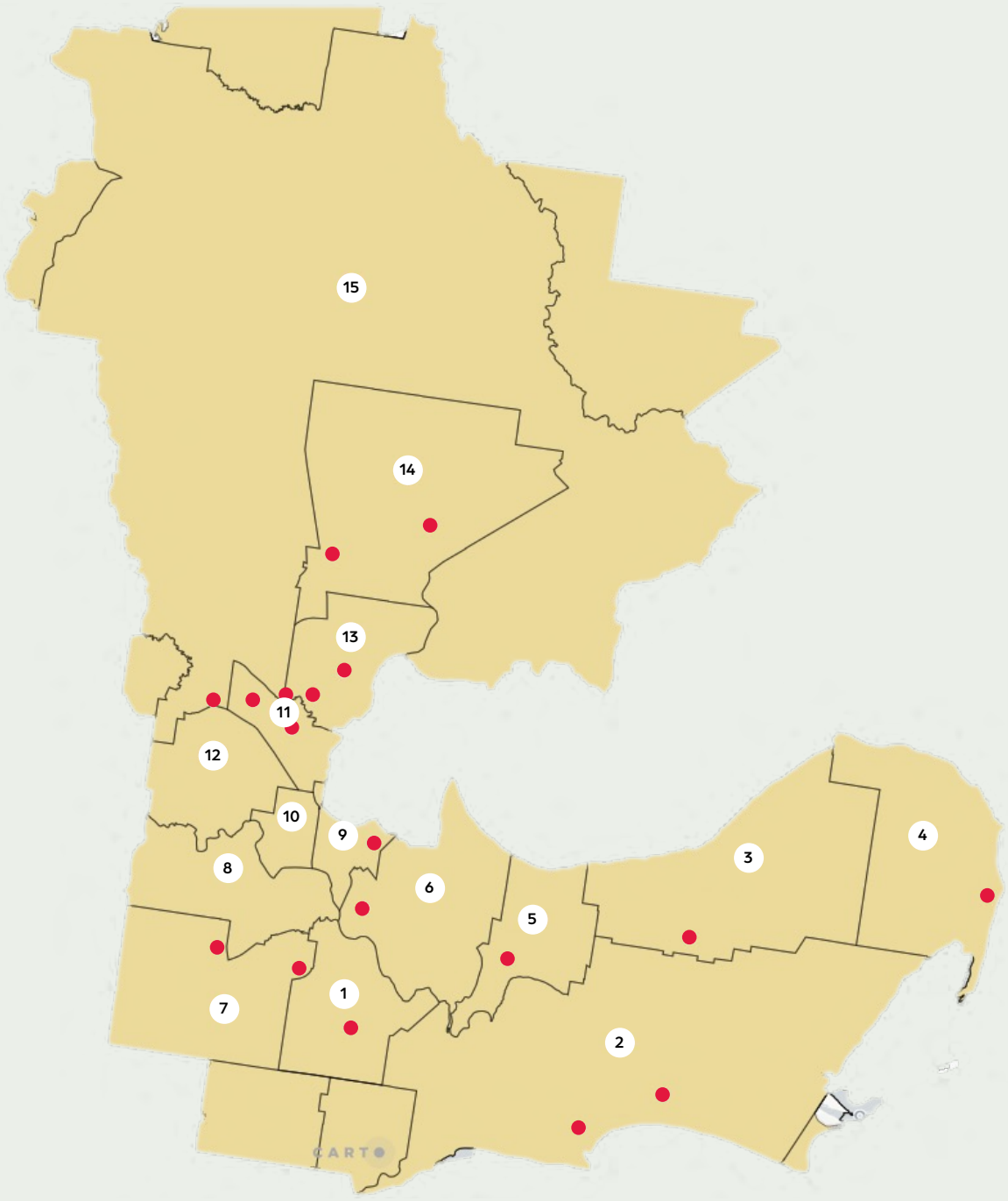
CITY OF GREATER GEELONG – PARTICIPATION AND PROVISION FORECAST BY PLANNING AREA

	Planning Area number	2023 Population	2028 Population	2033 Population	No. of playing fields	2022 No. of players	2022 Penetration rate	2022 Player to Pitch ratio (1 : 170)	2023 Population to Pitch ratio (1 : 5,000)	2028 No. of players	Additional players 2022–2028	Additional teams in 2028	Pitch gap / surplus in 2028 by players*	Pitch gap / surplus in 2028 by population*	2033 No. of participants	Additional players 2022–2033	Additional teams in 2033	Pitch gap/surplus in 2033 by players*	Pitch gap/ surplus in 2033 by population*
Armstrong Creek, Marshall – Charlemont	1	17093	26737	34866	2	400	2.34%	1 : 200	1 : 8547	626	226	15	–2	–3	816	416	28	–3	–5
Barwon Heads – Connewarre – Breamlea, Ocean Grove, Rural Bellarine Peninsula	2	26567	28870	30148	3	560	2.11%	1 : 187	1 : 8856	609	49	3	–1	–3	635	75	5	–1	–3
Clifton Springs, Curlewis, Drysdale – Bellarine	3	18664	21105	24298	2	329	1.76%	1 : 165	1 : 9332	372	43	3	0	–2	428	99	7	–1	–3
Portarlington, St Leonards – Indented Head	4	8604	9636	10674	1	133	1.55%	1 : 133	1 : 8604	149	16	1	0	–1	165	32	2	0	–1
Leopold	5	13533	14659	16100	2	188	1.39%	1 : 94	1 : 6767	204	16	1	1	–1	224	36	2	1	–1
Newcomb – Moolap, St Albans Park, Thomson – Breakwater, Whittington	6	18696	19222	19710	3	194	1.04%	1 : 65	1 : 6232	199	5	0	2	–1	205	11	1	2	–1
Grovedale, Mount Duneed, Waurn Ponds	7	26915	32289	35722	4	764	2.84%	1 : 191	1 : 6729	917	153	10	–1	–2	1014	250	17	–2	–3
Belmont, Highton – Wandana Heights – Ceres	8	40318	41904	43015	0	115	0.29%	0	0	120	5	0	–1	–8	123	8	1	–1	–9
East Geelong, Geelong – South Geelong – Drumcondra	9	12484	13542	15110	2	322	2.58%	1 : 166	1 : 6242	349	27	2	0	–1	390	68	5	0	–1
Geelong West – Manifold Heights, Newtown	10	21293	21770	22455	0	112	0.53%	0	0	115	3	0	–1	–4	118	6	0	–1	–4
Bell Park, Bell Post Hill, North Geelong – Rippleside	11	15633	16931	19689	6	486	3.11%	1 : 81	1 : 2606	526	40	3	3	3	612	126	8	2	2
Hamlyn Heights, Herne Hill – Fyansford	12	11556	12658	13996	0	281	2.43%	0	0	308	27	2	–2	–3	340	59	4	–2	–3
Corio, Norlane – North Shore	13	25741	26500	27155	7	318	1.24%	1 : 45	1 : 3677	327	9	1	5	2	335	17	1	5	2
Lara	14	18646	19897	21239	5	134	0.72%	1 : 27	1 : 3729	143	9	1	4	1	153	19	1	4	1
Lovely Banks – Batesford – Moorabool, Rural North	15	4706	5575	8528	3	167	3.55%	1 : 56	1 : 1569	198	31	2	2	2	303	136	9	1	1

Note: the above pitch provision analysis should be considered (in some locations) in the context of the current ownership of football venues. Non-Council owned venues (see page 47) may see limited public access and therefore greater publicly accessible pitches are required.
* Provision gap/surplus analysis based on existing number of football pitches remaining the same.

MAP OF CITY OF GREATER GEELONG

● City of Greater Geelong existing football facilities



FOOTBALL VICTORIA

inside EDGE
sport and leisure planning

2.4. Northern and Western Geelong Growth Areas - Strategic Assessment

Source: **Planning and Design**
Executive Director: **Gareth Smith**

Cr Kontelj declared a Conflict of Interest in Item 2.4 Northern and Western Geelong Growth Areas – Strategic Assessment in that at least one of the developers of this area (McCann) is a customer of the business of which Cr Kontelj is a Director and left the meeting room prior to discussion at 7.42pm.

Purpose

1. To seek endorsement to release the draft Environment Protection and Biodiversity Conservation (EPBC) Plan and Strategic Assessment Report (SAR) prepared for the Northern and Western Geelong Growth Areas (NWGGA) strategic assessment under the Commonwealth *EPBC Act 1999* for public consultation.

Background

2. In January 2022, the City entered an agreement with Commonwealth Department of Climate Change, Energy, the Environment and Water (DCCEEW) to undertake a strategic assessment under Part 10 of the *EPBC Act.* The assessment is to consider the impacts to Matters of National Environmental Significance (MNES) from development in the Northern Geelong Growth Area and the two northern most precincts in the Western Geelong Growth Areas.

Key Matters

3. The Northern and Western Geelong Growth Areas (NWGGA) will provide for Geelong's future housing needs and be home to 110,000 people. To ensure that there is a strategic approach to the protection of biodiversity values in the growth area, the City is leading a strategic assessment.

4. The City has prepared a draft EPBC Plan **(Attachment 1)**. The EPBC Plan:
   - 4.1 Describes the development (classes of actions) that approval is being sought;
   - 4.2 Sets out outcomes and commitments to define what the plan will achieve;
   - 4.3 Sets out a conservation framework to address the impacts of the development on MNES, through avoiding and minimising, mitigating and offsetting residual impact; and
   - 4.4 Sets out an assurance and implementation framework.

5. The SAR **(Attachment 2)** demonstrates how the requirements of the agreement and terms of reference for the impact assessment have been undertaken to fulfil the requirements of the Australian Government.

6. The EPBC Plan is supported by three implementation documents:
   - 6.1 Commitments and Measures **(Attachment 3)**;
   - 6.2 Biodiversity Conservation Strategy (BCS) **(Attachment 4);** and
   - 6.3 Funding Program **(Attachment 5)**.

7. The *EBPC Act* requires that public consultation be undertaken to inform the final EBPC Plan and SAR before being considered by the federal environment minister for endorsement.

RESOLUTION - Item 2.4

Cr Mason moved, {seconder} seconded -

That Council endorse the release of the draft Environment Protection and Biodiversity Conservation Plan, Strategic Assessment Report, and supporting documentation for public consultation for a period of no less than eight weeks.

Carried

Financial Sustainability

8. The cost of preparing the strategic assessment is shared by landowners in participating NWGGA precincts and the City.

9. The forecast cost to implement the conservation outcomes of the EPBC Plan is approximately $135 million. The plan includes the preparation of an infrastructure levy to recover the full cost of implementing conservation outcomes and governance of the implementation of the approval by developers.

10. The program costs include land purchase, conservation works, securing biodiversity offsets, staff to implement the works and administer the monitoring and compliance program, maintenance costs and financing costs.

11. Two delivery options were considered for funding the conservation program. The preferred option is where some of the conservation program will be facilitated by land, works or offsets being delivered by landowners in exchange for a credit against the levy liability. The alternative option, where all offsets, land and works are delivered the City places an unsustainable cashflow burden on the Council. Under the proposed works, offsets and land in kind approach the forecast peak debt is around $10M in 2029/30. Finance costs are proposed to be included for forward funding commitments.

12. The assumptions underpinning the financing strategy will continue to be refined as the plan is finalised and stakeholder and regulator views are incorporated into the final program. Council will continue discussions with the Victorian Government for financial support to implement the conservation program and minimise financial risk to the City.

13. The initial funding for implementation of the plan is included in the 2023-24 budget.

14. A draft funding program has been prepared for feedback. The final funding program including costings for the works will be exhibited with the planning scheme amendment for the first precinct structure plan (PSP).

Community Engagement

15. On 21 February 2022, the federal environment minister sought public comment on the draft terms of reference that guide how the strategic assessment should be prepared. The terms of reference were finalised on 14 July 2022.

16. Extensive consultation with the state government Department of Environment and Climate Change Action (DEECA) and federal government DCCEEW has been undertaken.

17. Consultation has been undertaken with landowners and developers in the precinct on the baseline data, location and scale of conservation reserves and options for delivering offsets and funding.

18. Consultation sessions with environment interest groups were undertaken on 21 and 22 February 2023. Key issues raised included the need to incentivise conservation on private land, management of the Moorabool River, opportunities for biodiversity linkages, and implications of poor biodiversity planning in past development projects.

19. The next stage of the process includes formal public consultation, with all interested stakeholders able to provide written submissions.

20. The City will undertake public consultation for a minimum of eight weeks. The EPBC Plan, SAR, BCS, commitments and measures, and funding framework will be published on the City's website. Targeted engagement sessions will also be held for interest groups to meet with City staff and experts to discuss the plan and provide feedback.

Social Equity and Sustainability

21. The SAR and plan must consider social, economic, and environmental drivers influencing the development.

22. The preparation of the plan included a structure decision making process to evaluate the performance of 10 options against these criteria and establish a conservation program that was implementable while achieving acceptable outcomes across the social, economic and environmental criteria.

Relevant Law/Policy/Legal Implications

23. When the EBPC Plan is approved under part 10 of the *EBPC Act*, the City will be the approval holder. The City will be accountable for outcomes, commitments and measures included over the 30-year life of the program. The draft EPBC Plan includes annual and five yearly reporting to DCCEEW.

24. The City will seek to pass many of the obligations to third parties to deliver. Compliance through robust systems and processes for managing development approval and the timing of impacts and offsets is required.

25. The City has prepared a BCS concurrently with the strategic assessment. The BCS is a holistic strategy for both state and federal environmental matters. The BCS is a strategic document which will support the state and federal approvals processes and demonstrates how we meet state and federal objectives and requirements.

26. While the EPBC Plan covers only the strategic assessment area, the BCS is intended to cover the entire growth areas. The BCS will be updated after surveying has occurred for the three southern precincts in the Western Geelong Growth Area.

27. The BCS and funding framework will be implemented through the Victorian planning system concurrently with exhibition and approval of the first NWGGA PSP.

Alignment to Community Plan and Vision

28. This report aligns with *Our Community Plan 2021-2025* strategic priority:
    Sustainable growth and environment.
29. This report aligns with the Community led 30-year Vision, "Greater Geelong: A Clever and Creative Future" community aspiration:
    Sustainable development that supports population growth and protects the natural environment.

Conflict of Interest

30. No officer involved in the preparation of this report declared a general or material conflict of interest.

Risk Assessment

31. The City will be accountable for outcomes, commitments and measures included over the 30-year life of the program. Given the overall cost of the program and risk to the City to ensure compliance, dedicated staff resources, executive oversight and monitoring and compliance programs are included in the draft EPBC Plan.
32. The implementation of a funding mechanism that can deliver a full cost recovery program is a key risk. The City has prepared a draft funding program to seek feedback from stakeholders. The framework has been prepared using the Victorian planning system for implementation. The draft program includes finance costs and costs associated with compulsory acquisition of land to minimise the financial risks to Council.
33. The conservation program includes works, land and offsets. The offsets are internal and external to the growth areas. The funding program facilitates developers securing the external offsets. Facilitating developers to secure offsets minimises the cash flow impost to Council. The trade-off is the risk that we will not fulfil early conservation commitments and careful management of the timing of development, monitoring of impacts and offset delivery will be necessary through the permit implementation process if housing supply is to be maintained. Without the conservation commitments being delivered the release of development will need to stop.
34. The offset market is volatile and subject to scarcity due to both the limited availability of many offset types and the current extent of infrastructure development in Victoria. It is possible that offsets will not be available to mitigate impacts of development in the future. The EPBC Plan and funding program have been designed to minimise the risk of impacts exceeding offsets. Developers and Council securing offsets early in the life of the plan is key to minimise risks to the overall delivery of the growth area.

Environmental Sustainability

35. The City undertook on-ground assessments of existing conditions throughout the strategic assessment area in 2019/20.
36. The biodiversity assessments recorded federally listed threatened species, including confirmed habitat for Golden Sun Moth (*Synemon plana*) and Striped Legless Lizard (*Delma impar*), a significant population of Growling Grass Frog (*Litoria raniformis*) and areas of the nationally threatened natural temperate grasslands of the Victorian volcanic plains.
37. Further observations of on-ground conditions since 2019/20 have confirmed that the habitat identified is declining due to land use change and weed infestation.
38. The implementation of the strategic assessment and development in the growth areas will see the ongoing management of two new conservation reserves within the growth areas boundary, including a 108-hectare Northern Geelong Growth Area grassland reserve and 4-hectare Cowies Creek conservation reserve, as well as strategically located Victorian offsets being secured external to the growth areas to offset development impacts.

Attachments

1. NWGGA EPBC Plan [**2.4.1** - 81 pages]
2. NWGGA Strategic Assessment Report [**2.4.2** - 538 pages]
3. NWGGA Commitments and Measures [**2.4.3** - 42 pages]
4. NWGGA Biodiversity Conservation Strategy [**2.4.4** - 157 pages]
5. EPBC Funding Framework for consultation [**2.4.5** - 23 pages]

THE CITY OF
GREATER GEELONG

NORTHERN AND WESTERN GEELONG GROWTH AREAS

MAY 2023

DRAFT EPBC PLAN

CITY OF GREATER GEELONG

ACKNOWLEDGEMENT OF COUNTRY

Greater Geelong is located on the traditional lands of the Wadawurrung people. The land was created by the great ancestor spirit, Bunjil, the wedge-tailed eagle. Wadawurrung territory extends from the great dividing range in the north to the coast around Port Phillip Bay.

The city acknowledges the Wadawurrung people as the traditional owners of this land who to this day practice their culture and uphold the dignity of their ancestors.

DOCUMENT TRACKING

This document was prepared on behalf of the City of Greater Geelong by Biosis and Open Lines.

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VERSION CONTROL:	
VERSION:	Public exhibition version
DATE:	May 2023

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Acronyms and terms

Acronyms	Meaning
BCS	Biodiversity Conservation Strategy
DCCEEW	Commonwealth Government Department of Climate Change, Energy, the Environment and Water (DCCEEW)
DEECA	Victorian Government Department of Environment, Energy and Climate Action
DELWP	The former Victorian Government Department of Environment, Land, Water and Planning (now DEECA and DTP)
DTP	Victorian Government Department of Transport and Planning
EPBC Act	Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*
FPAL	Finalised priority assessment list
IBRA	Interim Biogeographic Regionalisation for Australia
KPI	Key Performance Indicator
LGA	Local Government Authority
MERI	Monitoring, evaluation, reporting and improvement
MNES	Matters of National Environmental Significance
NGGA	Northern Geelong Growth Area
NVPP	Native Vegetation Precinct Plan
P&E Act	Victorian *Planning and Environment Act 1987*
PPF	Planning Policy Framework
PSP	Precinct Structure Plan
SAR	Strategic Assessment Report
TEC	Threatened ecological community
ToR	Terms of Reference
UGZ	Urban Growth Zone
VPP	*Victoria Planning Provisions*
WGGA	Western Geelong Growth Area
WIK	Works in Kind

Terms / Abbreviations	Definition
BCS guiding principles	A set of principles to guide both the preparation of the BCS and the decisions that will need to be made as part of the strategy's implementation
City Implementation Group	The primary body responsible for day-to-day implementation of the Plan
Conservation Management Plan	The document used to provide for the protection and ongoing management of the biodiversity values within each strategic conservation area
Construction Environmental Management Plans	A plan developed to ensure appropriate environmental management practices are implemented during the construction phase of a project
Cowies Creek Conservation Area	The section of Cowies Creek within the WGGA to be protected and managed for conservation purposes under the Plan

Terms / Abbreviations	Definition
Development land	Specified land within the Strategic Assessment Area where development under the Plan is proposed to occur
Development under the Plan	The broad term used to describe all development occurring under the Plan. This includes land subject to development within the Growth Areas, the External infrastructure corridors, the NGGA Conservation Area, and Cowies Creek Conservation Area
Evaluation questions	The questions used to evaluate the Plan in regard to the achievement of outcomes and implementation of commitments
External infrastructure	Development comprising the supporting infrastructure and services class of action and the environmental management class of action that is located outside of Growth Areas but within the Strategic Assessment Area
Land subject to development	Development land within the Growth Areas subject to all classes of actions under the Plan
NGGA Conservation Area	Area of land within the NGGA to be avoided for conservation purposes under the Plan
Specific mitigation measures	Additional mitigation measures beyond those delivered through the existing planning system to address specific risks to MNES associated with the implementation of the Plan
Stakeholder engagement strategy	A process for stakeholder engagement to guide the City in undertaking ongoing engagement with key stakeholders over the life of the Plan
Standard mitigation measures	Mitigation measures delivered by the Victorian planning system through the PSP process, existing provisions in the Greater Geelong Planning Scheme, and the planning permit process
Strategic Conservation Area	Areas within the Growth Areas that will be avoided from development and protected and managed for conservation in-perpetuity
The City	The City of Greater Geelong
The Executive Committee	The Northern and Western Geelong Growth Areas EPBC Plan Executive Committee
The Framework Plan	*Northern and Western Geelong Growth Area Framework Plan*
The Growth Areas	Northern and Western Geelong Growth Areas
The Minister	Commonwealth Minister for the Environment
The Plan	The Northern and Western Geelong Growth Areas EPBC Plan (this document)
Works in Kind	A contribution in lieu of payment of the biodiversity levy amount

1 Introduction

1.1 THE STRATEGIC ASSESSMENT

The City of Greater Geelong (the City) has identified two key areas for urban growth in Geelong's northwest in the Northern and Western Geelong Growth Areas (the Growth Areas).

The Growth Areas were identified through several State planning strategies for future growth. The City subsequently developed the *Northern and Western Geelong Growth Areas Framework Plan* (the Framework Plan) (The City of Greater Geelong, 2021), which describes the Growth Areas and outlines considerations for their future development until 2047.

Geelong is considered to be Victoria's primary growth and population centre outside of Melbourne and contains numerous assets that are vital for the State's social, economic and environmental sustainability (Victoria State Government, 2017). The Growth Areas are the key areas identified for development to support Geelong's long-term growth. This growth is driven by a strong economy and employment opportunities that are expected to continue in the coming decades (Geelong Region Alliance, 2007; The City of Greater Geelong, 2021).

Development within the Growth Areas and associated infrastructure development outside the Growth Areas will lead to impacts to biodiversity values protected under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) and biodiversity values protected under Victorian biodiversity regulations.

To support development in the Growth Areas and protect matters of national environmental significance (MNES), the City is undertaking a strategic assessment under Part 10 of the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). This enables a landscape scale assessment and approval of a suite of development actions under the EPBC Act and provides the opportunity to deliver improved environmental and development outcomes compared to project-by-project assessments through strategic consideration of biodiversity issues.

As part of the strategic assessment process, the City has prepared the *Northern and Western Geelong Growth Areas EPBC Plan* (the Plan). The Plan (this document) gives effect to the outcomes of the strategic assessment process.

The Plan has been prepared in accordance with the Endorsement Criteria in the Agreement to undertake the Northern and Western Geelong Growth Areas strategic assessment (Strategic Assessment Agreement) (27 January 2022) between the Commonwealth Minister for the Environment (the Minister) and the City (**see Appendix A**).

1.2 PURPOSE OF THE PLAN

The purpose of the Plan is to ensure development within the Growth Areas and associated infrastructure development outside the Growth Areas protects MNES and proceeds in accordance with the requirements of the EPBC Act.

The Plan:

- Describes the development (classes of actions) for which approval is being sought under the EPBC Act
- Sets out an objective, and a series of outcomes and commitments to define what the Plan will achieve
- Sets out a conservation framework to address the impacts of the development on MNES, including through avoiding and minimising, mitigating, and offsetting residual impacts
- Describes the process for delivering infrastructure outside the Growth Areas
- Sets out an assurance and implementation framework to implement the Plan

The Plan recognises the importance of the biodiversity values within the Greater Geelong area for MNES and will facilitate Geelong's future growth by streamlining EPBC Act approvals and ensuring implementation is cost efficient in its support of both urban growth and the protection of MNES.

The commitments in the Plan represent agreed pledges by the City (the approval holder) (see Section 1.7.1) for undertaking actions to address impacts to MNES. The commitments will not be changed once the Plan is endorsed under Part 10 of the EPBC Act, and the approval holder will be responsible for the delivery of these commitments over the life of the Plan.

1.3 OVERVIEW OF THE PLAN AND SUPPORTING DOCUMENTS

1.3.1 THE PLAN STRUCTURE

Table 1-1 outlines the structure of the Plan and briefly describes the content of each chapter.

Table 1-1: Plan structure and content

Plan chapter	Description of chapter
Chapter 1: Introduction	Introduces the strategic assessment, the purpose of the Plan, the regulatory context for the Plan and responsibilities for its implementation
Chapter 2: Context for developing the Plan	Describes the context and need for the Plan in relation to social, economic, and environmental factors of the region
Chapter 3: Objective and outcomes of the Plan	Describes the outcomes framework for the Plan that includes an objective and outcomes that the Plan aims to achieve, and a series of commitments that will be delivered to achieve these outcomes
Chapter 4: Development supported by the Plan	Details the types of development (the classes of actions) that endorsement and approval under Part 10 of the EPBC Act will cover, including the scope and location of the development
Chapter 5: Conservation framework	Describes the conservation framework for the Plan, including the commitments that the Plan will deliver to avoid and minimise, mitigate and offset the impacts of the development on MNES
Chapter 6: Delivery of external infrastructure	Describes how external infrastructure development located outside the Growth Areas within the Strategic Assessment Area will be delivered to avoid and minimise, mitigate and offset impacts on MNES
Chapter 7: Assurance and implementation framework	Describes the assurance and implementation framework for the Plan that sets out how it will be implemented and what assurance mechanisms will be put in place to ensure the Plan's outcomes are achieved

1.3.2 SUPPORTING DOCUMENTS

The Plan is supported by four documents. These include:

- Three implementation documents:
  - The Northern and Western Geelong Growth Areas Commitments and Measures
  - The Northern and Western Geelong Growth Areas Biodiversity Conservation Strategy (BCS)
  - The Northern and Western Geelong Growth Areas Funding Program
- A Strategic Assessment Report (SAR)

Figure 1-1 shows the relationship between the documents associated with the strategic assessment.

The three implementation documents do not form part of the Plan to be endorsed by the Minister under Part 10 of the EPBC Act. While the commitments will not be changed once the Plan is endorsed under Part 10, the measures set out in the implementation documents may be updated from time to time as part of adaptive management (see Section 3.2).

COMMITMENTS AND MEASURES DOCUMENT

The Plan identifies a broad objective and national level outcomes relating to the protection of MNES under the EPBC Act and socio/economic considerations. The Plan's outcomes represent standards of environmental protection that will be achieved for MNES under the Plan in accordance with the requirements of the EPBC Act. The Plan's objectives and outcomes will be achieved through the delivery of a set of commitments and measures. The outcomes, commitments and measures were developed through an 'outcomes framework' based on program logic principles (see Section 3.2).

The outcomes and commitments are set out in the Plan and will not be changed once the Plan is endorsed under Part 10 of the EPBC Act. However, the measures to implement the commitments may be updated from time to time over the life of the Plan through an adaptive management process in accordance with the Plan's MERI framework (see Section 6.5). The measures are set out in the Commitments and Measures document, including the following details for each:

- Responsibility
- Key support partner/s (if relevant)
- Timing

Additionally, the BCS identifies a further broad objective focused on state and local biodiversity, and subsequent state level outcomes, commitments and measures. Some of the Plan's outcomes are also relevant to the BCS. The commitments and measures for the BCS are also detailed in the Commitments and Measures document.

Biodiversity Conservation Strategy

The BCS satisfies the delivery of three key actions (Action N1.3.1, N1.3.2 and W1.3.1) under the Framework Plan for the protection of biodiversity in the Growth Areas. The Framework Plan says an "overarching biodiversity conservation strategy will be prepared for the growth area[s] that provides high level guidance for the management of nationally and state significant biodiversity values…The strategy will spatially identify how outcomes for matters of national environmental significance will be delivered…" (The City of Greater Geelong, 2021).

The purpose of the BCS is to:

- Identify the national, state and local biodiversity values that are present in the Growth Areas and set out a conservation program for providing genuine, long-term positive results for those values
- Set out how the conservation elements of the EPBC Plan for the Growth Areas will be implemented including through avoiding and minimising, mitigating, and offsetting residual impacts in accordance with the mitigation hierarchy (DSEWPC, 2012)
- Guide the preparation of Precinct Structure Plans and subsequent development within the Growth Areas to ensure the outcomes are consistent with State biodiversity policy

Funding Program

The Plan includes a funding framework that will ensure the Plan is adequately funded throughout its life. The funding framework is described in Section 7.4 of the Plan. The detailed measures that describe how the commitment for funding in the Plan will be implemented are provided in the Commitments and Measures document.

The City is also developing a Funding Program that will set out how the funding framework will be implemented. It will describe how measures to achieve the commitments for funding will be implemented. The key commitments that will require funding are those that relate to:

- Offset establishment, management, monitoring and audit
- Securing and managing the NGGA Conservation Area and Cowies Creek Conservation Area
- Implementing conservation measures
- Implementing the MERI framework and compliance framework

Implementation of funding for the BCS including additional state and local outcomes, commitments and measures will also be described in the Funding Program.

Strategic Assessment Report

A Strategic Assessment Report (SAR) has been prepared to assess the impacts of the development under the Plan on MNES. The SAR also evaluates the adequacy of the Plan's outcomes, commitments and measures in protecting MNES over the life of the Plan.

The SAR has been prepared in accordance with the Commonwealth Terms of Reference (ToR) for the strategic assessment provided under the Strategic Assessment Agreement.

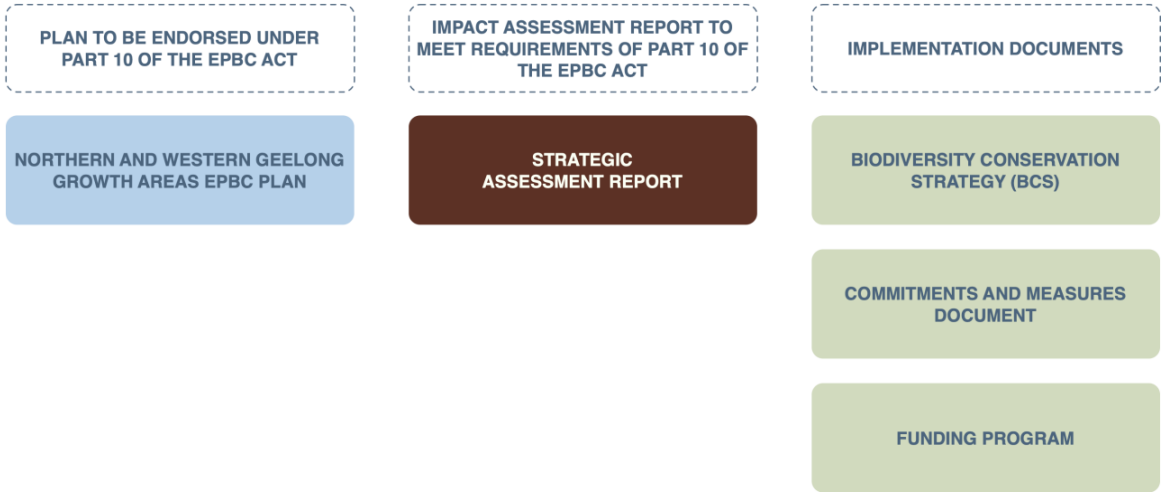

Figure 1-1: Strategic assessment documents

1.4 AREA COVERED BY THE PLAN

The area covered by the Plan is known as the Strategic Assessment Area and is shown in Figure 1-2. It covers 7,101 ha within the Victorian Volcanic Plains Bioregion and includes the Northern Geelong Growth Area (NGGA) and the Western Geelong Growth Area (WGGA) which are identified in the Framework Plan.

The Strategic Assessment Area includes:

- The entire NGGA as described in the Framework Plan which occurs in the Lovely Banks locality and covers 2,103.9 ha
- The two northern precincts (Creamery Road and Batesford North) within the WGGA which covers 767.2 ha and occurs in the Bell Post Hill/Batesford localities

The remaining precincts of the WGGA identified in the Framework Plan cover 2,472.3 ha and have been excluded from the strategic assessment due to a lack of information and resolution relating to a range of factors needed to support and rationalise a full assessment and approval under the EPBC Act. This includes the anticipated development demand and timing, and the detailed plans for decommission and rehabilitation of the active Batesford Quarry.

The Growth Areas and the majority of the Strategic Assessment Area occur within the boundaries of the City of Greater Geelong LGA (see Figure 1-3). A small portion of the Strategic Assessment Area (to the west of WGGA) extends into the neighbouring Golden Plains Shire LGA. However, no actions are proposed within this location.

The Strategic Assessment Area also includes indicative locations for infrastructure external to the Growth Areas, which are required to deliver the development objectives of the Framework Plan (see Figure 1-2).

Section 4 describes the development under the Plan, including the external infrastructure projects.

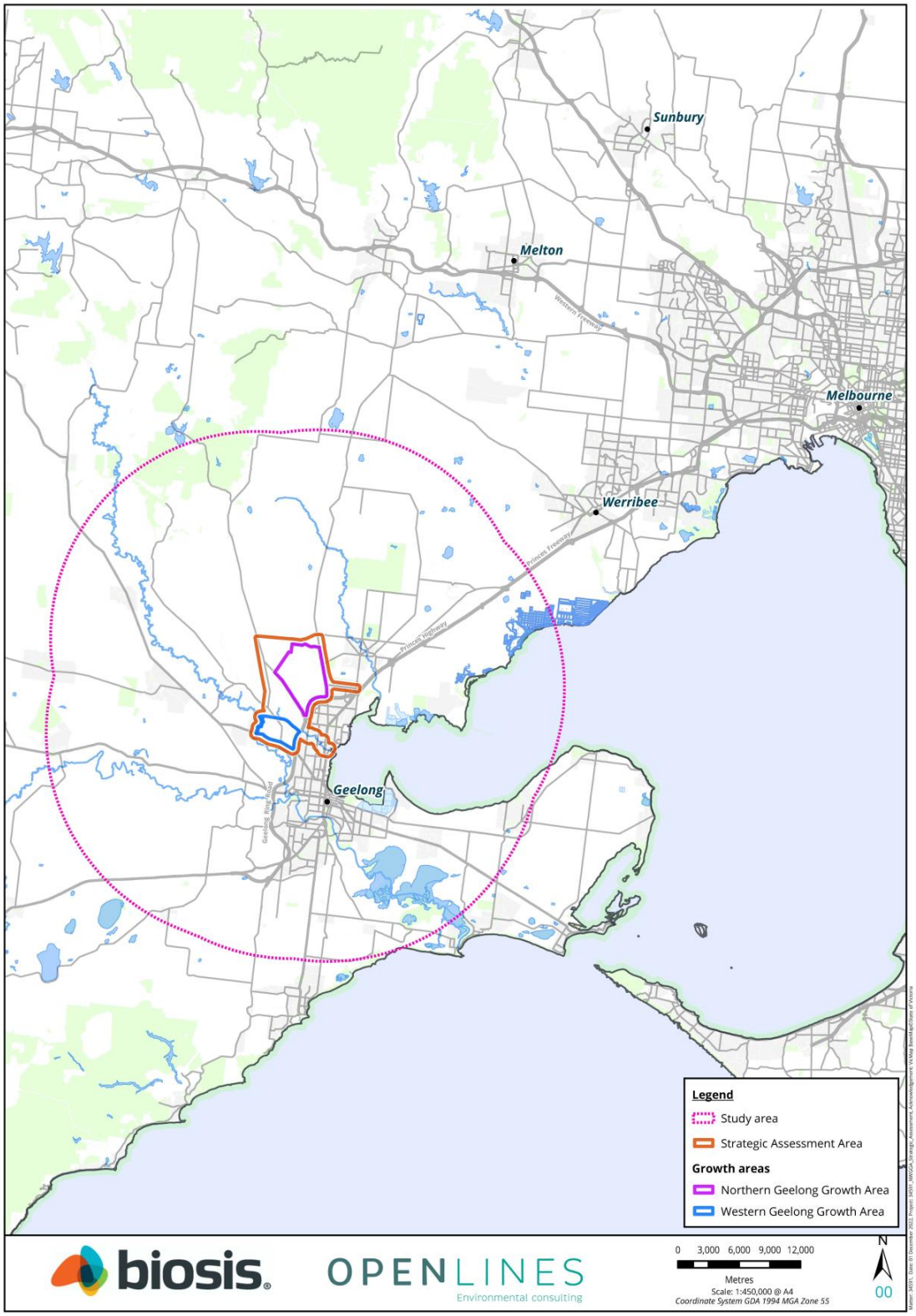

Figure 1-2: Location of the Strategic Assessment Area and Growth Areas

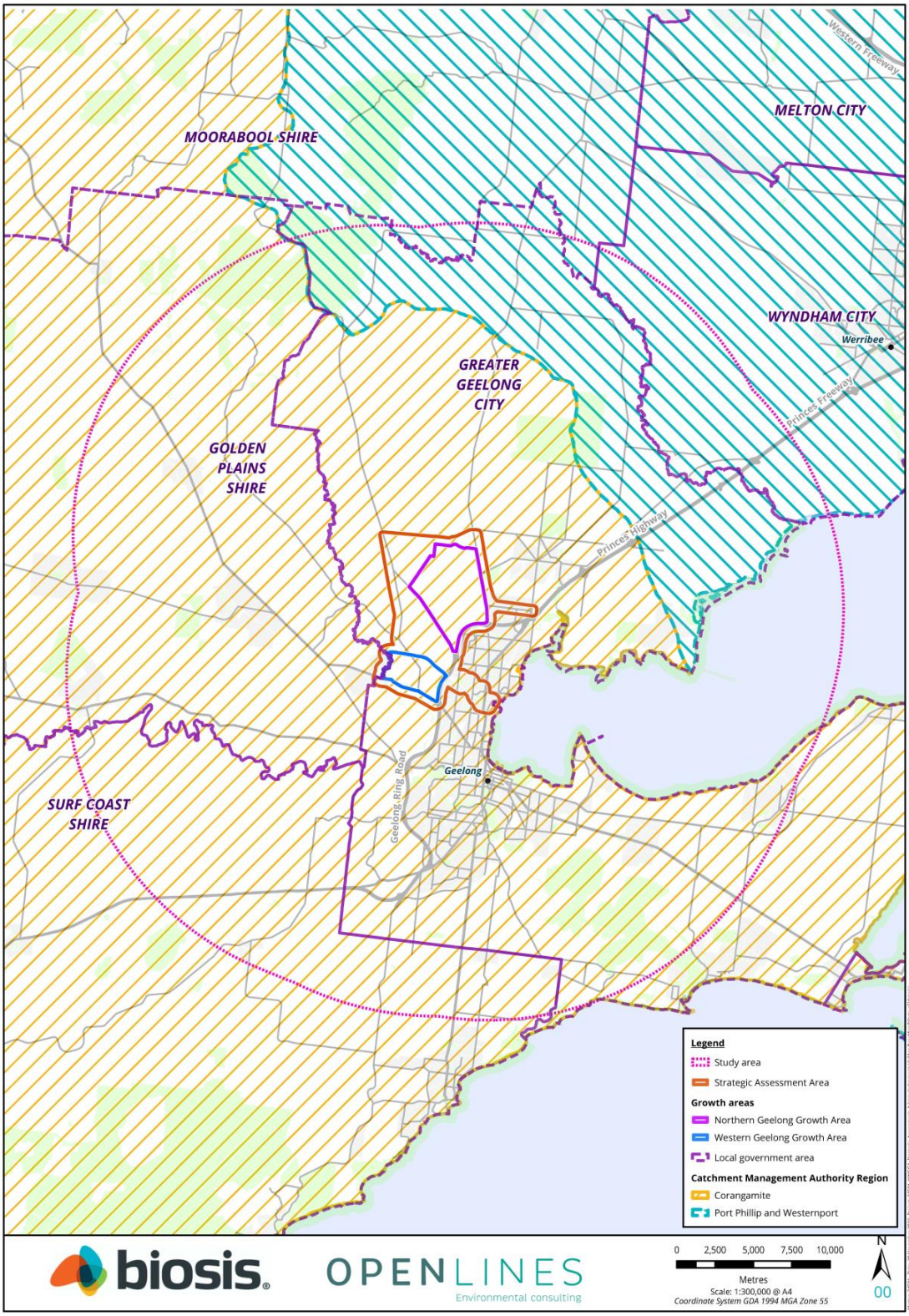

Figure 1-3: Administrative context of the Study Area, Strategic Assessment Area and Growth Areas

1.5 TIMING FOR IMPLEMENTATION OF THE PLAN

Implementation of the Plan will commence at the point that the Plan is endorsed and one or more of the classes of action has been approved. Implementation will occur for a period of 30 years. This timing is consistent with the implementation of the development under the *Northern and Western Geelong Growth Areas Framework Plan* (The City of Greater Geelong, 2021) to 2047 and allows additional time to complete the implementation of the commitments under this Plan.

1.6 REGULATORY CONTEXT AND LEGAL EFFECT OF THE PLAN

The Plan has been prepared to meet the requirements of the EPBC Act. Following endorsement and associated approvals under the EPBC Act, the Plan enables the development that is described in Chapter 4 to proceed without the need for further assessment and approval for impacts on protected matters under the EPBC Act.

The Plan does not address Victorian planning, biodiversity or other regulatory requirements. Separate approvals are needed in accordance with State regulatory requirements before the development under the Plan can proceed.

1.6.1 ENVIRONMENT PROTECTION AND BIODIVERSITY CONSERVATION ACT 1999

The EPBC Act is Australia's key piece of legislation to protect and manage Australia's nationally and internationally important biodiversity, environment and heritage. The objectives of the EPBC Act include:

- Providing for the protection of the environment (specifically MNES)
- Promoting Ecologically Sustainable Development (ESD) through the sustainable use of natural resources
- Promoting the conservation of Australian biodiversity and heritage
- Promoting a cooperative approach to the protection and management of the environment
- Assisting in the cooperative implementation of Australia's international responsibilities
- Recognising and promoting the role and knowledge of Indigenous people in the conservation and ecologically sustainable use of Australia's biodiversity

Under Part 10 of the EPBC Act, the Commonwealth Minister for the Environment (the Minister) can agree to undertake a strategic assessment of the impacts of a policy, plan or program on matters protected under the EPBC Act.

The Strategic Assessment Agreement was signed by the City of Greater Geelong and the Minister on 27 January 2022. The Agreement includes Terms of Reference (ToR) to guide the preparation of the SAR, as well as a set of Endorsement Criteria to ensure the Plan meets the requirements of the EPBC Act and is able to be adequately implemented. The ToR outline what the SAR must contain to allow the Minister to endorse the Plan.

The Strategic Assessment Agreement, SAR and Plan must all be publicly exhibited, and any public submissions need to be considered to finalise the documentation. The Agreement provides that, in determining whether to endorse the Plan, the Minister will consider the Plan against the Endorsement Criteria in the agreement to ensure the Plan meets the requirements of the EPBC Act and is able to be adequately implemented (see **Appendix A**).

Following endorsement of the Plan, the Minister may approve the taking of actions in accordance with the endorsed policy, plan or program subject to a range of general considerations (s 146F) and constraints on decision making (s 146G-M), including to not act inconsistently with a recovery plan or threat abatement plan for a protected matter (s 146K).

Actions undertaken in accordance with a policy, plan or program endorsed by the Minister do not require further assessment and approval for impacts on protected matters under the EPBC Act. The Minister may endorse a policy, plan or program if satisfied that the SAR adequately addresses the impacts on protected matters (s 146(2)(f)) and that any recommended modifications to the policy, plan or program by the Minister have been made (s 146 (2f(ii))).

1.6.2 OTHER APPROVALS REQUIRED FOR THE PROPOSED DEVELOPMENT

A range of separate planning, biodiversity and other approvals may be needed in accordance with State regulatory requirements before the development under the Plan can proceed. These include:

- Planning approvals under the *Planning and Environment Act 1987*
- Non-Aboriginal heritage approvals under the *Heritage Act 2017*

- Aboriginal cultural heritage approvals under the *Aboriginal Heritage Act 2006*
- Pollution and waste approvals under the *Environment Protection Act 2017*
- Water and waterway related approvals under the *Water Act 1989*
- Protected flora species approvals under the *Flora and Fauna Guarantee Act 1988*

1.7 RESPONSIBILITIES FOR IMPLEMENTING THE PLAN

The Plan includes a governance framework that includes roles and responsibilities for implementing the Plan. The governance framework is set out in Section 7.3.

1.7.1 APPROVAL HOLDER

The City of Greater Geelong will be the approval holder for the Plan. As approval holder, the City has primary responsibility for implementing the Plan and ensuring the Plan's outcomes are achieved and its commitments are delivered.

The City is also responsible for ensuring third-parties who undertake an approved action under the endorsed Plan take these actions in accordance with the requirements of the Plan.

Further details of the roles and responsibilities of the approval holder are set out in Section 7.3.

2 Context for developing the Plan

This section of the Plan outlines the environmental, social and economic context for the development of the Plan and how the Plan helps address biodiversity challenges and supports social and economic opportunities and growth. It also sets out the context for the Plan including the Victorian planning system and the social, economic and biodiversity values of the Strategic Assessment Area and surrounding region.

2.1 BIODIVERSITY VALUES AND CHALLENGES

The Greater Geelong area supports a range of biodiversity values. The following sections provide an overview of the biodiversity values of the Strategic Assessment Area and the challenges to biodiversity conservation in the region.

2.1.1 BIOREGIONAL CONTEXT

The area covered by the Plan is wholly contained within the Southern Volcanic Plain IBRA bioregion. This bioregion is characterised by broad basaltic plains, interspersed with areas of lakes and swamps. Native grasslands occur in areas where basalts are older and more weathered to produce heavy clays which are generally fertile yet poorly drained. Younger occurrences of relatively unweathered lava flows occur as stony rises, and support thin soils and woodland vegetation (Dahlhaus *et al.*, 2003; Williams, 2022).

Large areas of grasslands and woodland in the bioregion, including the Growth Areas, have been removed or degraded primarily for agricultural activities (DSE, 2003; EHP, 2021). The Growth Areas currently do not contain any State protected areas or National Parks. However, several reserves are managed by the City. Other native vegetation also remains in areas not subject to historical clearing and within riparian corridors. Native vegetation that remains on agricultural land is typically highly modified and degraded, providing relatively low biodiversity value (EHP, 2021).

2.1.2 BIODIVERSITY VALUES

The Strategic Assessment Area supports a variety of biodiversity values, both within the Strategic Assessment Area itself, and in the surrounding landscape through waterways, connected vegetation and movement of fauna.

These biodiversity values include (EHP, 2021):

- A variety of grassland and woodland vegetation communities which include the Critically Endangered EPBC listed threatened ecological community (TEC) Natural Temperate Grassland of the Victorian Volcanic Plain
- Potential habitat for numerous Commonwealth listed species, as well as known populations of the following MNES:
  - *Lachnagrostis adamsonii* (Adamson's Blown-grass) – listed as Endangered
  - *Delma impar* (Striped Legless Lizard) – listed as Vulnerable
  - *Synemon plana* (Golden Sun Moth) – listed as Vulnerable
  - *Litoria raniformis* (Growling Grass Frog) – listed as Vulnerable
- Three hydrological catchments (Moorabool River, Hovells Creek and Cowies Creek) that support rivers, waterways and aquatic and riparian ecosystems including the Port Phillip Bay (Western Shoreline) & Bellarine Peninsula Ramsar site

Protected matters relevant to the Plan are set out in Section 5.3.

2.1.3 BIODIVERSITY CHALLENGES

The biodiversity of the region is subject to several threatening processes that present a challenge when planning for development within the Strategic Assessment Area. Most native vegetation has been cleared or modified within the region for agricultural activities and more recently urban development. The disconnected and modified nature of the remaining native vegetation also exacerbates the impact of other threatening processes (DSE, 2003; EHP, 2021).

The following threatening processes are impacting biodiversity values within the Strategic Assessment Area and surrounding landscape:

- Habitat loss and fragmentation – given the large amount of historical clearing, protecting and/or restoring remaining areas of native vegetation is important for any future conservation efforts (DSE, 2003)
- Invasive weeds – the Growth Areas contain a high density of weeds and introduced pasture which pose a threat to multiple threatened species either through habitat competition or habitat degradation (DELWP, 2020; EHP, 2021)
- Pest animals – pests including rabbits, hares and foxes are present within the region and pose a threat to multiple threatened species, either through predation, competition or habitat degradation (DELWP, 2020; EHP, 2021)
- Water system modification – all the major watercourses within the Geelong region have experienced environmental impacts from development. These impacts include barriers to movement, changes to hydrological flows, decreased water quality, erosion and degradation of riparian vegetation (Corangamite CMA, 2014; DELWP, 2021)
- Recreational disturbance – recreational activities in estuarine and coastal environments can impact these environments, particularly waterbirds and migratory birds which occur in coastal environments and within the Port Phillip Bay (Western Shoreline) & Bellarine Peninsula Ramsar site (DELWP, 2020)
- Climate change – impacts of climate change are likely to increase in the future, affecting biodiversity through processes such as more intense and longer bushfire seasons and increased drought and flooding (DELWP, 2019)

The development supported by the Plan has the potential to exacerbate existing threats and introduce new threats to the Strategic Assessment Area and surrounding landscape. The Plan includes conservation outcomes and commitments which will help protect MNES and achieve benefits to biodiversity in the region (see Section 5).

2.2 SOCIAL AND ECONOMIC CONTEXT

The Plan supports delivery of urban growth described in the Framework Plan. This development will address a range of planning challenges associated with Geelong's social and economic growth. The following sections outline the social and economic values and context for the Growth Areas, described in detail in the Framework Plan.

2.2.1 INDIGENOUS HERITAGE

Geelong is located on the traditional lands of the Wadawurrung people, which extends from the Great Dividing Range in the north to the coast around Port Phillip Bay. The Traditional Owners are represented by the Wadawurrung Traditional Owners Aboriginal Corporation (Wadawurrung) (The City of Greater Geelong, 2021).

The Wadawurrung people have inhabited the Geelong locality for over 25,000 years (Wathaurong Aboriginal Co-operative, 2021). The Framework Plan states that the cultural, social, environmental, economic and spiritual contribution of the Wadawurrung people is an integral part of Geelong's identity.

The Growth Areas contain landscapes and waterbodies that are highly significant to the Wadawurrung people, including the waters of the Moorabool River, Barwon River and Cowies Creek. The Growth Areas also contain several registered Aboriginal places. There has only been limited archaeological investigation within the Growth Areas and a large number of additional sites of significance for Aboriginal people potentially occur in these areas (The City of Greater Geelong, 2021). Under the Framework Plan, the City aims to recognise and protect these sites and work in partnership with the Wadawurrung people to interpret and manage these sites.

2.2.2 POST CONTACT HERITAGE

The Geelong area has a rich history of early settlement which primarily consisted of pastoral activities, followed by freehold agricultural enterprises as the population increased. There are a number of registered heritage places including pastoral estates, quarries, railways and townships (The City of Greater Geelong, 2021). The Framework Plan aims to retain post-contact heritage sites and values and integrate them into the urban landscape of the Growth Areas.

2.2.3 CURRENT LAND USE

Since European settlement, large areas of grasslands and woodland have been removed or modified for agricultural activities in the Geelong area. Currently, the Growth Areas primarily consist of land that has been developed for agricultural purposes. The NGGA is primarily used for pastoral and cropping activities associated with rural residential housing while the WGGA comprises of a mix of existing land uses, including agriculture, recreation reserves, rural and medium density housing, and educational facilities (The City of Greater Geelong, 2021). While the WGGA does not

contain any State protected areas or National Parks, there are a number of reserves managed by the City – including the Moorabool River Reserve (EHP, 2021).

2.2.4 GEELONG'S GROWTH

Geelong is considered to be the primary population centre outside of Melbourne and contains numerous assets that are vital for the state's social, economic and environmental sustainability (Victoria State Government, 2017). It is the largest regional city in Victoria, with a current population of approximately 317,857 people (ABS, 2020). The city is projected to exceed a population of 500,000 by 2050 with an anticipated, sustained annual growth rate of 2.5% (The City of Greater Geelong, 2021). This projected growth is driven by a strong economy and employment growth that is expected to continue in the coming decades (Geelong Region Alliance, 2007; The City of Greater Geelong, 2021).

Greater Geelong Settlement Strategy

The growth of Geelong has long been recognised. To manage the long term growth of the city and provide for the region's housing needs the City of Greater Geelong prepared the Greater Geelong Settlement Strategy 2020 (The City of Greater Geelong, 2021). The strategy directs future housing growth to urban Geelong. This includes a target of 50 per cent of housing growth occurring in established areas and 50 per cent accommodated in three major growth areas – Armstrong Creek, the Northern Growth Area, and the Western Growth Area.

The G21 Regional Growth Plan (Geelong Region Alliance, 2013) first identified the Northern and Western Geelong Growth Areas as potential growth areas for 'further investigation' in 2013. The Northern and Western Geelong Growth Areas and Greater Geelong Settlement Strategy provides a program and process for managing the release of precinct structure plan areas to ensure that Geelong's housing needs are met, and the necessary supporting infrastructure and sequencing of development is considered.

2.2.5 SOCIAL AND ECONOMIC VALUE OF THE PLAN

The development supported by this Plan will facilitate substantial social and economic opportunities and growth that will generate many jobs and boost the economy, including in relation to:

- Housing and accommodation
- Employment
- Community
- Transport

Housing and accommodation

The development supported by the Plan aims to provide a sustainable and diverse mix of housing and accommodation to support future residents and visitors of Geelong. Diverse housing is important for the success of new urban areas, as it attracts a range of potential residents at all stages of their life. The City intends to provide a mix of low-rise, multi-unit and clustered housing types, along with aged-care and affordable, community and social housing options (The City of Greater Geelong, 2021).

The Growth Areas identified in the Framework Plan have the capacity to accommodate 110,000 new residents. In addition to residential housing, a range of other accommodation types may also be provided including hotels, motels and caravan and camping parks. Existing rural living spaces will also be retained in some areas, providing opportunities for agriculture and rural industry (The City of Greater Geelong, 2021).

Employment

Development will also generate substantial business opportunities and create jobs across a range of employment types including commercial business, industry, education, health care, transport and agriculture. Additionally, the construction phases of development will generate many jobs that will be sustained over the coming decades as each precinct is released and developed (The City of Greater Geelong, 2021).

The Growth Areas are also near the Geelong Ring Road Employment Precinct, Port of Geelong, Avalon Airport and Melbourne, which will facilitate further employment opportunities and growth (The City of Greater Geelong, 2021).

COMMUNITY

The development supported by the Plan will facilitate the delivery of community infrastructure including libraries, art and cultural centres, sports facilities and function spaces. This infrastructure will provide both social and economic value to the Growth Areas as well as Greater Geelong (The City of Greater Geelong, 2021).

Amenity is a key factor for attracting new residents and businesses, as well as facilitating future investment opportunities and tourism. Community open spaces, including recreation reserves and local parks, will be integrated into the layout of the development areas, providing residents and visitors with access to these spaces and adding aesthetic appeal (The City of Greater Geelong, 2021).

Existing heritage sites will also be protected and integrated into the Growth Areas, providing the community with a sense of place. Tree canopy cover will be maximised to reduce urban heat and provide potential habitat for fauna, while also increasing amenity for the community (The City of Greater Geelong, 2021).

TRANSPORT

The Plan also covers development of public and private transport networks and corridors which will allow residents and visitors to easily travel to and from the Growth Areas, as well as access facilities within the Growth Areas. Linkages and access points will be established to existing transport corridors such as the Geelong Ring Road to maximise use of existing transport infrastructure (The City of Greater Geelong, 2021).

Public transport including buses and rail will be prioritised within the Growth Areas to help promote more sustainable transport options. Additionally, open spaces within the Growth Areas will be maximised to allow for shared pathways that will facilitate sustainable transport linkages, such as via walking and cycling, throughout the Growth Areas (The City of Greater Geelong, 2021).

2.3 PLANNING CONTEXT

The Victorian planning system under the *Planning and Environment Act 1987* (P&E Act) is the key delivery framework for development within the Growth Areas and the implementation of the BCS.

The Victorian planning system hierarchy provides a framework for decision-making for the use and development of land in greenfield areas. The hierarchy relevant to the Growth Areas includes:

- The Planning Policy Framework
- *Northern and Western Geelong Growth Area Framework Plan* (the Framework Plan)
- Greater Geelong Planning Scheme and Urban Growth Zone (UGZ)
- Precinct Structure Plans (PSPs)
- Planning permits

2.3.1 PLANNING POLICY FRAMEWORK

The Planning Policy Framework (PPF) is the policy content of planning schemes and provides overarching policy to guide land use, subdivision and development in Victoria. The PPF is informed by Victorian Government policy.

The PPF includes planning policies under three tiers:

- State-wide – policies of state significance that apply in all planning schemes in Victoria
- Regional – policies of state significance that apply to allied planning schemes based on geographic groupings
- Local – policies of local significance that apply to an individual local planning scheme

Several policies under the PPF are relevant to the protection of MNES and biodiversity values, including:

- Clause 12.01 – aims to protect and enhance Victoria's biodiversity
- Clause 12.03 – aims to protect and enhance river corridors, waterways, and wetlands
- Clause 13.02 – aims to manage fire risks without unacceptable impacts to biodiversity
- Clause 13.04 – aims to manage soil degradation and contaminated land

- Clause 14.02 – aims to protect water quality
- Clause 19.03 – aims to sustainably manage water through integrated water management

The PPF will be given effect in the Growth Areas through the development of PSPs, planning permits, and other decision-making related to the Growth Areas. A planning authority must take into account the PPF when preparing an amendment to a planning scheme. A responsible authority must take into account and give effect to the PPF when it makes a decision under the planning scheme, such as a decision to grant a permit for use or development.

2.3.2 FRAMEWORK PLAN

The Framework Plan (The City of Greater Geelong, 2021) was prepared as part of the City's plan to address the long-term growth in Geelong. The plan describes the existing site context of the Growth Areas and sets out:

- Broad future urban structure of the Growth Areas, including potential areas suitable for environmental protection
- Vision and set of urban development objectives for each Growth Area
- A set of actions to be implemented through future planning processes

The overarching vision of the Framework Plan is:

> *"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"*

The biodiversity-related urban development objectives of the Framework Plan for each Growth Area are:

> *"Protect and regenerate biodiversity and cultural heritage values of the natural and constructed waterways along the Lovely Banks monocline and heritage values of the Elcho Homestead"*

> *"Protect and regenerate biodiversity and cultural heritage values along the Barwon and Moorabool Rivers, Cowies Creek and the Dog Rocks Sanctuary and establish vegetated constructed waterways"*

Other key biodiversity actions in the Framework Plan are summarised in Table 2-1.

The Framework Plan will inform the subsequent preparation of more detailed PSPs. The Framework Plan is incorporated into the Greater Geelong Planning Scheme at Clause 11.02.

Table 2-1: Key biodiversity actions from the Framework Plan for the Growth Areas

Action	Growth Area
A network of linear corridors will be created to promote biodiversity linkages within neighbourhoods that connect between conservation areas, waterways and the open space network Corridors may be located as illustrated in Plan 9 and Plan 17 of the Framework Plan	Northern Western
Any conservation areas that are identified will prioritise the protection and enhancement of local indigenous flora and fauna species	Northern Western
The integrated transport network will protect, minimise impacts and revegetate roadside vegetation	Northern Western
Stormwater drainage management will minimise the downstream impacts on the Port Phillip Bay (Western Shoreline) and Bellarine Peninsula Ramsar Site	Northern Western
A Native Vegetation Precinct Plan will be prepared for each precinct to determine the presence and management of significant flora, fauna and ecological communities	Northern Western
'Green-blue' connections will be designed to promote flora and fauna by distributing water to soil through natural infiltration and irrigation. Waterways illustrated on Plan 7 and Plan 15 of the Framework Plan will be designed to provide sufficient corridor width to establish continuous riparian reserves that allow for biodiversity values to thrive	Northern Western

Action	Growth Area
Individual detailed master plans that outline the protection and enhancement of river and creek corridors will be prepared and incorporated within the relevant precinct structure plan including: • Cowies Creek, between Geelong Ring Road and Geelong-Ballan Road • Barwon River, between Geelong Ring Road and Merrawarp Road • Moorabool River, between Midland Highway and Geelong-Ballarat Railway • Moorabool River (and deviation channel), between Geelong Ring Road and Midland Highway and including Dog Rocks Sanctuary and Moorabool River Reserve	Western

2.3.3 GREATER GEELONG PLANNING SCHEME AND URBAN GROWTH ZONE

The Greater Geelong Planning Scheme sets out objectives, strategies and policy for the use, development and protection of land in the City of Greater Geelong, including the Growth Areas.

The planning scheme includes the PPF and applies a zone (the UGZ) to land within the Growth Areas.

A key purpose of the UGZ is to manage the transition of non-urban land identified for urban growth into urban land.

Within the UGZ, a PSP must be prepared before non-urban land can be converted into urban land. The UGZ allows detailed planning requirements for the precinct to be specified in schedules to the zone to ensure development proceeds generally in accordance with the PSP. The schedules incorporate the future structure plan of each PSP and allow:

- Zones to be applied to the land consistent with the urban structure in the PSP and/or specific provisions as an alternative to zones or alongside zones that control land-uses and development
- Requirements for permit applications for subdivision and development
- Conditions or requirements that must be included on a permit
- Decision guidelines that must be considered in granting a permit

2.3.4 PRECINCT STRUCTURE PLANS AND NATIVE VEGETATION PRECINCT PLANS

PRECINCT STRUCTURE PLANS

PSPs are high-level strategic plans that set out the preferred spatial location of land uses and infrastructure within each precinct, including details of the future urban structure of the precinct. This helps to stage development within an area and guide provision of subdivision permits, building permits and infrastructure delivery. Although PSPs provide a level of certainty for development, they are intended to be flexible to allow for site specific considerations.

The City will prepare PSPs for each of the nine precincts within the Growth Areas in accordance with the strategies in Clause 11.02-2L 'Northern and Western Geelong Growth Areas' of the Greater Geelong Planning Scheme. These strategies require the development to be generally in accordance with the Framework Plan map and sequenced generally in accordance with the Development Sequencing maps that form part of the clause. PSPs will also consider the *Precinct Structure Planning Guidelines: New Communities in Victoria* (Victorian Planning Authority, 2021).

PSPs will be prepared over approximately 10 to 15 years. Each PSP will be a self-contained project and will be incorporated into the planning scheme via a planning scheme amendment process.

The PSP process involves several key steps, including:

- Early consultation with stakeholders to develop a vision for the precinct
- Preparation of technical studies and reports to understand key issues and constraints for the precinct, and to inform planning and management responses to be addressed in the PSP
- An opportunity for stakeholders to raise concerns and make submissions through public exhibition
- An independent planning panel hearing to consider and resolve key technical, planning and stakeholder issues
- Approval of the PSP and incorporation into the Greater Geelong Planning Scheme through a planning scheme amendment

PSPs include requirements and guidelines for the development of the precinct and are implemented primarily through planning permits. They inform the preparation and assessment of permit applications and the conditions that may be placed on planning permits.

Once a PSP has been incorporated into the planning scheme by a planning scheme amendment, planning permits can be granted by the responsible authority for urban development as set out in the UGZ.

NATIVE VEGETATION PRECINCT PLANS

A permit is usually required to remove native vegetation in Victoria. Removal of native vegetation is regulated through clause 52.16 'Native Vegetation Precinct Plan' and clause 52.17 'Native vegetation' of planning schemes.

NVPPs will be used to assess and manage the impacts of native vegetation removal in the Growth Areas. They provide for the strategic management of native vegetation within a precinct. NVPPs identify the native vegetation to be retained and that can be removed, and the offset requirements for the vegetation to be removed. NVPPs switch off the need for a permit to remove native vegetation where removal is in accordance with an NVPP.

NVPPs will be prepared for each precinct within the Growth Areas containing native vegetation in conjunction with the preparation of PSPs and will be incorporated in the schedule to Clause 52.16 via a planning scheme amendment.

The purpose of an NVPP is to ensure no net loss to biodiversity because of the removal of native vegetation. This is to be achieved by applying the three-step approach in the Native Vegetation Guidelines (DELWP, 2017c), which is:

- Avoid the removal of native vegetation
- Minimise impacts from the removal of native vegetation that cannot be avoided
- Provide an offset to compensate for the impact of the removal of native vegetation

NVPPs must be prepared in accordance with Clause 52.16, including the *Guidelines for the removal, destruction or lopping of native vegetation* (DELWP, 2017c) and in consideration of the Greater Geelong Planning Scheme, including:

- Planning Policy Framework Clause 12.01-1S – 'Protection of biodiversity'
- Other relevant plans, strategies or policies that are incorporated in the Greater Geelong Planning Scheme, including the Framework Plan and any relevant PSP

The preparation of an NVPP requires an assessment of the importance of the native vegetation for biodiversity, land and water protection, landscape and cultural values. This is documented in a site assessment report.

2.3.5 PLANNING PERMITS

Responsible authorities approve planning permits for subdivision and development that are consistent with the Greater Geelong Planning Scheme and generally in accordance with the relevant PSP that applies to the land.

The permit application process involves several key steps, including:

- Preparation of technical studies and reports that support the application and inform the planning decision, including plans to address the potential impacts of the development
- Referral of the application to specialist referral authorities for advice and comment where required – these may object to the permit or specify conditions to be included on a permit to address potential impacts
- An opportunity for stakeholders to raise concerns and make submissions through a notification process
- Inclusion of conditions on permits to address the potential impacts of the development
- An opportunity to review the merits of a permit decision at the Victorian Civil and Administrative Tribunal

The UGZ requires that, before deciding on an application for subdivision or development the responsible authority must consider, in addition to a general set of decision guidelines in Clause 65:

- The Municipal Planning Strategy and the Planning Policy Framework
- Any relevant Growth Area framework plan, such as the Framework Plan
- Any PSP applying to the land, including the vision and objectives of the plan

Furthermore, permits granted for subdivision or development must:

- Be generally in accordance with the PSP
- Include any conditions or requirements specified in the schedule to the Urban Growth Zone or the PSP

2.3.6 IMPLEMENTATION OF THE PLAN THROUGH THE PLANNING SYSTEM HIERARCHY

Table 2-2 summarises how each part of the planning system hierarchy is proposed to be used to implement the Plan.

Table 2-2: Summary of how each part of the planning system hierarchy will be used to implement the Plan

Part of planning system hierarchy	Summary of implementation approach	Implementation mechanism
PPF	The PPF will be given effect in the Growth Areas through the development of PSPs, planning permits, and other decision-making related to development. A planning authority must take into account the PPF when preparing an amendment to a planning scheme and a responsible authority must take into account and give effect to the PPF when it makes a decision under the planning scheme, such as a decision to grant a permit	PSPs, planning permits
Framework Plan	The Framework Plan will inform the subsequent preparation of more detailed PSPs to be prepared for each precinct within the Growth Areas Policy will be introduced into the Greater Geelong Planning Scheme to give effect to the commitments in the BCS	Planning scheme amendment
Greater Geelong Planning Scheme and UGZ	Schedules to the UGZ for each precinct will apply environment zones to the strategic conservation areas (see Chapter 5) and specify requirements for permit applications, conditions to be included on permits, and decision guidelines to ensure development proceeds generally in accordance with the PSP and give effect to commitments in the Plan, where appropriate	Planning scheme amendments to incorporate schedules to the UGZ
PSPs	PSPs will be prepared for each of the precincts within the Growth Areas PSPs will identify the strategic conservation areas (see Chapter 5) as to be protected for conservation in the urban structure maps for the precinct PSPs will include requirements and guidelines for the development of the precinct to give effect to commitments in the Plan, where appropriate	Planning scheme amendments to incorporate PSPs and NVPPs into the planning scheme
NVPPs	NVPPs will be prepared for each precinct containing native vegetation in conjunction with the preparation of PSPs NVPPs for precincts containing native vegetation will identify the vegetation in the strategic conservation areas (see Chapter 5) as to be retained and the remaining native vegetation as to be removed, and will specify the offsets needed to meet State biodiversity policy	
Planning permits	Planning permits will be granted generally in accordance with the PSP, and in accordance with the requirements of the relevant UGZ schedule and other requirements of the planning scheme	Planning permits

3 Objective and outcomes of the Plan

3.1 INTRODUCTION

The Plan identifies a broad objective, as well as six outcomes relating to the protection of MNES under the EPBC Act and socio/economic considerations. The Plan's outcomes represent standards of environmental protection that will be achieved for MNES under the Plan in accordance with the requirements of the EPBC Act. The Plan's objective and outcomes will be achieved through the delivery of a set of commitments and measures.

The objective, outcomes, commitments and measures were developed through an 'outcomes framework' based on program logic principles. The outcomes framework provides a way to structure what the Plan will deliver for the conservation of protected matters in a clear and logical way. It supports accountability and transparency by providing the basis and a set of benchmarks for monitoring, reporting, and ongoing evaluation and adaptive management of the Plan.

The outcomes framework is a requirement of the Endorsement Criteria in the Strategic Assessment Agreement.

3.2 OUTCOMES FRAMEWORK

The outcomes framework is comprised of four components:

- A broad ***objective***
- ***Outcomes***
- ***Commitments*** to deliver the outcomes
- ***Measures*** to implement the commitments

The definition of each of these is provided in Table 3-1.

The logic underpinning the outcomes framework is designed to ensure that:

- The objective, outcomes, commitments and measures align so that implementing the measures and commitments is expected to lead to the outcomes and objective of the Plan being achieved
- Assumptions about the relationships between these can be identified and tested so that implementation can be adaptively improved over time where necessary under changing circumstances

3.2.1 OUTCOMES AND COMMITMENTS VERSUS MEASURES

The Plan's outcomes and commitments are set out in the Plan and will not be changed once the Plan is endorsed under Part 10 of the EPBC Act. The measures to implement the commitments are set out in the Commitments and Measures document and are not set out in this Plan (see Section 1.3).

While the commitments in this Plan will not be changed once the Plan is endorsed, the measures may be updated from time to time over the life of the Plan through an adaptive management process in accordance with the Plan's MERI framework (see Section 7.5).

The improvement step of the MERI framework provides the opportunity to adaptively manage implementation of the Plan to ensure the commitments are successfully delivered and the Plan's objective and outcomes are achieved.

Table 3-1: Definition of the components of the outcomes framework

Framework component	Definition
Objective	The contribution that the outcomes of the Plan will make to broader State-wide, regional and local planning policies. It articulates the reason the Plan is being undertaken and the broad goal it is intended to support

Framework component	Definition
Outcomes	The impacts or changes to environmental and socio/economic conditions that are expected to be achieved because of the delivery of the commitments and that are needed to achieve the overall objective of the Plan
Commitments	The direct results of implementing the measures that are expected to lead to the achievement of the outcomes
Measures	The specific actions that will be undertaken to meet the commitments

3.3 OBJECTIVE OF THE PLAN

The objective of the Plan is to:

Provide for the protection of matters of national environmental significance while supporting the delivery of the Northern and Western Geelong Growth Areas Framework Plan and its objectives

3.4 OUTCOMES OF THE PLAN

The outcomes of the Plan are set out in Table 3-2. Refer to the Commitments and Measures document for an explanation and justification of each outcome.

The outcomes have been defined in way to provide both:

- Assurance that appropriate standards of environmental protection will be met, and
- Sufficient flexibility to support the implementation of the Plan over its life in a complex and dynamic ecological, social, and economic environment

The outcomes have been developed to be:

- Specific in relation to scope and how the Plan will contribute to the outcome relative to other influences
- Measurable and able to be reported against
- Achievable within the scope of the Plan

The outcomes are fixed for the life of the Plan for the purposes of the EPBC Act once the Plan is endorsed.

The approval holder is responsible for tracking progress against the achievement of outcomes under the Plan's monitoring, evaluation, reporting and improvement framework and adjusting measures as necessary through adaptative management to ensure the outcomes will be achieved.

Table 3-2: Outcomes of the Plan

No.	Outcome
1	Populations of Golden Sun Moth and Striped Legless Lizard are maintained within the NGGA Conservation Area
2	The long-term viability of the important population of the Growling Grass Frog along Cowies Creek is supported through the protection and enhancement of habitat within the WGGA
3	The protection and management of land outside of the Growth Areas makes an important contribution to the recovery efforts for Natural Temperate Grassland, Golden Sun Moth and Striped Legless Lizard in Victoria
4	Matters of national environmental significance associated with waterways, riparian areas and wetlands are protected from any notable adverse impacts of development under the Plan
5	The Plan improves regulatory efficiency by streamlining EPBC Act approvals
6	Implementation of the Plan is effective, timely, and cost efficient

3.5 COMMITMENTS

The commitments of the Plan are set out under the development, conservation, and assurance and implementation chapters in the Plan (Chapter 4, Chapter 5, and Chapter 6 respectively).

The Plan's commitments cover:

- Incorporating the Plan into the planning system hierarchy so that development occurs in accordance with the Plan
- A series of conservation commitments relating to:
  - Avoiding and minimising impacts
  - Mitigating impacts
  - Offsetting residual impacts
- A series of assurance and implementation commitments, relating to:
  - Governance
  - Funding
  - MERI
  - Compliance

The City, as approval holder, is responsible for ensuring the commitments are implemented and for monitoring and reporting on progress in delivering the commitments under the MERI framework (see Chapter 7.5).

3.6 MEASURES

Each commitment has a set of measures associated with it. The implementation of those measures is expected to deliver the commitments.

The measures set out:

- What will be done to deliver the commitment
- Responsibilities for implementation
- Any relevant key support partners for implementation
- Timing of implementation
- Where appropriate:
  - The relevant standards or methods that will be applied
  - Any conditions relating where, when and under what circumstance actions will be carried out

The City, as approval holder, is responsible for ensuring the measures are implemented and for monitoring and reporting on progress in delivering the measures under the MERI framework (see Chapter 7.5). Measures may be adjusted as necessary through adaptative management to ensure the outcomes and commitments are delivered.

The full list of the Plan's commitments and associated measures are provided in the Commitments and Measures document.

4 Development supported by the Plan

4.1 INTRODUCTION

Following endorsement and associated approvals under the EPBC Act, the Plan enables certain development to proceed without the need for further assessment and approval for impacts on protected matters under the EPBC Act.

This section describes the development that is supported by the Plan and includes details of the following:

- Where development can occur
- Development actions that are supported by the Plan
- Development that is not covered by the Plan
- Who can undertake development and their requirements
- Changes to the boundaries of the land subject to development

4.1.1 COMMITMENTS

The Plan's commitments for development are provided in Table 4-1.

The measures to implement these commitments are described in the Commitments and Measure document.

Table 4-1: Commitments for development

No.	Commitment
1	Development within the Strategic Assessment Area will proceed in accordance with any Commonwealth approval conditions and generally in accordance with the EPBC Plan and NWGGA Biodiversity Conservation Strategy
2	Proposed minor changes to the boundaries of land subject to development will meet the eligibility for consideration and be in accordance with the process for considering changes set out in Section 4.5 of the Plan

4.2 LOCATION OF DEVELOPMENT

4.2.1 DEVELOPMENT IN THE GROWTH AREAS

Development under the Plan is only proposed to occur within specific locations in the Strategic Assessment Area (development land). This includes:

- 'Land subject to development' within the Growth Areas. This land covers 2,664.5 ha across the Growth Areas and is shown in Figure 4-1. Development within this land is proposed for all classes of actions (see Section 4.3)
- The 'NGGA Conservation Area' within the avoided land in the NGGA (see Figure 4-1). Development within this area is restricted to the environmental management class of actions (see Section 4.3.5)
- The 'Cowies Creek Conservation Area' and Moorabool River Corridor within the avoided land in the WGGA (see Figure 4-1). Development within these areas is restricted to the environmental management class of actions and limited activities under the supporting infrastructure and services class of actions (see Sections 4.3.4 and 4.3.5)

Development within the NGGA Conservation Area will be in accordance with the principles set out in Section 4.3.5.

Development within the Cowies Creek Conservation Area and Moorabool River Corridor will be in accordance with the principles set out in Section 4.3.5 and will be limited to the minimum activities required to facilitate any actions required under the supporting infrastructure and services class of actions in accordance with the principles set out in Section 4.3.4.

Although approval is being sought to develop all land subject to development, some of this land may not be developed following the PSP process that will occur during the implementation phase of the Plan. This could be due to the establishment of open space, reduced development requirements, or unforeseen development constraints.

4.2.2 EXTERNAL INFRASTRUCTURE DEVELOPMENT

Some development – called 'external infrastructure development' – may occur outside the Growth Areas within the Strategic Assessment Area. This development is limited to the supporting infrastructure and services class of actions and the environmental management class of actions (see Sections 4.3.4 and 4.3.5).

The Plan shows indicative locations where external infrastructure development is intended to occur (see Figure 4-1) and includes a set of commitments to ensure this development is located to avoid and minimise impacts to MNES.

The delivery of external infrastructure development is described further in Chapter 6.

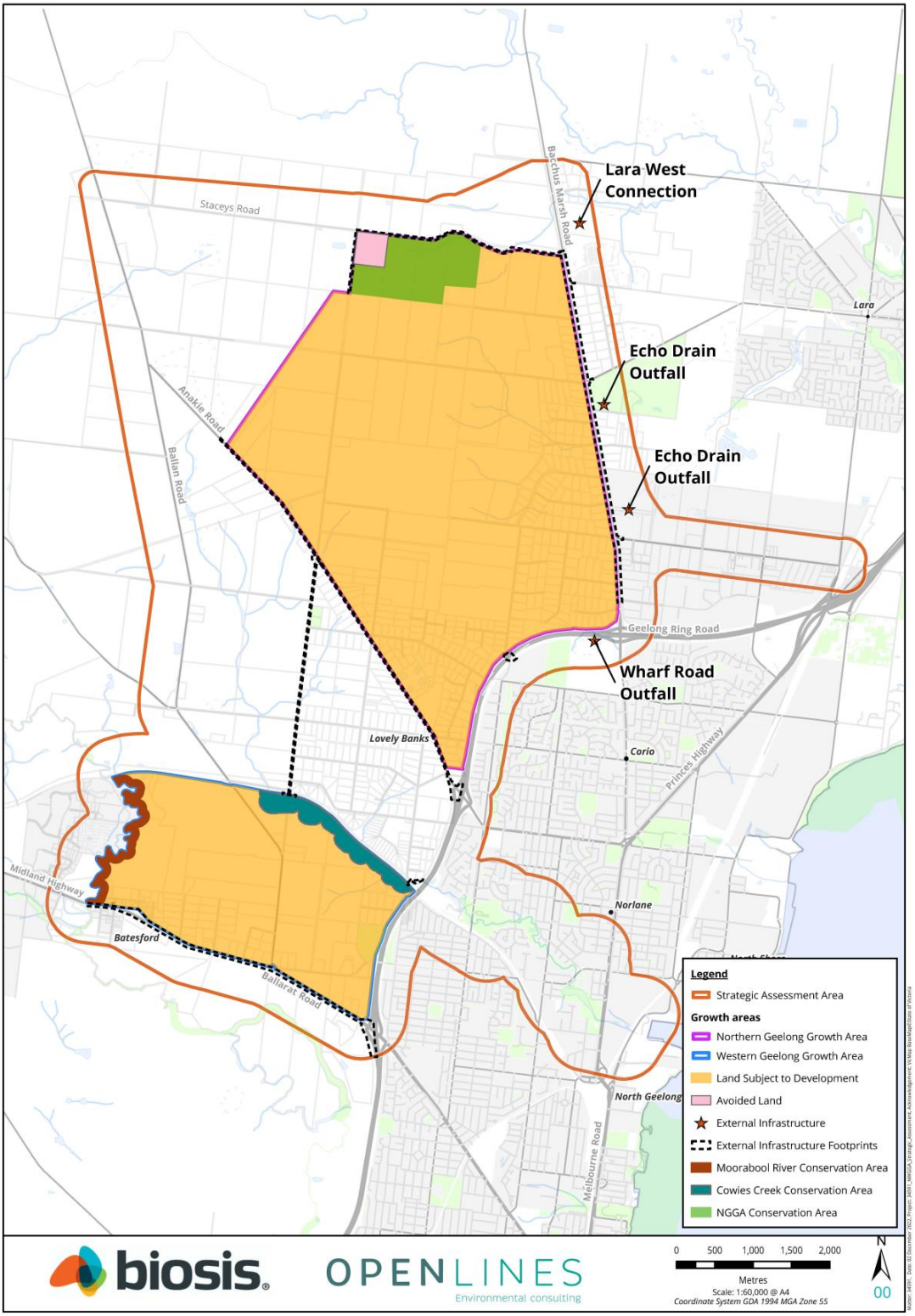

Figure 4-1: Development and conservation land within the Strategic Assessment Area

4.3 DEVELOPMENT CLASSES OF ACTIONS

Development is approved under Part 10 of the EPBC Act through 'classes of actions' that represent the scope of development that may be undertaken through the Plan. There are five classes of actions that are included in the Plan:

- Urban and commercial development
- Industrial development
- Rural development
- Supporting infrastructure and services
- Environmental management

The Minister may approve the classes of actions in accordance with the endorsed Plan. If granted, the classes of actions approval will set out what actions are approved and the conditions of approval. The intention of the strategic assessment is for the classes of actions as described in this Plan to be approved.

Each class of actions is defined below and includes a number of broad 'development types'. Specific examples of the various 'impact activities' that may be undertaken as part of each development type are also provided.

The example impact activities are intended to provide an understanding of the specific actions that are considered within the scope of each class of actions and are defined as per the VPP. These lists are not intended to be exhaustive. Certain impact activities that are not listed may be considered within the scope of approved classes of actions where:

- The action could reasonably be considered to be part of that class of actions
- The impacts of the action are substantially the same as those listed and assessed in the Strategic Assessment Report

Certain development and actions are also considered to be out of scope for this Plan (see Section 4.3.6).

4.3.1 URBAN AND COMMERCIAL DEVELOPMENT

The urban and commercial development class of actions covers actions and activities associated with residential and commercial areas. It includes the construction, operation, maintenance, and decommissioning of the following:

- Residential buildings and accommodation
- Education centres
- Leisure and recreation premises
- Offices
- Places of assembly and public buildings
- Retail premises
- Community services

Table 4-2 sets out the development types and example impact activities that are covered by this class of actions. The impact activities are as defined in the VPP, unless subject to specific exclusions (see Section 4.3.6).

All activities under the urban and commercial development class of actions can only occur within the land subject to development.

Table 4-2: Development types and example impact activities included in urban and commercial development class of actions

Development type	Examples of specific impact activities
Residential buildings and accommodation	• Dwelling • Residential aged care facility • Group accommodation • Motel • Camping and caravan park • Display home centre

Development type	Examples of specific impact activities
Education centres	• Child care centre • Primary school • Secondary school • Tertiary institution
Leisure and recreation premises	• Indoor recreation facility • Outdoor recreation facility • Open sports ground
Offices	• Bank • Medical centre • Real estate agency • Home based business
Places of assembly and public buildings	• Cinema • Exhibition centre • Function centre • Library • Place of worship
Retail premises	• Food and drink premises • Postal agency • Landscape and garden supplies • Market • Supermarket • Hairdresser
Community services	• Emergency services facility • Hospital • Veterinary centre • Service station

4.3.2 INDUSTRIAL DEVELOPMENT

The industrial development class of actions covers actions and activities associated with the construction and operation of facilities for industrial use. It includes the construction, operation, maintenance, and decommissioning of:

- Industry
- Warehouses
- Energy generation

Table 4-3 sets out the development types and example impact activities that are covered by this class of actions. The impact activities are as defined in the VPP, unless subject to specific exclusions (see Section 4.3.6).

All activities under the industrial development class of actions can only occur within the land subject to development.

Table 4-3: Development types and example impact activities included in industrial development class of actions

Development type	Examples of specific impact activities
Industry	• Materials recycling • Refuse disposal • Research centre • Car wash • Dry cleaner • Transfer station
Warehouses	• Fuel depot • Mail centre • Boat and caravan storage • Vehicle store
Energy generation	• Solar farm facility

4.3.3 RURAL DEVELOPMENT

The rural development class of actions covers actions and activities associated with the use of rural land for agriculture and associated activities.

All activities under the rural development class of actions can only occur within the land subject to development.

Table 4-4 sets out the development types and example impact activities that are covered by this class of actions. The impact activities are as defined in the VPP, unless subject to exclusion (see Section 4.3.6).

All activities under the rural development class of actions can only occur within the land subject to development.

Table 4-4: Development types and example impact activities included in rural development class of actions

Development type	Examples of specific impact activities
Agriculture	• Grazing animal production • Animal training • Domestic animal husbandry • Horticulture • Market garden • Saleyard • Winery

4.3.4 SUPPORTING INFRASTRUCTURE AND SERVICES

The supporting infrastructure and services class of actions covers actions and activities that are required to facilitate and support all other types of development. This covers a wide range of activities including (but not limited to) those required for the supply of water, electricity, fuel, transport, telecommunications, the removal of waste, as well as safety interventions like erosion prevention. It includes the construction, operation, maintenance, and decommissioning of:

- Transport terminals
- Utility installation
- Supporting infrastructure

Table 4-5 sets out the development types and example impact activities that are covered by this class of actions. The impact activities are as defined in the VPP, unless subject to specific exclusions (see Section 4.3.6).

Table 4-5: Development types and example impact activities included in supporting infrastructure and services class of actions

Development type	Description or examples of specific impact activities
Transport terminals	• Bus terminal • Railway station
Utility installation	Includes land used: • For telecommunications • To transmit or distribute gas or oil • To transmit, distribute or store power including battery storage • To collect, treat, transmit, store or distribute water • To collect, treat, or dispose of storm or flood water, sewage, or sullage
Supporting infrastructure	• Transport system • Car park • Sign • Freeway service centre

All activities under the supporting infrastructure and services class of actions can only occur within the following locations (except where this is external infrastructure development – see below):

- Land subject to development
- Cowies Creek Conservation Area (noting the limited scope of permissible activities outlined below)
- Moorabool River Corridor (noting the limited scope of permissible activities outlined below)

Within the Cowies Creek Conservation Area and Moorabool River Corridor, the following specific impact activities (as defined in the VPP) are not permissible under the supporting infrastructure and services class of actions:

- All activities included within the 'transport terminals' category under the VPP
- The following activities included within the 'utility installation' category under the VPP:
  - Data centre
  - Telecommunications facility
- All activities included within 'transport system' under the VPP (except for cycling paths and footpaths and their associated infrastructure)
- The following specific impact activities (as defined in the VPP):
  - Car park
  - Freeway service centre
  - Helicopter landing site

Within the Cowies Creek Conservation Area and Moorabool River Corridor, development under this class of actions must also be undertaken in accordance with the following principles and standards:

- Development does not prevent the achievement of any environmental objectives, outcomes, commitments or management actions established for the areas
- Development does not directly impact habitat for MNES
- Potential indirect impacts are minimised as much as possible by implementing mitigation measures

In addition, for the Cowies Creek Conservation Area, opportunities to enhance the MNES values of the area are maximised in the design and planning process for the class of actions.

EXTERNAL INFRASTRUCTURE DEVELOPMENT

External infrastructure development includes the supporting infrastructure and services class of actions where that is located outside the Growth Areas within the Strategic Assessment Area. The Plan shows indicative locations where external infrastructure development is intended to occur (see Figure 4-1).

The delivery of external infrastructure development is described further in Chapter 6.

4.3.5 ENVIRONMENTAL MANAGEMENT

The environmental management class of actions covers actions and activities that are required to facilitate environmental management under the Plan. The management class of action will be undertaken for the activity types and associated specific activities defined in Table 4-6.

Table 4-6: Activity types and example activities included in environmental management class of actions

Activity type	Examples of specific activities
Growling Grass Frog habitat construction and management	• Constructing and managing wetlands to provide habitat for the Growling Grass Frog in the Cowies Creek Conservation Area
Vegetation and habitat management activities	• Biomass reduction to manage native grasslands (such as controlled burns and sheep grazing) • Pest plant and animal control works • Revegetation activities (such as direct seeding) to restore degraded vegetation
Supporting infrastructure for avoided land	• Exclusion fencing • Signage • Paths or tracks required for management activities

All activities under the environmental management class of actions can only occur within the following locations (except where this is external infrastructure development – see below):

- Land subject to development
- NGGA Conservation Area
- Cowies Creek Conservation Area
- Moorabool River Corridor

Activities under this class of actions must be undertaken in accordance with the following principles and standards:

- Activities will only be undertaken only where it is sympathetic to or enhances habitat values or attributes for MNES
- Activities are consistent with any environmental objectives, outcomes, commitments or management actions established for the relevant areas
- The overall benefit of the activities is greater than the potential impacts
- The activities will be consistent with relevant best practice methods or guidelines, such as the *Growling Grass Frog Habitat Design Standards* (DELWP, 2017b) and other MNES standards as relevant (noting that these are likely to change and/or be updated throughout implementation of the Plan)
- The mitigation hierarchy is applied to ensure any negative impacts are avoided and mitigated as much as practicable while still allowing the necessary environmental management activity to be undertaken

EXTERNAL INFRASTRUCTURE DEVELOPMENT

External infrastructure development includes the environmental management class of actions where that is located outside the Growth Areas within the Strategic Assessment Area. The Plan shows indicative locations where external infrastructure development is intended to occur (see Figure 4-1).

The delivery of external infrastructure development is described further in Chapter 6.

4.3.6 DEVELOPMENT NOT COVERED BY THE PLAN

Development that is not covered by the Plan includes the following:

- Actions that are already approved under the EPBC Act

- Actions that do not require approval under the EPBC Act because:
  - They have prior authorisation or are subject to continuing use provisions (in accordance with sections 43A and 43B of the EPBC Act)
  - They are within the scope and are undertaken in accordance with a previous referral that was determined to be 'not a controlled action' under Part 7 of the EPBC Act
- Any classes of actions that are not described in the Plan
- The following specific impact activities (as defined in the VPP) that were considered in the planning process for the strategic assessment and excluded from the Plan:
  - Airport
  - All activities included within the 'earth and energy resources industry' category under the VPP
  - All activities included within the 'energy' category under the VPP (except for solar energy facility which is permitted under the industrial development class of action, see Table 4-3)
  - All activities included within the 'recreational boat facility' category under the VPP
  - Aquaculture
  - Broiler farm
  - Cattle feedlot
  - Heliport
  - Intensive animal production
  - Intensive dairy farm
  - Marine dredging
  - Pig farm
  - Poultry farm
  - Poultry hatchery
  - Reservoir
  - Rice growing
  - Timber production
  - Wharf

If actions that have been excluded from the scope of the Plan are proposed to take place within the Plan area in the future, they will be subject to separate assessment and approval under the EPBC Act.

4.4 PERSONS WHO CAN UNDERTAKE DEVELOPMENT AND THEIR OBLIGATIONS

Any person can undertake development within the Plan area and access the associated Part 10 EPBC approval provided the following requirements are met:

- Development must comprise the classes of actions as defined in this Chapter
- Development must only occur in the development land as defined in this Chapter
- Development must proceed in accordance with any Commonwealth conditions of approval
- Development must proceed generally in accordance with the Plan, including the avoidance and minimisation, mitigation and offset requirements of the Plan
- Developers must pay any required biodiversity levy (see Section 7.4)
- Development must be registered in accordance with the developer registration system (see Section 7.5.4)
- Development must comply with any conditions imposed by way of the developer registration system *including* conditions concerning the delivery of offsets and an obligation to pay a levy implementing the plan.

Development that does not meet these requirements may need separate approval under the EPBC Act.

The Victorian planning system is the key delivery framework for implementing the Plan (see Section 2.3). The planning system has a key role in ensuring regulated third-parties (developers) undertake development under the Plan in accordance with the Commonwealth approval conditions and requirements of the Plan.

The Commitments and Measures document details the specific measures that will be taken to ensure the Plan's requirements are incorporated in the Greater Geelong Planning Scheme.

4.5 CHANGES TO THE BOUNDARIES OF LAND SUBJECT TO DEVELOPMENT

The Plan provides a process to allow minor changes to the boundaries of land subject to development where this is necessary to address planning issues during the preparation of PSPs. Provided these changes are made in accordance with the requirements of the Plan, any impacts of these changes on MNES are covered by the Part 10 EPBC approval associated with the Plan and additional approval is not required under Part 9 of the EPBC Act.

Proponents of the boundary change may include the City, developers, or infrastructure providers.

The commitment allowing minor boundary changes is set out in Table 4-1. This requires any changes to meet the eligibility for consideration and be in accordance with the process for considering changes set out in this section.

4.5.1 REQUIREMENTS TO BE MET

ELIGIBILITY FOR CONSIDERATION

The following criteria must be met for boundary changes to land subject to development to be eligible for consideration:

- The boundary change is minor in terms of scale, and is limited to the site or subdivision scale, and
- The boundary change is necessary to support a planning proposal identified through the PSP process to either:
  - Meet the urban planning objectives or priorities of the relevant PSP, or
  - Reduce the risk of impacts from the development on MNES, and
- It can be demonstrated that no feasible urban design alternatives to the planning proposal requiring the boundary change exist within the existing boundary of land subject to development, and
- The boundary change does not modify the boundaries of the NGGA Conservation Area or Cowies Creek Conservation Area unless it can be demonstrated that there will be no increase in risks on MNES and that there will be no net loss in extent and condition of habitat for MNES within the conservation areas

The City will consider planning proposals that require a boundary change to the land subject to development and advise proponents of their eligibility or how the planning proposal could be adjusted to meet the criteria.

PROCESS FOR CONSIDERING BOUNDARY CHANGES

The following process will be followed for planning proposals requiring a boundary change to the land subject to development that are deemed eligible by the City for consideration:

- Undertake ecological surveys within the proposed new land subject to development for all protected matters with the potential to occur. Surveys must be undertaken by a qualified ecologist in accordance with relevant guidelines
- Prepare a report assessing the potential direct and indirect impacts of the planning proposal on protected matters within the proposed new land subject to development. The report must demonstrate how impacts will be avoided and minimised, mitigated, and offset in accordance with the offsets mitigation hierarchy and the EPBC Act Offsets Policy (DSEWPC, 2012)
- The report must be provided to the City Implementation Group (see Section 7.3) along with GIS spatial files showing the boundary change and proposed location of the new land subject to development
- The City Implementation Group will consider the report and will provide a copy to the EPBC Plan Executive Committee and the Commonwealth Government Department of Climate Change, Energy, the Environment and Water (DCCEEW) for review and comment
- If the planning proposal within the proposed new land subject to development will impact MNES or proposes to modify the boundaries of the NGGA Conservation Area or the Cowies Creek Conservation Area, the change must be endorsed by DCCEEW. Other changes will be endorsed by the City Implementation Group
- Once the boundary change and proposed new land subject to development is approved:
  - Relevant maps in the BCS will be updated
  - The PSP will show the new boundary of land subject to development
  - The boundary change will be reported in the annual progress report for that year (see Section 7.5.4)

5 Conservation framework

5.1 INTRODUCTION

The Plan includes a conservation framework for protecting MNES that has been developed to achieve the Plan's objective and biodiversity-related outcomes.

The Plan's conservation framework for protecting MNES has been developed in accordance with the offset mitigation hierarchy (DSEWPC, 2012). The mitigation hierarchy requires impacts on MNES to be firstly avoided and minimised to the greatest extent practicable, and then mitigated. The remaining residual impacts can then be offset.

This Chapter describes the Plan's conservation framework, including:

- Purpose of the conservation framework
- Relevant protected matters for the Plan
- Avoidance and minimisation of impacts
- Mitigation of impacts
- Residual impacts and offsets

5.1.1 IMPLEMENTATION OF THE CONSERVATION FRAMEWORK

The Plan's conservation framework for protecting MNES will be implemented through a series of commitments and measures that are set out in this Chapter and provided in the Commitments and Measures document.

The conservation framework sets out commitments that will be delivered for:

- Avoiding and minimising impacts to MNES
- Mitigating impacts to MNES
- Offsetting residual impacts to MNES

These commitments will be delivered through a series of detailed measures. Further description of the measures and their implementation are provided in the BCS.

While the commitments associated with the Plan's conservation framework will not change, the measures proposed to implement these commitments are subject to change (see Section 3.2). This would occur through an adaptive management process in accordance with the Plan's MERI framework (see Section 7.5). The BCS and Commitments and Measures document may be updated from time to time over the life of the Plan (see Section 7.8).

The Plan's assurance and implementation framework (see Chapter 7) also supports the conservation framework. This includes a range of commitments to support delivery of the conservation framework, including relating to governance, MERI, compliance, and funding the implementation of the Plan.

5.2 PURPOSE OF THE CONSERVATION FRAMEWORK

The purpose of the conservation framework is to ensure:

- Development within the Plan area avoids and minimises, mitigates, and offsets impacts to MNES in accordance with the requirements of the EPBC Act and the Endorsement Criteria in the Strategic Assessment Agreement
- The Plan's biodiversity-related outcomes for MNES are achieved

5.3 RELEVANT PROTECTED MATTERS

Protected matters relevant to the Plan are the protected matters that may be impacted directly, indirectly and/or cumulatively by actions proposed to be taken under the Plan (as defined in the Strategic Assessment Agreement). For these matters, an assessment of the potential impacts of the proposal is required in the SAR. The SAR provides the

method for identifying relevant protected matters that have the potential to be impacted (see Part 3 of SAR) and assesses impacts to each protected matter (see Part 4 of SAR).

SPECIES AND ECOLOGICAL COMMUNITIES

The relevant species and ecological communities are listed in Table 5-1. These include:

- One threatened ecological community
- Twenty threatened species
- Seven migratory species

Table 5-1: Relevant species and ecological communities

Type of relevant protected matter	Species or ecological community
Threatened ecological communities (TECs)	Natural Temperate Grassland of the Victorian Volcanic Plain
Threatened flora	*Lachnagrostis adamsonii* (Adamson's Blown-grass)
	Pimelea spinescens subsp. *spinescens* (Spiny Rice-flower)
Threatened fauna	*Botaurus poiciloptilus* (Australasian Bittern)
	Calidris canutus (Red Knot)
	Calidris ferruginea (Curlew Sandpiper)
	Calidris tenuirostris (Great Knot)
	Charadrius leschenaultii (Greater Sand Plover)
	Charadrius mongolus (Lesser Sand Plover)
	Delma impar (Striped Legless Lizard)
	Galaxiella toourtkoourt (Eastern Dwarf Galaxias) (previously *Galaxiella pusilla*)
	Limosa lapponica baueri (Western Alaskan Bar-tailed Godwit)
	Litoria raniformis (Growling Grass Frog)
	Nannoperca obscura (Yarra Pygmy Perch)
	Neophema chrysogaster (Orange-bellied Parrot)
	Neophema chrysostoma (Blue-winged Parrot)
	Numenius madagascariensis (Eastern Curlew)
	Prototroctes maraena (Australian Grayling)
	Rostratula australis (Australian Painted Snipe)
	Sternula nereis (Australian Fairy Tern)
	Synemon plana (Golden Sun Moth)
Migratory species	*Calidris acuminata* (Sharp-tailed Sandpiper)
	Calidris ruficollis (Red-necked Stint)
	Charadrius bicinctus (Double-banded Plover)
	Gallinago hardwickii (Latham's Snipe)
	Sternula albifrons (Little Tern)
	Tringa nebularia (Common Greenshank)
	Tringa stagnatilis (Marsh Sandpiper)

OTHER RELEVANT PROTECTED MATTERS

One Ramsar site, the Port Phillip Bay (Western Shoreline) and Bellarine Peninsula is also a relevant protected matter. Parts of this Ramsar site are located downstream of the Growth Areas and have the potential to be indirectly impacted by the proposed development under the Plan associated with changes to water flows and water quality.

There are no other relevant protected matters.

5.4 AVOIDANCE AND MINIMISATION OF IMPACTS

5.4.1 CONTEXT

Avoiding and minimising impacts to MNES is the first step in the offset mitigation hierarchy. The avoidance process provides opportunities to avoid and protect areas of high biodiversity value and is fundamental to a determination that commitments adequately address the likely impacts on MNES and reducing the need for offsets.

Avoidance is a requirement of the Endorsement Criteria in the Strategic Assessment Agreement (Attachment 2, Clause 3(c)), which requires the Plan to describe how impacts will be avoided.

There may be several reasons why land is avoided, including because land:

- Has high biodiversity values and is avoided for biodiversity purposes
- Is not strategically located and is therefore not a priority for development
- Is not generally suitable for development for another reason such as topography or land use conflict

Avoidance is defined in the Plan as any land not directly impacted by development within the Growth Areas.

The Plan considered the proposed development for the Growth Areas set out in the Framework Plan and applied a strategic planning process to consider and resolve conflicts between areas identified as high biodiversity value and areas proposed for development in the Framework Plan. This avoidance planning comprised three processes:

- Strategic level planning to locate the Growth Areas and identify initial avoidance priorities
- Locating and designing the development within the Growth Areas to avoid impacts
- Future precinct and site-scale planning

These processes are described in detail in the BCS, and avoidance outcomes for MNES are justified in the SAR.

The strategic planning process at the Growth Area level led to the identification in the Plan of two strategic conservation areas that will be avoided from development and protected and managed to conserve MNES in-perpetuity. These are:

- The NGGA Conservation Area in the NGGA
- Cowies Creek Conservation Area in the WGGA

Strategic conservation areas represent high biodiversity value areas that contain the most important Commonwealth, State and local biodiversity values in the Growth Areas, and are the areas considered most likely to be viable in the long-term because of their size, condition, shape and location in the landscape.

These two strategic conservation areas are described in Section 5.4.3.

The strategic planning process also led to the identification of two additional strategic conservation areas to protect State and local biodiversity values within the Growth Areas, as well as several biodiversity opportunity areas and investigation areas, which will be subject to further consideration and decisions on protection during precinct planning. While these areas may have some benefits for MNES, they were not identified in the Plan as being needed for the protection of MNES. The BCS identifies these other biodiversity areas and describes the process for confirming their protection and boundaries during precinct planning through the preparation of PSPs.

5.4.2 COMMITMENTS FOR AVOIDANCE AND MINIMISATION

The Plan's commitments for avoidance and minimisation are provided in Table 5-2. See the Commitments and Measures document for measures relating to avoidance.

Table 5-2: Commitments for avoidance

No.	Commitment
3	The NGGA Conservation Area will be established in perpetuity to avoid and protect 74 ha of habitat for Striped Legless Lizard and 108 ha of habitat for Golden Sun Moth
4	A Conservation Management Plan will be prepared and implemented for the protection and ongoing management of Striped Legless Lizard and Golden Sun Moth within the NGGA Conservation Area
5	The Cowies Creek Conservation Area will be established in perpetuity to avoid and protect habitat needed to support the continued persistence of the Growling Grass Frog in the WGGA
6	A Conservation Management Plan will be prepared and implemented for the protection and ongoing management of Growling Grass Frog and areas of potential habitat for Adamson's Blown-grass within the Cowies Creek Conservation Area

5.4.3 AVOIDANCE AND MINIMISATION WITHIN GROWTH AREAS

LOCATION AND DESCRIPTION OF STRATEGIC CONSERVATION AREAS

Northern Geelong Growth Area

The NGGA Conservation Area is shown in Figure 4-1. The area supports:

- 108 ha of habitat for the Golden Sun Moth
- 74 ha of habitat for the Striped Legless Lizard
- 55 ha of mapped native vegetation (Plains Grassland EVC 132)

The key aim of the conservation area is to protect and manage habitat for Striped Legless Lizard and Golden Sun Moth in perpetuity. It will do this by:

- Protecting habitat supporting populations of the two species
- Improving the condition of habitat for the two species
- Where possible, increasing the area of occupied habitat for the Striped Legless Lizard through regeneration or restoration of any potentially suitable areas

The NGGA Conservation Area was confirmed by the City through a Structured Decision Making process that led to confirmation of an area for conservation that was not identified in the Framework Plan. The conservation area was identified as a high biodiversity value area that:

- Supports multiple important biodiversity values
- Focuses on the largest habitat area for Striped Legless Lizard within the NGGA and a substantial area of habitat for the Golden Sun Moth
- Provides the best opportunities for protecting and managing viable areas of biodiversity in the long term due its suitable shape, area, and condition of the vegetation

The Structured Decision Making process is described further in the BCS.

Western Geelong Growth Area

The Cowies Creek Conservation Area in the WGGA is shown in Figure 4-1. The area supports:

- An important population of the Growling Grass Frog that is connected to a larger metapopulation downstream, as well as all remaining habitat for Growling Grass Frog in the WGGA
- A previously known record of Adamson's Blown-grass
- Areas of mapped Creekline Grassy Woodland (EVC 68)

A key aim of the conservation area will be to support the persistence of the Growling Grass Frog within the WGGA and maintain the metapopulation dynamics with the broader Cowies Creek metapopulation downstream. It will do this by:

- Protecting high quality instream habitat
- Helping to improve the condition of lower quality instream habitat
- Protecting terrestrial habitat in buffer areas adjacent to the creek
- Regenerating areas of terrestrial habitat that are degraded through historical land uses
- Potentially providing for the creation of off-stream habitat

PROTECTION AND MANAGEMENT OF STRATEGIC CONSERVATION AREAS

The commitments to protect and manage the NGGA Conservation Area and the Cowies Creek Conservation Area will be implemented through a series of measures set out in the Commitments and Measures document and described further in the BCS. These measures will ensure that these strategic conservation areas are protected and actively managed to maintain and enhance their MNES values in the long-term.

Planning to finalise strategic conservation area boundaries

The boundaries of the Cowies Creek Conservation Area are indicative in the Plan and will be finalised during precinct planning through the preparation of the Creamery Road PSP. The boundary will be confirmed to ensure the conservation area includes all areas of habitat that may be needed to support the continued persistence of the Growling Grass Frog within the WGGA, including areas of habitat that may be used for breeding, foraging and movement.

Further details about finalising the boundary of the Cowies Creek Conservation Area are provided in the BCS.

Planning controls and mechanisms to secure land within strategic conservation areas

The NGGA Conservation Area and Cowies Creek Conservation Area will be purchased and/or vested in the City as a reserve to be managed for conservation purposes.

The strategic conservation areas will also be protected through planning controls as well as security agreements to ensure the protection and management of the land for conservation in-perpetuity.

The planning controls are proposed to include:

- Identifying the strategic conservation areas in relevant PSPs as land to be protected for conservation in the urban structure maps of the precinct, to direct development away from these areas
- Applying an appropriate environment zone to the strategic conservation areas under the Greater Geelong Planning Scheme, to limit the use and development that can occur within the strategic conservation area
- Identifying the native vegetation in the strategic conservation areas as 'to be retained' within the relevant NVPPs, to ensure a permit is required to remove that native vegetation

The strategic conservation areas will be secured under in-perpetuity, on-title agreements consistent with the security requirements of the *Guidelines for the removal, destruction or lopping of native vegetation* (DELWP, 2017c)

Preparation and implementation of Conservation Management Plans for strategic conservation areas

The City will prepare and implement Conservation Management Plans to provide for the protection and ongoing management of the biodiversity values within each strategic conservation area.

Conservation Management Plans will be prepared in accordance with the Commonwealth Environmental Management Plan Guidelines (DoE, 2014). The Conservation Management Plan for Cowies Creek will also be prepared in accordance with the Growling Grass Frog Habitat Design and Crossing Standards (DELWP, 2017b, 2017a).

Each Conservation Management Plan is proposed to include the following information, as relevant:

- Objectives of the Conservation Management Plan
- Boundaries of the conservation areas
- Native vegetation to be retained as identified in the relevant NVPP for the precinct

- Extent and condition of biodiversity values in the areas, including habitat and records
- Management actions and arrangements to protect, and where appropriate, restore, the biodiversity values of the conservation areas, including management methods, standards and techniques, roles and responsibilities, timing for implementation, funding and monitoring and reporting
- For the Cowies Creek Conservation Area identify any locations suitable for public access points, walking paths/trails, passive recreation, and water management assets and associated infrastructure

The City proposes to fund the implementation of the Conservation Management Plans using the implementation fund established under the Plan's funding framework. The funding framework is described in Section 7.4 and the specific measures for funding are provided in the Commitments and Measures document.

5.5 MITIGATION OF IMPACTS

5.5.1 CONTEXT

Mitigating impacts to MNES is the second step in the offset mitigation hierarchy. The mitigation process reduces how likely or significant unavoidable impacts may be and further reduces the need for offsets.

Mitigation of impacts is a requirement of the Endorsement Criteria in the Strategic Assessment Agreement (Attachment 2, Clause 3(c)), which requires the Plan to describe how impacts will be mitigated.

Development under the Plan has the potential to indirectly impact habitat and populations of MNES within the Growth Areas and within the Plan area outside the Growth Areas. These indirect impacts relate to:

- Altered fire regimes
- Changes to water flows and water quality
- Disturbance due to noise, dust, litter, or light
- Disturbance from increased public access to natural areas
- Fauna mortality and barriers to movement
- Inadvertent impacts on adjacent habitat or vegetation
- Predation or competition by pest or domestic fauna
- Spread of infection or disease
- Spread or introduction of weeds

The Plan includes commitments to ensure each of these indirect impacts is mitigated. These commitments are expected to substantially reduce the risk of residual impacts to MNES associated with these indirect impacts to the extent that offsets for these impacts are not required (see Part 4 of SAR).

5.5.2 COMMITMENTS FOR MITIGATION

The Plan's commitments for mitigation are provided in Table 5-3. See the Commitments and Measures document for measures relating to mitigation.

Table 5-3: Commitments for mitigation

No.	Commitment
7	Standard mitigation measures will continue to be implemented to minimise the indirect impacts of the development on MNES in accordance with the requirements of the *Greater Geelong Planning Scheme* (The City of Greater Geelong, 2022), as updated from time to time, and generally in accordance with the Framework Plan (The City of Greater Geelong, 2021)

No.	Commitment
8	The following additional specific mitigation measures will be implemented to minimise the indirect impacts of development on the NGGA Conservation Area and Cowies Creek Conservation Area: • Establish a conservation interface for the conservation areas • Design and baffle public lighting to prevent light spill and glare within the Cowies Creek Conservation Area • Prepare Construction Environmental Management Plans for construction works on land immediately adjacent to the conservation areas
9	Additional specific mitigation measures will be implemented to minimise the indirect impacts of the development on MNES associated with waterways, riparian areas and wetlands including: • EPBC listed threatened and migratory birds • *Galaxiella toourtkoourt* (Little Galaxias) • *Litoria raniformis* (Growling Grass Frog) • *Nannoperca obscura* (Yarra Pygmy Perch) • *Prototroctes maraena* (Australian Grayling) • *Lachnagrostis adamsonii* (Adamson's Blown Grass) • Port Phillip Bay (Western Shoreline) and Bellarine Peninsula Ramsar site

5.5.3 IMPLEMENTATION OF MITIGATION FOR THE GROWTH AREAS

Mitigation measures for biodiversity values will mostly be determined and implemented through the Victorian planning system as development proceeds (see Chapter 2.3). This will deliver a range of standard mitigation measures through the PSP process, existing provisions in the Greater Geelong Planning Scheme, and the planning permit process, which will address many of the potential indirect impacts of development within the Growth Areas.

This standard mitigation includes measures such as stormwater management, erosion control, and management of construction sites. The Plan includes a commitment to ensure these standard mitigation measures continue to be implemented to address the range of indirect impacts of the development.

The assessment of potential indirect impacts to MNES in the SAR identified several additional specific mitigation measures beyond those delivered through the existing planning system. These are required to address specific risks to MNES associated with waterways, riparian areas and wetlands, as well as other environmental values within conservation areas. The specific mitigation measures will also mostly be delivered through the existing planning system and will provide additional protection to State and local biodiversity values.

STANDARD MITIGATION MEASURES

The standard mitigation measures and their implementation through the PSP process, existing provisions in the Greater Geelong Planning Scheme, and the planning permit process, are described further in the BCS.

The City will be responsible for implementing the standard mitigation measures. The City will make decisions about what standard mitigation is implemented to address impacts in accordance with the Greater Geelong Planning Scheme and the specific circumstances of the relevant precinct and proposed subdivision or development.

ADDITIONAL SPECIFIC MITIGATION MEASURES

The Plan includes commitments to implement additional specific mitigation measures beyond that delivered through the existing planning system to address specific risks to MNES and minimise indirect impacts on:

- Protected matters associated with waterways, riparian areas and wetlands
- The NGGA Conservation Area and Cowies Creek Conservation Area

The first commitment relating to mitigating impacts on waterways, riparian areas and wetlands is proposed to be implemented through the preparation of technical studies to understand the key risks from development on MNES associated with Hovells Creek, Cowies Creek and the Moorabool River. These studies aim to:

- Address risks associated with changes to water quality and hydrology from the development in the Growth Areas
- Identify measures, standards or targets to mitigate impacts on MNES including, as relevant:
  - Water quality parameters
  - Water retention and flow management requirements
  - Limits on extraction or use
  - Habitat buffer requirements
  - Monitoring and reporting

It is proposed that guidelines are prepared based on the results of these studies to guide the preparation of PSPs and decisions on planning permits and permit conditions to ensure risks to MNES in relation to these impacts are adequately managed. A planning scheme amendment or other appropriate process is proposed to be undertaken to ensure the guidelines are considered during the preparation of PSPs and in decisions on planning permits and permit conditions.

A set of mitigation measures are proposed to implement the second commitment relating to mitigating impacts on the NGGA Conservation Area and Cowies Creek Conservation Area. These include:

- Identifying a conservation interface between urban development and the boundaries of the NGGA Conservation Area and Cowies Creek Conservation Area in plans within relevant PSPs
- Designing and baffling public lighting to prevent light spill and glare within the Cowies Creek Conservation Area by including this as a requirement or guideline in the relevant PSP, or as a condition on permits, as appropriate
- Preparing Construction Environmental Management Plans for construction works on land immediately adjacent to the NGGA Conservation Area and Cowies Creek Conservation Area, by including this as a requirement or guideline in the relevant PSP, or as a condition on permits, as appropriate

Commitments for avoidance and minimisation (see Section 5.4.2) are also relevant to minimising the indirect impacts of the development on MNES. These require the preparation and implementation of Conservation Management Plans for the protection and ongoing management of Striped Legless Lizard and Golden Sun Moth within the NGGA Conservation Area and Growling Grass Frog and habitat for Adamson's Blown-grass within the Cowies Creek Conservation Area.

5.6 RESIDUAL IMPACTS AND OFFSETS

5.6.1 CONTEXT

Offsetting impacts to MNES is the final step in the offset mitigation hierarchy. Offsetting is intended to compensate for any residual impacts that remain after impacts have been avoided and minimised, and mitigated.

Offsets are a requirement of the Endorsement Criteria in the Strategic Assessment Agreement, which requires the Plan to provide for offsets in accordance with the principles of the EPBC Act Offsets Policy (Attachment 2, Clause 3(d)).

Development under the Plan will result in residual impacts in the NGGA to Natural Temperate Grassland, Golden Sun Moth, and the Striped Legless Lizard (see Section 5.6.2).

The Plan establishes a strategic offsets approach that aims to maximise the benefits to MNES. It does this through two key approaches to ensure the Plan's outcomes are achieved:

- Prioritising offsetting early in the life of the Plan to reduce the risk that impacts occur head of the benefits gained through offsets and to secure values in the landscape ahead of a background a rate of decline
- Focusing offsets on large patches of native vegetation and habitat that are well located in the landscape from a biodiversity perspective, including sites that:
  - Occur within key biodiversity corridors and improve connectivity across the landscape
  - Are connected to existing conservation reserves

These approaches are reflected in two key commitments relating to offsets under the Plan (see Section 5.6.3).

Conservation planning science (for example, see (Gordon *et al.*, 2011) confirms the benefits of strategic approaches and supports the position that the Plan's approach to offsets will be substantially stronger than what would occur under standard project-by-project approvals.

The BCS includes further justification for this strategic approach to offsetting and a summary of the results of analysis that was done to determine the adequacy of the offset targets reflected in the offset commitments in the Plan in combination with the overall design of the offsets program.

5.6.2 RESIDUAL IMPACTS FROM THE DEVELOPMENT WITHIN THE GROWTH AREAS

The development under the Plan will result in the clearance and direct loss of the following MNES in the NGGA:

- Natural Temperate Grassland – 18.6 ha
- Golden Sun Moth (*Synemon plana*) – 657.7 ha
- Striped Legless Lizard *(Delma impar*) – 153.4 ha

There will be no residual impacts to MNES in the WGGA and offsets are not required (refer to Part 4 of the SAR).

The residual impacts within the NGGA will result from clearing of native vegetation and species habitat during construction of the development. The impacts will be permanent due to the ongoing use of the developed land. A detailed assessment of the residual impacts of the development on MNES is provided in the SAR (Part 4).

5.6.3 COMMITMENTS FOR OFFSETS

The Plan's commitments for offsetting residual impacts are provided in Table 5-4. See the Commitments and Measures document for measures relating to offsets.

The amount of offsets reflected in the commitments was determined in accordance with the principles of the EPBC Act Offsets Policy (DSEWPC, 2012). A detailed explanation and justification of the offset targets and the consistency of the offsets package with the principles of the EPBC Act Offsets Policy is provided in the BCS.

Table 5-4: Commitments for offsetting

No.	Commitment
3	The NGGA Conservation Area will be established in perpetuity to avoid and protect 74 ha of habitat for Striped Legless Lizard and 108 ha of habitat for Golden Sun Moth
4	A Conservation Management Plan will be prepared and implemented for the protection and ongoing management of Striped Legless Lizard and Golden Sun Moth within the NGGA Conservation Area
10	Offset sites will be established in strategic locations to protect and manage a minimum of the following amounts of habitat to support the following MNES: • 45 ha of Natural Temperate Grassland • 375 ha of known habitat for Striped Legless Lizard • 585 ha of known habitat for Golden Sun Moth
11	Within the first five years of Plan implementation the City of Greater Geelong will secure the following offsets at a minimum: • 100% of the offset requirement for Natural Temperate Grassland • 70% of the offset requirement for Striped Legless Lizard • 50% of the offset requirement for Golden Sun Moth
12	Offset delivery will keep pace with and occur ahead of impacts within the NGGA

5.6.4 DESCRIPTION OF OFFSETS

There are two components to strategic offsets under the Plan:

- Protection and management of the NGGA Conservation Area
- Protection and management of the remaining offsets outside the Growth Areas

The NGGA Conservation Area and the MNES to be protected and managed in this area is described in Section 5.4.3. This area has been avoided from development and will also form part of the offset package under the Plan.

The remaining offsets to be secured outside the Growth Areas after the delivery of the NGGA Conservation Area are:

- Natural Temperate Grassland – 45 ha
- Striped Legless Lizard – 301 ha
- Golden Sun Moth – 477 ha

5.6.5 IMPLEMENTATION OF OFFSETS FOR IMPACTS IN THE GROWTH AREAS

The City will coordinate offset delivery on behalf of developers which will help ensure that the offsets are delivered successfully and in a strategic manner. This will be funded under the Plan's funding framework (see Chapter 7.4).

STRATEGIC LANDSCAPE CONSIDERATIONS

In order to ensure offset sites are appropriate and contribute to the strategic benefit of the offset package, sites will be selected that meet at least one of the following strategic landscape criteria:

- Protection of areas of habitat that would be considered large for each MNES
- Located within a key biodiversity corridor and improves connectivity across the landscape
- Connection to an existing conservation reserve

It is proposed that the City develop strategic landscape criteria to guide the targeting of land suitable for strategic offsets, identify priority offset locations that meet at least one of these criteria, and establish a work program to engage with landholders within those areas to seek agreement to establishing offset sites on their land.

TIMING OF DELIVERY

The Plan includes two commitments around the timing of offset delivery. These commitments will:

- Ensure that the delivery of offsets remains ahead of the level of impacts over the life of the Plan
- Deliver early offsets (by the end of year 5) for each MNES

These commitments are important to help maximise the benefits of the strategic approach to offsets and deliver a conservation outcome that improves or maintains the viability of each MNES.

The delivery of offsets relative to impacts from development in the Growth Areas is proposed to be tracked, including through monitoring permits that remove habitat for each MNES and tracking the securing of offsets under appropriate security agreements. The approach for tracking impacts and offsets is described in the BCS.

To help mitigate risks around offset delivery, it is proposed that contingency steps be implemented if the early offset targets are not on track, or the rate of offsets is not ahead of the rate of impacts. These steps are described in the BCS.

SECURING OFFSET SITES

A description of how the NGGA Conservation Area will be secured is provided in Section 5.4.3.

Offset sites outside the NGGA will be secured under in-perpetuity, on-title agreements consistent with the security requirements of the *Guidelines for the removal, destruction or lopping of native vegetation* (DELWP, 2017c). An offset management plan will be prepared for each site and landholders will report annually on management actions in accordance with the requirements of these guidelines (DELWP, 2017c). These mechanisms:

- Provide for the in-perpetuity protection of sites
- Are accepted by DCCEEW as appropriate mechanisms for EPBC offsets
- Facilitate the necessary management, monitoring and reporting to ensure a conservation gain for each MNES

Surveys by an appropriately qualified ecologist using relevant survey techniques will be undertaken for each site prior to it being secured. Only sites with confirmed values for each MNES will contribute to meeting the offset targets.

6 Delivery of external infrastructure

6.1 INTRODUCTION

Some development – called 'external infrastructure development' – may occur outside the Growth Areas within the Strategic Assessment Area. This development is limited to the supporting infrastructure and services class of action and the environmental management class of action (see Sections 4.3.4 and 4.3.5).

External infrastructure development is required to support the urban development within the Growth Areas and help deliver the development objectives of the Framework Plan.

Planning for essential infrastructure development for the Growth Areas is in various stages and the specific locations and the types of external infrastructure that will be needed are not yet known.

The Plan shows indicative locations where external infrastructure development is intended to occur (see Figure 4-1). These include:

- Corridors along Staceys Road, Bacchus Marsh Road, Anakie Road, Midland Highway, and Evans Road to facilitate road and intersection upgrades
- Corridors adjacent to Cowies Creek and Tower Hill Drive to facilitate shared trail upgrades
- Stormwater related infrastructure associated with Hovells Creek, Elcho Road drain and Wharf road outfall

These indicative locations have not been surveyed and the biodiversity values of these areas is not confirmed.

While the specific locations and potential impacts of external infrastructure are not yet confirmed, the Plan includes a set of commitments that, along with their associated measures, will establish a process to ensure that external infrastructure development will avoid and minimise, mitigate, and offset any residual impacts to MNES.

6.2 COMMITMENTS FOR EXTERNAL INFRASTRUCTURE

The Plan's commitments for external infrastructure development are provided in Table 6-1. See the Commitments and Measures document for measures relating to external infrastructure development.

Table 6-1: Commitments for external infrastructure development

No.	Commitment
13	External infrastructure development will be designed and located to avoid and minimise impacts to MNES and native vegetation. The following specific avoidance outcomes will be delivered: • Spiny Rice-flower – any confirmed population or part of the population must be avoided and will be protected, maintained and managed to ensure the persistence of that population in the long-term • Other MNES – any confirmed population or occurrence that would be considered important or notable (for instance, due to size, condition or potential contribution to the recovery of the MNES) must be avoided and will be protected, maintained and managed to ensure the persistence of that population or occurrence in the long-term. Impacts to all other populations or occurrences will be avoided and minimised as far as practical
14	Unavoidable clearing due to the external infrastructure development of any areas confirmed to support MNES will be offset in accordance with the EPBC Act Environmental Offsets Policy and associated Offsets Assessment Guide (or equivalent) (Commonwealth of Australia, 2012; DSEWPC, 2012)

6.3 AVOIDANCE AND MINIMISATION OF IMPACTS

The Plan includes a commitment to design and locate external infrastructure development to ensure this development does not have unacceptable impacts on MNES and avoids and minimises impacts to these matters (see Table 6-1).

The commitment requires that any confirmed population of Spiny Rice-flower and other MNES that are considered important or notable to be avoided and protected to ensure the persistence of those populations in the long-term, and that impacts to all other populations will be avoided and minimised as far as practical.

This avoidance process will be undertaken by the proponent of each infrastructure project as part of the standard planning and detailed design phase of each project. Specific measures that set out the avoidance process detailed in the Commitments and Measures document. The process is proposed to include:

- Undertaking targeted surveys prior to development in accordance with relevant survey guidelines, to inform the detailed design of each infrastructure project and the avoidance and minimisation that is proposed to occur
- Providing a report to the Executive Committee that demonstrates avoidance and minimisation outcomes in accordance with the requirement of the commitment (see Table 6-1)
- Preparing and implementing Conservation Management Plans for any populations of MNES avoided to ensure appropriate management of these populations and address potential indirect impacts from the infrastructure

The proponent of the infrastructure project will be responsible for preparing the report to the Executive Committee and preparing and implementing Conservation Management Plans. The City Implementation Group will co-ordinate the review of the report by the Executive Committee and approve the Conservation Management Plan.

6.4 MITIGATION OF IMPACTS

External infrastructure development will be subject to a range of Victorian regulations that ensure the indirect impacts of the development on the environment is mitigated, including the *Road Management Act 2004*, *Environment Protection Act 2017*, *Flora and Fauna Guarantee Act 1988*, and *Water Act 1989*. These regulations are supported by policies and procedures that result in the implementation of a range of standard mitigation measures during construction and operation, including stormwater management, erosion control, and management of construction sites.

The preparation and implementation of Conservation Management Plans for any populations of MNES avoided will also address and manage specific potential indirect impacts associated with the external infrastructure on MNES, including the spread of weeds, fire regimes, removal of rocks or other habitat features and inappropriate road maintenance works such as slashing, grazing, clearing, herbicide application, and soil disturbance from vehicle traffic.

6.5 OFFSETS FOR RESIDUAL IMPACTS

The Plan includes a commitment to offset any unavoidable clearing due to the external infrastructure development of any areas confirmed to support MNES (see Table 6-1).

Unavoidable clearing will be offset in accordance with the EPBC Act Environmental Offsets Policy (DSEWPC, 2012) and associated Offsets Assessment Guide (or equivalent). Offsets will be secured prior to the commencement of works and will be secured and managed in accordance with the eligibility, security, and offset management requirements of the *Guidelines for the removal, destruction or lopping of native vegetation* (DELWP, 2017c).

It is proposed that a report be provided to the Executive Committee that shows the location of any MNES that will be directly impacted and the proposed offsets for these impacts, including security and management arrangements.

The proponent of the infrastructure project will be responsible for preparing the report to the Executive Committee and sourcing, securing and managing offsets. The City will co-ordinate review of the report by the committee.

7 Assurance and implementation framework

7.1 INTRODUCTION

The Plan includes an assurance and implementation framework that has been developed to ensure the successful delivery of the Plan and to support the Plan's conservation framework.

The Plan's assurance and implementation framework is comprised of several components. This Chapter describes:

- The purpose of the assurance and implementation framework
- The governance framework
- The funding framework
- The MERI framework
- The compliance framework
- Data management
- The process for changing the implementation documents

The Plan's assurance and implementation framework includes a range of commitments which are set out and described throughout this Chapter. The framework will be implemented through a detailed set of measures.

7.2 PURPOSE OF THE ASSURANCE AND IMPLEMENTATION FRAMEWORK

The purpose of the assurance and implementation framework is to ensure implementation of the Plan:

- Complies with the Commonwealth approval conditions
- Efficiently and effectively delivers the Plan's conservation framework and the conservation program in the BCS
- Is transparent and accountable

7.3 GOVERNANCE FRAMEWORK

7.3.1 CONTEXT

Governance is defined for the Plan as the structures, mechanisms and processes for implementing the Plan.

Governance is a key part of the Plan's assurance and implementation framework. It will ensure the objective and outcomes of the Plan are achieved, and the commitments and measures are efficiently and effectively implemented.

7.3.2 COMMITMENTS FOR GOVERNANCE

The Plan's commitments for governance are provided in Table 7-1.

Table 7-1: Commitments for governance

No.	Commitment
15	Governance arrangements will be established to implement the Plan, consistent with the Plan's governance framework
16	A Stakeholder Engagement Strategy will be developed to guide engagement with key stakeholders on implementation of the Plan

7.3.3 GOVERNANCE STRUCTURE

The overall governance structure for implementing the Plan is shown in Figure 7-1. The governance structure addresses the key elements needed for successful delivery of the Plan, namely:

- Regulatory oversight
- Decision-making
- On-ground delivery and implementation
- Stakeholder interests and perspectives

The governance structure includes:

- The approval holder (The City of Greater Geelong)
- Commonwealth Department of Climate Change, Energy, the Environment and Water (DCCEEW)
- Victorian Government Department of Energy, Environment and Climate Action (DEECA)
- Victorian Government Department of Transport and Planning (DTP)
- Northern and Western Geelong Growth Areas EPBC Plan Executive Committee
- City Implementation Group
- Support partners
- A process of ongoing-stakeholder engagement

APPROVAL HOLDER

The City of Greater Geelong will be the approval holder for the Plan. As approval holder, the City is responsible for:

- Ensuring the Plan's outcomes are achieved and implementing the commitments and measures
- Ensuring regulated third-parties who undertake an approved action or any part of an approved action under the endorsed Plan take these actions in accordance with the Plan and implementation documents and with the Commonwealth approval conditions
- Taking reasonable steps to ensure regulated third-parties:
    - Are informed of any relevant requirements of the endorsed Plan and Commonwealth approval conditions that regulates or restricts the way in which the action is taken
    - Comply with the endorsed Plan and Commonwealth approval conditions
- Notifying DCCEEW of any known non-compliances with conditions by third parties

In implementing the commitments and measures, key roles of the City include:

- Giving effect to the Plan's requirements through the Victorian planning system, including through amendments to the Greater Geelong Planning Scheme and the preparation of PSPs and the permit application process
- Protecting and managing the NGGA Conservation Area and the Cowies Creek Conservation Area
- Delivering the offsets needed to meet Commonwealth requirements
- Ensuring Victorian offset requirements are delivered (by developers)
- Implementing the MERI framework, including reporting on progress in implementing the Plan

COMMONWEALTH DEPARTMENT OF CLIMATE CHANGE, ENERGY, THE ENVIRONMENT AND WATER

DCCEEW is the regulator for the Commonwealth approval of the Plan under Part 10 of the EPBC Act. DCCEEW reports to the Commonwealth Minister for the Environment (the Minister).

Key matters that DCCEEW or the Minister is responsible for in relation to the Plan are:

- Endorsement of the Plan under the EPBC Act
- Approval of actions or classes of actions in accordance with the endorsed Plan and setting conditions of approval
- Ensuring the City, as approval holder, complies with the Commonwealth approval conditions
- Ensuring the City achieves the Plan's outcomes and implements the commitments and measures

- Considering and approving implementation documents prepared by the City
- Considering and approving any proposed changes to the implementation documents

Victorian Government Department of Energy, Environment and Climate Action

DEECA is the regulator for approvals under the native vegetation regulations. DEECA reports to several Ministers, including the Victorian Environment Minister.

DEECA or the relevant Minister is responsible for the preparation of section 69 agreements under the *Conservation Forests and Lands Act 1987* that will be used to secure some offsets, and monitoring and enforcing compliance with the agreements.

Victorian Government Department of Transport and Planning

DTP is the regulator for approvals under the Victorian planning system. DTP reports to several Ministers including the Planning Minister.

DTP or the relevant Minister is responsible for authorising planning scheme amendments to give effect to the Plan.

EPBC Plan Executive Committee

The City will establish the Northern and Western Geelong Growth Areas EPBC Plan Executive Committee (the Executive Committee) as the primary body responsible for overseeing and making decisions about the implementation of the Plan.

The City will prepare Terms of Reference (ToR) to set out the purpose, responsibilities, membership and decision-making processes for the Executive Committee.

Roles and responsibilities

Key responsibilities of the Executive Committee are:

- Monitoring and reporting on:
  - Compliance with the Commonwealth approval conditions
  - Achievement of the Plan's outcomes and implementation of the Plan's commitments
  - Implementation of the measures to achieve the commitments as set out in this document and the BCS
- Setting the strategic direction and priorities for implementing the Plan
- Overseeing processes to secure and protect avoided land and offsets
- Overseeing funding arrangements and making funding decisions
- Making decisions on adaptive management
- Reviewing and approving working arrangements with support partners
- Establishing stakeholder advisory groups where appropriate

Members

The Executive Committee will be comprised of:

- CEO, City of Greater Geelong (Chair of the Committee)
- Director, City Planning and Economy Group (or equivalent position), City of Greater Geelong
- Director, City Services (or equivalent), City of Greater Geelong
- Manager, Planning and Growth (or equivalent position), City of Greater Geelong
- Executive oversight from DCCEEW
- Executive oversight from DEECA and DTP

Secretariat

The City Implementation Group.

Meetings

At least 2 meetings per year over the life of the Plan.

CITY IMPLEMENTATION GROUP

The City will establish an Implementation Group as the primary body responsible for day-to-day implementation of the Plan. The Director, City Planning and Economy Group (or equivalent position) will be responsible for the City Implementation Group. The group will be led by the Manager, Planning and Growth (or equivalent position).

Roles and responsibilities

Key responsibilities of the City Implementation Group are:

- Co-ordinating the implementation of the Plan, including delivery of the commitments
- Co-ordinating delivery of the measures (as set out in this document and the BCS) to achieve the commitments
- Co-ordinating support partners, including establishing and overseeing formal agreements
- Implementing the MERI program consistent with the Plan's MERI framework
- Implementing the compliance program consistent with the Plan's compliance framework
- Managing contracts needed to implement the Plan
- Preparing briefs for decisions by the Executive Committee
- Secretariat support for the Executive Committee and any Stakeholder Reference Group that is established
- Liaising with DCCEEW on the Commonwealth approval conditions and other implementation issues

Reporting line

The City Implementation Group reports to the Executive Committee.

SUPPORT PARTNERS

Several support partners will assist with the implementation of the Plan.

Key support partners and their potential roles and responsibilities are set out in Table 7-2.

The City will consider establishing formal agreements with key support partners to formalise roles and responsibilities. The City Implementation Group will be responsible for deciding on the need for formal agreements with support partners and establishing agreements within 6 months of Plan endorsement.

Table 7-2: Potential roles and responsibilities of support partners

Support partner	Potential role	Explanation
Trust for Nature	Prepare agreements for covenants under the *Victorian Conservation Trust Act 1972,* and monitor and enforce compliance with the agreements	Trust for Nature covenants may be used to secure some Commonwealth and Victorian offsets under the Plan
Corangamite CMA	Oversee development that occurs on a floodplain or over a waterway and the management of waterways	The CMA will play a role in ensuring development does not adversely impact floodplains and waterways in the Plan area, including through the authorisation of works over designated waterways in the Plan area
		The City will collaborate with the CMA in relation to the management of waterways within the Plan area, including the measures relating to Commitment 9 (preparation of studies and guidelines for the Hovells Creek, Cowies Creek and Moorabool River catchments)

Support partner	Potential role	Explanation
Agriculture Victoria	Administer and enforce the *Catchment and Land Protection Act 1994*	Landholders are required to take all reasonable steps to manage declared noxious weeds and pest animals, including on potential future offset sites under the Plan
Country Fire Authority (CFA)	Advise and assist with fire prevention and planning in the Growth Areas	The City will collaborate with the CFA in relation to fire prevention and planning in the Growth Areas, including the management of the NGGA Conservation Area and Cowies Creek Conservation Area
Wadawurrung Traditional Owners Aboriginal Corporation (WTOAC)	Advise and assist with the management of Aboriginal heritage values and culture and land management of NGGA Conservation Area and Cowies Creek Conservation Area	WTOAC is the statutory authority for the management of Aboriginal heritage values and culture
Private landholders	Private landholders may enter into on-title security agreements to secure their land for offsets under the Plan	Most offsets under the Plan are likely to remain in private ownership and will be secured and managed under on-title security agreements

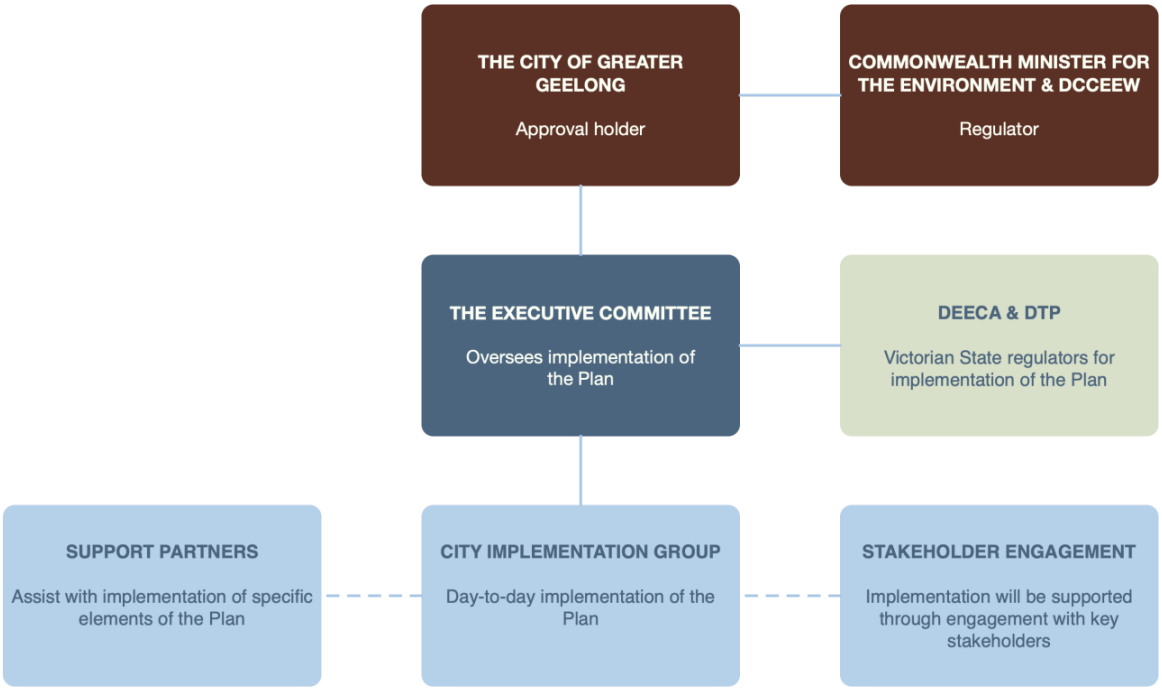

Figure 7-1: Governance structure for implementing the Plan

7.3.4 STAKEHOLDER ENGAGEMENT STRATEGY

The Endorsement Criteria in the Strategic Assessment Agreement requires that the Plan provide a process for stakeholder engagement, including with the DCCEEW (Attachment 2, Clause 4(b)(f)).

The Plan includes a commitment to develop a Stakeholder Engagement Strategy to guide the City in undertaking ongoing engagement with key stakeholders over the life of the Plan.

The Stakeholder Engagement Strategy will identify:

- Engagement objectives and principles
- Key stakeholders and their interests in the Plan
- Engagement processes and tools, including an implementation schedule
- How the results of engagement will be used to inform improvements to implementation of the Plan, including through the 5-yearly independent evaluation and assurance reviews (see Section 7.5)
- Reporting requirements on results of engagement to be included in annual progress reports

Several processes that will be used to implement the Plan through the planning system require stakeholder engagement, including the preparation of PSPs and planning scheme amendments. Engagement processes under the Plan will be aligned to these planning system processes to support efficient and effective engagement.

Table 7-3 sets out key stakeholders that will be included in the Stakeholder Engagement Strategy and their likely main interests in the implementation of the Plan.

Table 7-3: Key stakeholders that will be included in the Stakeholder Engagement Strategy and their likely main interests

Stakeholder	Likely main interests in the Plan
DCCEEW	• Acceptability of the impacts of the Plan on MNES • Compliance with Commonwealth approval conditions, including by regulated third-parties taking actions under the Plan • Protection and ongoing management of avoided land and offsets • Monitoring and reporting on progress in achieving the conservation outcomes of the Plan and implementing the commitments • Evaluation and adaptive management
DEECA	• The impacts of the Plan on State biodiversity values • Protection and ongoing management of avoided land and offsets • Implementation of the conservation framework through the Victorian planning system
DTP	• Land available for development in the Growth Areas • Implementation of development and the Plan through the Victorian planning system
Corangamite CMA	• Development over waterways • Management and protection of waterways and wetlands downstream from the Growth Areas, including Ramsar sites
Developers	• Land available for development in the Growth Areas • Opportunities to use avoided land for recreation or water management • Offset liabilities • Levy fees and mechanisms • Other administrative requirements for development • Timeframes for development sequencing
Wadawurrung traditional owners	• Avoidance and protection of Indigenous heritage values • Protection and ongoing management of avoided land and offsets
Environment groups	• Acceptability of the impacts of the Plan on MNES and State biodiversity values • Compliance with Commonwealth approval conditions • Protection and ongoing management of avoided land and offsets • Monitoring and reporting on progress in achieving the conservation outcomes of the Plan and implementing the commitments • Management of waterways and Ramsar sites • Compliance with Commonwealth approval conditions

7.3.5 GOVERNANCE MECHANISMS AND PROCESSES

The governance framework includes a range of mechanisms and processes to ensure effective and efficient implementation. These mechanisms and processes are incorporated into:

- A funding framework, including:
  - A mechanism to secure funds through a levy on development
  - Governance arrangements to administer the funds and make funding decisions
- A monitoring, evaluation, reporting and improvement (MERI) framework, including:
  - Monitoring protocols
  - Evaluation processes
  - Reporting requirements
  - A process for adaptive management
- A compliance framework, including:
  - Monitoring protocols as set out under the MERI program
  - A process to implement a risk-based approach to compliance action
  - Reporting requirements as set out under the MERI program

These are described in more detail in Sections 7.4, 7.5 and 7.6 respectively.

7.4 FUNDING FRAMEWORK

7.4.1 CONTEXT

The Endorsement Criteria in the Strategic Assessment Agreement requires that the Plan describe the funding arrangements for implementation (Attachment 2, Clause 2(h)).

The City has prepared a Funding Program consistent with the Framework described in Section 7.4.3 to implement the Plan. The Funding Program will be implemented into the Greater Geelong Planning Scheme by inclusion as a mandatory requirement in the urban growth zone. All proponents undertaking development will need to fulfil the requirements of the EPBC Plan and funding contribution.

7.4.2 COMMITMENTS FOR FUNDING

The Plan's commitment for funding is provided in Table 7-4.

Table 7-4: Commitment for funding

No.	Commitment
17	Funding arrangements will be established to fund the implementation of the Plan's commitments and measures over the life of the Plan, consistent with the Plan's funding framework

All the commitments in the Plan will require funding over the life of the Plan. The key commitments that will require funding to protect MNES are those which relate to:

- Offset establishment, management, monitoring and audit
- Securing and managing the NGGA Conservation Area and Cowies Creek Conservation Area
- Implementing conservation measures
- Implementing the MERI framework and compliance framework

The measures to deliver the Plan's Funding commitment are set out in the Commitments and Measures document.

7.4.3 FUNDING FRAMEWORK

The key elements of the funding framework are:

- Establishment of an implementation fund to fund the costs of implementing the commitments and measures, including securing and managing offsets for MNES required under the Plan in perpetuity
- Provision of upfront funding from the City into the implementation fund to secure and manage a substantial proportion of the offsets for MNES early during early implementation of the Plan
- Full recovery of the costs incurred by the City in implementing the commitments and measures, through a biodiversity levy payable by developers in the Growth Areas
- Establishment of governance and administrative arrangements to administer the implementation fund and the collection and application of the biodiversity levy

COST RECOVERY THROUGH A BIODIVERSITY LEVY ON URBAN DEVELOPMENT

The cost of implementing the commitments in the Plan and their associated measures will be fully cost-recovered from developers within the Growth Areas through a biodiversity levy.

The biodiversity levy will be calculated separately and structured differently for each growth area given the substantial difference in biodiversity values and impacts of development between the Growth Areas.

The biodiversity levy will be payable by developers within the Growth Areas on a per-hectare-of-developable-land basis. The biodiversity levy will be subject to indexation and adjustment over time to encompass any variation in the cost of implementation of the commitments and measures over the life of the Plan.

The Funding Framework includes the following elements which are described in detail in the Funding Program:

- The biodiversity levy area within the Growth Areas
- The basis upon which the biodiversity levy will be calculated, including indexation and adjustment
- The biodiversity levy amount payable in respect of each landholding within the biodiversity levy area
- The biodiversity levy events which will trigger the requirement to pay the biodiversity levy in respect of a landholding
- Any exemptions or exclusions from the biodiversity levy liability and from biodiversity levy events
- Confirmation that the biodiversity levy is only payable once in respect of a landholding within the NWGGA
- The requirement that prior to taking an action within the classes of actions described in this Plan and approved by the Minister, a person must seek the City's authorisation to proceed with that action subject to paying the biodiversity levy
- The governance and administrative processes by which the City will:
    - Notify developers of a biodiversity levy liability
    - Collect the biodiversity levy
    - Confirm when a biodiversity levy liability has been satisfied in respect of a landholding
    - Apply the biodiversity levy to fund the implementation of the commitments and measures in the Plan

The City is considering providing the option for developers to make a works in kind (WIK) contribution in lieu of payment of the biodiversity levy amount. Under a WIK contribution, a developer would agree that they will provide offsets and/or works in full or partial satisfaction of the requirement to pay the biodiversity levy amount. The WIK contribution would be limited to certain circumstances to ensure commitments for offsets under the Plan can be effectively delivered.

MECHANISM TO SECURE THE LEVY

Provided that this Plan is endorsed under Part 10 of the EPBC Act, and the Minister approves the classes of actions in accordance with the endorsed Plan, the Funding Program will provide the mechanism to impose, collect and apply the biodiversity levy.

ADMINISTRATION OF FUNDING

The City is considering options for administering the offset fund established through the biodiversity levy, including appropriate governance arrangements for the fund. Governance arrangements will include:

- Application of an appropriate governance framework to guide decision making on the use of the funds
- Monitoring of compliance with payment of the biodiversity levy
- Annual progress reports that will include information on revenue and expenditure of funds
- Undertaking of compliance action where necessary to enforce compliance with biodiversity levy liabilities

Governance arrangements will be finalised in consultation with key stakeholders following public exhibition of the Plan and detailed in the Funding Program.

7.5 MERI FRAMEWORK

7.5.1 CONTEXT

The Endorsement Criteria in the Strategic Assessment Agreement requires that the Plan address monitoring, including to ensure monitoring is used to understand the effectiveness of outcomes, commitments and measures and inform adaptative management, and to provide for a 5-yearly assurance review (Attachment 2, Clause 4(a)(ii and viii)).

MERI is a key component of the Plan's assurance and implementation framework. MERI provides a system for understanding how well a policy, plan or program is performing, communicating that to regulators and the public, and adapting implementation as needed. MERI can be considered as (DEWHA, 2009):

> *"a continuous cycle of participation and communication rather than as a single evaluation event. MERI promotes learning and adaptive management in response to progressive monitoring and evaluation which enables improvement in program design and achievement of desired outcomes"*

Strategic assessments represent complex, long term programs for managing both development and conservation. Ongoing decisions over the life of a policy, plan or program are necessary to ensure successful implementation.

7.5.2 COMMITMENTS FOR MERI

The Plan's commitments for MERI are provided in Table 7-5.

Table 7-5: Commitments for MERI

No.	Commitment
18	A MERI program will be implemented over the life of the Plan, consistent with the Plan's MERI framework
19	A development registration system will be developed and implemented to track development under the EPBC Part 10 approval

7.5.3 PURPOSE OF THE MERI FRAMEWORK

The purpose of the MERI framework for the Plan is to:

- Provide transparency and accountability for implementation of the Plan
- Determine whether the:
  - Plan's objective and outcomes are being achieved
  - Plan's commitments to achieve the objective and outcomes are efficient and effective
  - Measures (set out in the Commitment and measures document) are efficient and effective
- Enable new information over the life of the Plan to be assessed and integrated into implementation
- Adaptively improve implementation of the Plan where necessary to ensure the objective and outcomes are achieved

7.5.4 COMPONENTS OF THE MERI FRAMEWORK

The MERI framework for the Plan is comprised of the following components:

- Monitoring
- Evaluation
- Reporting
- Improvement (adaptive management)

The components of the MERI framework and how they fit together are shown (in green) in Figure 7-2.

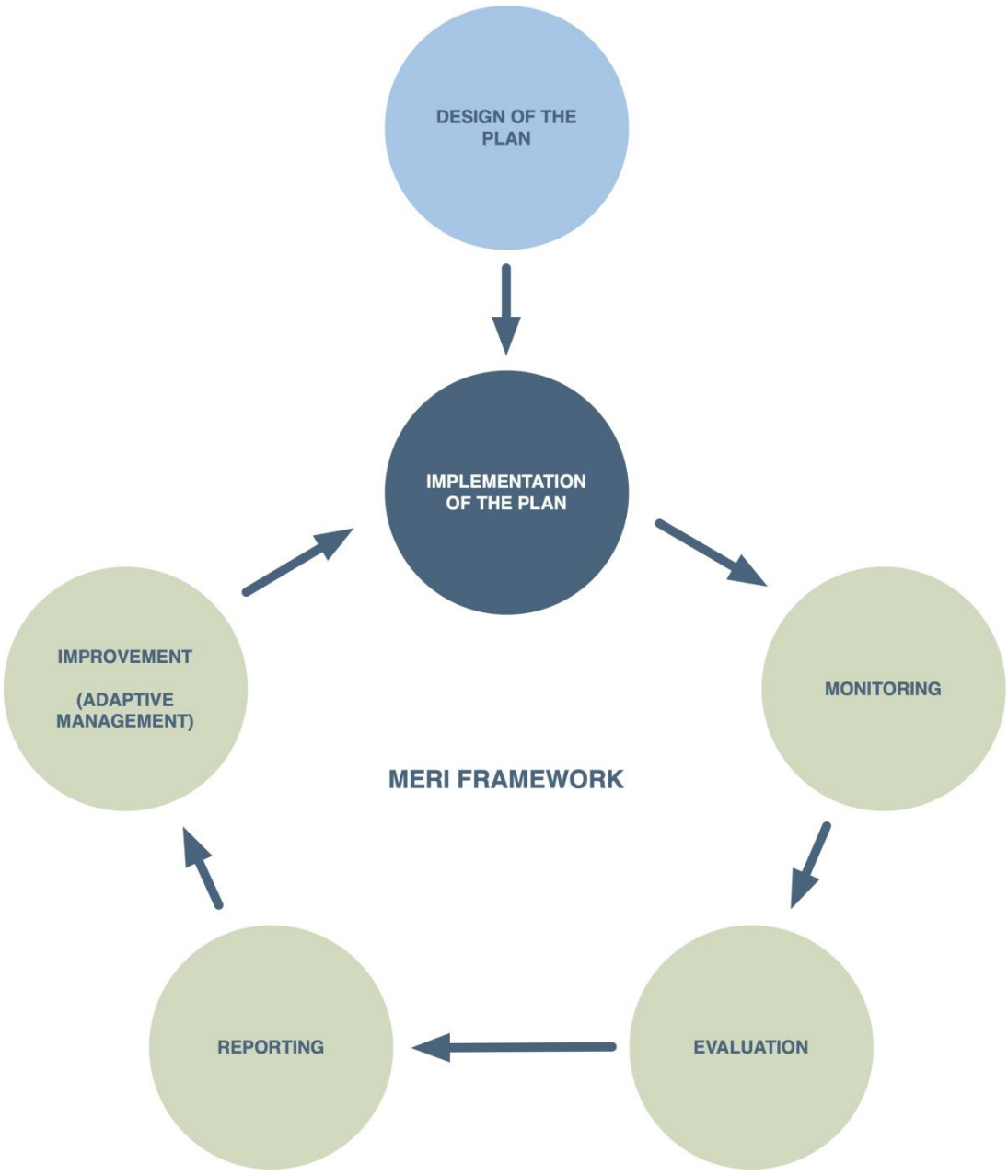

Figure 7-2: Components in the MERI framework for the Plan

MONITORING

Monitoring data will be collected and recorded over the life of the Plan.

Monitoring will involve:

- Establishing Key Performance Indicators (KPIs)
- Developing monitoring protocols
- Collecting and recording monitoring data
- Tracking of actions through a development registration system

Key performance indicators

KPIs will be established for:

- Each outcome
- Each commitment
- Compliance with the Commonwealth approval conditions

KPIs will provide a framework for understanding:

- If each outcome is being achieved and if not, the possible factors that are causing the outcome to not be achieved
- If each commitment is being delivered efficiently and effectively
- The extent of compliance with the Commonwealth approval conditions

KPIs will be established within 12 months of endorsement of the Plan.

The adequacy of KPIs will be reviewed as part of the Plan's five-yearly evaluation.

Monitoring protocols

Detailed monitoring protocols will be developed for each KPI that set out:

- What monitoring data will be collected
- How monitoring data will be collected
- Frequency of monitoring data collection
- Location of monitoring (for data related to environmental outcomes)

Table 7-6 identifies the three broad types of monitoring data that will be collected under the monitoring protocols, examples of the data collected, the timing for data collection, and how this data will be used.

Monitoring protocols will be established within 12 months of endorsement of the Plan.

Table 7-6: Types of monitoring data that will be collected

Type of data	Examples of data collected	Timing for collecting data	Use of monitoring data
Implementation data	• Rate of development • Revenue and expenditure of funds • Planning scheme amendments • Gazettal of PSPs and NVPPs • Protection of avoided land (ha) • Retention of native vegetation through NVPPs (ha) • Establishment of offset sites (ha and biodiversity values protected)	Annually	Inform: • Preparation of annual progress reports • Five-yearly evaluations

Type of data	Examples of data collected	Timing for collecting data	Use of monitoring data
	• Management plans and activities for offset sites or avoided land		
Environmental data	• Changes in condition and extent of native vegetation in avoided land and offset sites • Presence/absence of species • Changes to species populations	Annually to five-yearly depending on ecological considerations	Inform five-yearly evaluations
Compliance data	• Percent of PSPs consistent with Commonwealth approval conditions • Percent of permits with conditions consistent with Commonwealth approval conditions • Number of non-compliances with permit conditions relevant to Commonwealth approval conditions • Number of incidences of illegal removal of native vegetation not in accordance with NVPPs • Number of incidences of illegal development in conservation areas	Annually	Inform: • Preparation of annual progress reports • Five-yearly evaluations

Collecting and recording monitoring data

Monitoring data will be captured and recorded over the life of the Plan in accordance with the monitoring protocols.

A monitoring baseline will be established to set a reference point for tracking progress in implementing the Plan. The monitoring baseline will be established based on the first monitoring event for each outcome.

Monitoring data will be captured and maintained for each monitoring event in an appropriate data management system that will be established for the Plan, and that provides:

- A consistent format for storing data
- Ongoing access to monitoring data throughout the life of the Plan

Tracking of actions through a development registration system

The City will establish a development registration system for tracking development under the Part 10 EPBC Act approval (Commitment 19). The system will help ensure that:

- The City can monitor developments using the Part 10 approval
- Regulated third-parties (developers) are aware of their responsibilities under the Plan

The development registration system will:

- Use an appropriate step in the Victorian planning system as the trigger for registration
- Require developers to provide information to the City about their action, including how it is consistent with the requirements of the Plan
- Inform the offset delivery commitment to monitor the rate of offsets being delivered versus the rate of development

EVALUATION

Evaluation is the process of assessing the effectiveness of actions towards achieving a specific outcome.

Evaluations will be undertaken at two scales throughout the life of the Plan (see Figure 7-3):

- Five-yearly evaluations
- End of Plan evaluation

Five-yearly evaluation and assurance review

An independent evaluation and assurance review will be undertaken every 5 years over the life of the Plan. The evaluation and assurance review will be undertaken by an independent party engaged by the City.

The five-yearly evaluation and assurance review will determine:

- Compliance with the Commonwealth conditions of approval
- Whether the outcomes of the Plan are being achieved, and if not, the reasons for this
- Progress of the implementation of each commitment and an evaluation of how efficiently and effectively the commitments are being implemented

The five-yearly evaluation and assurance review will also make recommendations where appropriate for improving the implementation of the Plan. The evaluation will be the primary trigger point and basis for any necessary adaptive management of the Plan to ensure the outcomes of the Plan are achieved.

The evaluation and assurance review will be prepared based on:

- A set of Key Evaluation Questions for each type of evaluation (see Table 7-7)
- Performance against the KPIs for each outcome and commitment
- Monitoring data collected as part of the monitoring program

Draft Key Evaluation Questions for each main part of the evaluation and assurance review are provided in Table 7-7. These draft questions will be refined and finalised by the City prior to the first five-yearly evaluation.

The first five-yearly evaluation and assurance review will be undertaken within 12 months after the first full 5 years of implementation, and then within that timeframe every five years following this over the life of the Plan – at year 10, 15, 20 and 25 of the Plan's implementation.

The evaluation and assurance review results will be provided in the five-yearly assurance report.

Table 7-7: Draft Key Evaluation Questions

Evaluation type	Issue to address	Draft Key Evaluation Questions
Achievement of outcomes	Outcome progress	• To what extent are the Plan's outcomes being achieved? • What is the magnitude and rate of positive or negative change in outcomes? • Are changes occurring consistently across the Strategic Assessment Area?
	Contribution of the Plan	• To what extent were changes directly attributable to the Plan? • To what extent have the Plan's commitments been delivered? • Have there been any significant delays in delivering commitments that might affect the achievement of outcomes?
	Contribution of other factors	• What other factors might have influenced the achievement of the outcomes? • Did any environmental changes or ecological processes occur outside the control of the Plan that might influence outcomes? • Were similar trends observed outside the Plan area without interventions?

Evaluation type	Issue to address	Draft Key Evaluation Questions
		• Were there any unexpected outcomes (positive or negative)?
	Program logic and design	• Are the relationships and assumptions in the outcomes framework linking measures to commitments to outcomes still valid? • Has the design and implementation of the MERI program, including monitoring protocols and KPIs, been adequate to measure changes?
Implementation of commitments	Efficiency	• Were commitments delivered within expected timeframes and within expected budgets? • Are the processes to implement commitments administratively efficient, including arrangements with deliver partners? • Are there alternative measures to deliver the commitments that are faster, less costly, or more administratively efficient to implement?
	Effectiveness	• To what extent are the Plan's outcomes being achieved? • Were commitments delivered according to the BCS? • Are the commitments the best way to achieve the outcomes of the Plan? What commitments contribute most and least? • Are there alternative measures that would more effectively deliver the commitments and/or achieve additional or multiple benefits? • Do the measures continue to meet best practice standards?

End of Plan evaluation

An independent end of Plan evaluation will be undertaken at the end of the life of the Plan. The end of Plan evaluation will be undertaken by an independent party engaged by the City.

The end of Plan evaluation will consider performance over the whole life of the Plan, drawing on information and the results of the five-yearly evaluations and assurance review and the monitoring program.

The evaluation will determine whether the Plan's:

- Objective was achieved
- Outcomes were achieved
- Commitments were implemented effectively and efficiently

The end of Plan evaluation will be undertaken within 12 months of the end of the Plan.

The end of Plan evaluation results will be provided in the final report for the Plan.

REPORTING

Reporting will be undertaken at the following points (see Figure 7-3):

- Annual progress reports
- Five-yearly assurance reports
- Adaptive management reports
- Final report for the Plan

Annual progress reports

Annual progress reports will be prepared to report publicly on compliance with the Plan and Commonwealth approval conditions and ensure transparency and accountability in implementing the Plan.

Annual progress reports will include information on:

- Progress in delivering the development in accordance with the Commonwealth approval conditions

- Progress in implementing the commitments
- Revenue and expenditure of funds to implement the Plan
- Non-compliances with the Commonwealth approval conditions and any compliance actions taken

Annual progress reports will be prepared based on the monitoring data collected as part of the monitoring program.

The first annual report will be prepared and made publicly available within 6 months after the end of the first full financial year following Commonwealth approval of the actions/classes of actions for the development under the Plan, and then within that timeframe every year following this over the life of the Plan.

A draft of the annual progress report will be provided to the Executive Committee for review and comment prior to being finalised for public release. The final annual progress reports will be made publicly available on the City's website.

Five-yearly assurance reports

Five-yearly independent assurance reports will present the results of the independent five-yearly evaluations and assurance review. The independent assurance report will include:

- Analysis and key findings on:
  - Whether the outcomes of the Plan are being achieved
  - How efficiently and effectively the commitments are being implemented
  - Extent of compliance with the Commonwealth conditions of approval
- Any recommendations for adaptively improving the implementation of the Plan, including compliance

The first five-yearly assurance report will be prepared and made publicly available within 12 months after the first full 5 years following Commonwealth approval of the actions/classes of actions for the development under the Plan, and then within that timeframe every five years following this over the life of the Plan.

A draft of the five-yearly assurance report will be provided to the Executive Committee and DCCEEW for review and comment prior to being finalised for public release. As the assurance report is an independent report, comments will be limited to corrections or clarifications rather than the findings of the report.

The final five-yearly assurance reports will be made publicly available on the City's website.

Adaptive management reports

Within 3 months following completion of each draft five-yearly assurance report, the City will prepare an adaptive management report that includes recommendations for adaptive management actions for endorsement by the Executive Committee. The adaptive management process is described in more detail below.

Final report for the Plan

The final report for the Plan will present the results of the end of Plan evaluation.

The final report will be prepared within 12 months of the end of the Plan.

A draft of the final report for the Plan will be provided to the Executive Committee for review and comment prior to being finalised for public release. As the final report for the Plan is an independent report, comments will be limited to corrections or clarifications rather than the findings of the report.

The final report will be made publicly available on the City's website.

IMPROVEMENT (ADAPTIVE MANAGEMENT)

The improvement step of the MERI program provides the opportunity to adaptively manage implementation of the Plan to ensure that the objective and outcomes of the Plan are successfully achieved, and the commitments are delivered.

Adaptive management of the Plan may be needed because of new opportunities that arise to improve implementation, changes in economic and social conditions, local events such as fires, floods and disease affecting biodiversity, climate variation, and implementation or governance issues that need to be addressed.

Triggers for adaptive management

The independent five-yearly evaluation and assurance review will be the primary trigger point and basis for any necessary adaptive management of the Plan to ensure the outcomes of the Plan are achieved.

Adaptive management may also be triggered by the City on an ad hoc basis in response to issues or opportunities that arise and that need to be addressed immediately. This may include:

- New information relating to protected matters, such as:
  - New listings of species or threatened ecological communities (TECs)
  - The re-discovery of a previously considered extinct (in the wild) species
  - New knowledge that changes the understanding about a protected matter
- Changes to the legislative or policy context
- Changes to guidelines or standards relevant to a protected matter

Options for adaptive management

Options for adaptive management will vary according to the situation and will be determined on a case-by-case basis through the process set out in the section 'Process to decide adaptive management actions' (see below).

The broad categories of options that may be considered are provided in Table 7-8.

Table 7-8: Categories of options for adaptive management

Category	Potential circumstance for using the option
Change conservation priorities or scope	Where evidence demonstrates that the outcomes of the Plan are not being achieved or conservation commitments are not being delivered. This may include: • Changing the proposed location of, or protecting a new, conservation area • Improving mechanisms to protect a conservation area • Changing responsibilities for protecting a conservation area • Changing the management requirements for a conservation area
Change development priorities or scope	Where evidence demonstrates that development impacts may affect the outcomes of the Plan or development commitments are not being delivered. This may include: • Pausing development in a particular location where the establishment of offsets is not keeping pace with the impacts of the development • Removing areas for development
Increase monitoring effort and evaluation frequency or undertaking new research	Where more information is needed on a specific issue to inform decision making
Change priorities or timing for implementing measures	Where evidence suggests a commitment or measure could be implemented earlier to achieve a better outcome
Change policy or guidelines relevant to the Plan	Where stakeholders need more clarity on the Plan or how it should be interpreted, policy issues affecting the delivery of commitments or measures are identified, or legislative changes are made that are relevant to the implementation of the Plan
Change mitigation or management standards relevant to the Plan	Where best practice standards relevant to mitigation of impacts or management of conservation areas change or new opportunities arise to improve practices
Change implementation processes or governance arrangements for the Plan	Where evidence suggests implementation processes or governance arrangements are inefficient or not effectively delivering commitments or measures

Process to decide adaptive management actions

Within 3 months following completion of each draft five-yearly assurance report, the City will prepare an adaptive management report that includes recommendations for adaptive management actions for endorsement by the Executive Committee. Recommendations endorsed by the Executive Committee will form the basis of the adaptive management program to be commenced over the following five-year implementation period of the Plan.

The adaptative management report by the City will be provided to the Executive Committee along with the draft of the five-yearly assurance report. The adaptative management report will include:

- The City's response to any recommendations made in the five-yearly assurance report
- Recommendations for adaptive management actions for endorsement, including any recommendations made in the five-yearly assurance report and any other recommendations made by the City
- Any proposed changes to measures or other parts of the BCS to give effect to the recommendations
- Reasons why any recommendations in the draft five-yearly assurance report are not being recommended
- Costs of implementing the adaptive management actions any implications for funding arrangements
- Priorities for implementing adaptive management actions, including any urgent actions that need to be taken
- Timing for implementing adaptive management actions
- Any consultation with key stakeholders or expert advice sought to inform the adaptive management actions

The Executive Committee may endorse the recommendations, not endorse the recommendations with reasons, or may suggest further actions are taken or further information sought to inform their decision.

The City will publish on the City's website at the same time as the final five-yearly assurance reports:

- A response to any recommendations made in the five-yearly assurance report
- The endorsed adaptive management actions and the proposed timing for implementation of these actions

Any changes to the measures or other parts of the implementation documents to reflect and give effect to the recommendations will be made within 12 months of endorsement of the recommendations.

7.5.5 IMPLEMENTATION OF THE MERI PROGRAM

Implementation of the MERI program involves the following steps which are repeated in a cycle (see Figure 7-2):

- Implementation of the Plan as endorsed by the Commonwealth Environment Minister
- Monitoring of implementation
- Evaluation of the success of implementation
- Reporting the results of the evaluations
- Improving implementation of the Plan (as required) by amending the measures in the implementation documents

Given the long timeframes of the Plan, application of the MERI program will occur at different times scales over the life of the Plan, as set out in Figure 7-3.

Figure 7-3: Application of MERI at different time scales

7.6 COMPLIANCE FRAMEWORK

7.6.1 CONTEXT

The Endorsement Criteria for the Plan provided under the Strategic Assessment Agreement requires that the Plan ensure compliance with the Plan will be monitored and non-compliance reported (Attachment 2, Clause 4(a)(vii)).

A robust compliance framework is critical to the successful implementation of the Plan. The purpose of the compliance framework is to ensure the City achieves the Plan's outcomes and delivers the commitments and regulated third-parties undertake approved actions under the endorsed Plan in accordance with the Commonwealth approval conditions.

This Chapter sets out the compliance program for implementing the Plan's compliance framework, including:

- The commitments for compliance
- Purpose of the compliance program
- Types of compliance and responsibilities
- Components of the compliance program

The measures to deliver this commitment are set out in the Commitments and Measures document.

7.6.2 COMMITMENTS FOR COMPLIANCE

The Plan's commitment for compliance is provided in Table 7-9.

Table 7-9: Commitment for compliance

No.	Commitment
20	A compliance program will be implemented over the life of the Plan, consistent with the Plan's compliance framework

7.6.3 PURPOSE OF THE COMPLIANCE FRAMEWORK

The purpose of the compliance framework is to ensure:

- The City delivers the commitments and achieves the outcomes of the Plan
- Regulated third-parties (developers) undertake approved actions under the endorsed Plan in accordance with the Commonwealth approval conditions, and:
  - See benefits in the strategic assessment process in relation to urban planning and environmental outcomes
  - Understand how to comply with the Commonwealth approval conditions
  - Expect that the approval conditions will be enforced and understand the consequences of non-compliance
- Regulators have confidence that:
  - Compliance with the Commonwealth approval conditions will be monitored and reported
  - Compliance action and enforcement will be undertaken efficiently and effectively

7.6.4 RESPONSIBILITIES FOR COMPLIANCE

There are two broad types of compliance relevant to implementing the Plan. They are compliance related to:

- Achievement of the Plan's outcomes and implementation of commitments by the City
- Regulated third-parties taking approved actions under the endorsed Plan

Responsibilities for these two broad types of compliance are set out in Table 7-10.

Table 7-10: Responsibilities for two types of compliance relevant to implementing the Plan

Compliance category	Responsible regulatory authority	Relevant regulatory framework
Achievement of outcomes and implementation of commitments	DCCEEW is responsible for ensuring the City achieves the Plan's outcomes and implements the commitments in accordance with the Plan, or causes these to be implemented through support partners DCCEEW can potentially take action to enforce compliance under the EPBC Act	Potential breach of EPBC Act
Regulated third-parties taking approved actions under the endorsed Plan	The City, as the approval holder, is responsible for ensuring that regulated third-parties comply with the Plan and implementation documents and the Commonwealth approval conditions The City or other appropriate regulatory authority can potentially take action to enforce compliance under the regulatory frameworks used to implement the Plan, including the P&E Act	Potential breach of regulatory frameworks used to implement the Plan, including P&E Act

As approval holder, the City is responsible for ensuring regulated third-parties taking approved actions under the endorsed Plan take these actions in accordance the Plan and implementation documents and with the Commonwealth approval conditions.

Where a regulated third-party undertakes an action or any part of an approved action under the endorsed Plan, the City will take reasonable steps to ensure that the regulated party:

- Is informed of any relevant requirements of the endorsed Plan and Commonwealth approval conditions that regulates or restricts the way in which the action is taken
- Complies with the endorsed Plan, implementation documents and Commonwealth approval conditions

The Plan's requirements will be delivered through several Victorian regulatory frameworks. The P&E Act is the primary regulatory framework for giving effect to the requirements of the Plan. Compliance for regulated third-parties will be undertaken in accordance with the compliance arrangements of these regulatory frameworks.

In many cases, the City will be the appropriate regulatory authority responsible for taking compliance action for a breach by a regulated third-party as many the Plan's requirements are being delivered through the planning system.

In some cases, there may be a breach of another regulatory framework with a different responsible regulatory authority. The City will work with that regulatory authority to ensure compliance.

7.6.5 COMPONENTS OF THE COMPLIANCE FRAMEWORK

The components of the compliance framework are:

- Promoting voluntary compliance
- Monitoring compliance and detecting non-compliance
- Taking a risk-based approach to compliance action
- Notifying DCCEWW
- Reporting on compliance

PROMOTING VOLUNTARY COMPLIANCE

The City's primary focus will be on prevention and avoidance of non-compliance. Adopting a conciliatory approach through a process of education, communication and negotiation will more often provide a positive outcome.

This will be achieved by:

- Providing information to the public and regulated third-parties about the Plan

- Implementing a development registration system

Providing information to regulated third-parties

The City will develop a series of educational materials to inform the public about the Plan and help support regulated third-parties to comply with the Commonwealth approval conditions. This may involve:

- Establishing a specific site on the City's website for the Plan
- Developing fact sheets and FAQs and other guidance materials
- Meeting with key stakeholders and other regulatory agencies
- Implementing an education campaign in cases where there is an increasing trend of non-compliance

Development registration system

As outlined in Section 7.5.4, the City will establish a development registration system to help ensure that:

- The City can monitor developments using the EPBC Act Part 10 approval
- Regulated third-parties (developers) are aware of their responsibilities under the Plan

MONITORING COMPLIANCE AND DETECTING NON-COMPLIANCE

Compliance monitoring data will be collected in accordance with the Plan's MERI framework.

The MERI framework proposes KPIs to be established to determine the extent of compliance with Commonwealth approval conditions and detailed monitoring protocols to be developed for each compliance KPI.

The monitoring protocols will determine how monitoring data will be collected. This may include:

- Reports about compliance issues from the public, community groups and other regulatory authorities
- Site visits and inspections by the City – either random or in response to a notification
- Compliance audits and desktop investigations by the City, including audits of PSPs and permit conditions
- Data and reports required by other regulatory frameworks, including section 69 agreements under the CFL Act

The City will focus monitoring and detection efforts on high-risk compliance issues (see below).

The City will maintain accurate and complete compliance records and will provide any electronic copies of compliance records to the DCCEEW if requested and within the timeframe specified in the request.

Compliance officer

The City will create and fund a position for one additional compliance officer to support the City's existing compliance team and to assist the City and regulated third-parties to comply with the Commonwealth approval conditions.

The compliance officer will support:

- Providing information and advice to regulated third-parties to support them to comply
- Identifying priority compliance issues and a decision-framework for taking compliance action
- Coordinating investigations and taking compliance action
- Coordinating remedial actions to rectify the impacts of any non-compliance
- Working with other appropriate regulatory authorities to investigate or take compliance action
- Supporting monitoring and reporting on compliance

The compliance officer will have the powers available under the P&E Act and *Local Government Act 2020* to take compliance action where a breach of the Plan requirements is also a breach of those regulatory frameworks.

RISK-BASED APPROACH TO COMPLIANCE ACTION

The City will take a risk-based approach to compliance action to ensure that compliance effort is efficient and focuses on issues that are most likely to affect the achievement of the Plan's outcomes or the delivery of the commitments.

To achieve this, the City proposes to:

- Prioritise potential compliance issues into risk categories
- Develop a decision-framework to guide the taking of compliance action proportionate to the risk

Prioritising potential compliance issues

The City will undertake a compliance risk assessment to prioritise potential compliance issues relevant to the Plan into risk categories. This will be undertaken by considering the consequence and likelihood of each potential compliance issue affecting the environmental outcomes of the Plan or the delivery of the commitments.

Table 7-11 provides a list of factors that will be considered in defining consequence ratings as part of the compliance risk assessment. These will be refined and updated in undertaking the risk assessment.

The compliance risk assessment will be updated every five years to respond to any changes in compliance risks as part of the five-yearly evaluation, which will investigate compliance and make recommendations for improvement.

Table 7-11: List of factors that will be considered in defining consequence ratings as part of the risk assessment

Type of consequence	Example of definitions
Biodiversity impacts	Potential [major/moderate/minor] direct loss of habitat for MNES in avoided land, an offset site, or area to be retained in a NVPP Potential [major/moderate/minor] degradation of habitat for MNES from indirect impacts in avoided land, an offset site, or area to be retained in a NVPP or downstream Ramsar site
Financial impacts	Potential [major/moderate/minor] permanent financial impact on cost recovery model or delay in receiving cost recovery funds
Delivery timing	Potential [major/moderate/minor] delay in the delivery of a commitment or measure or achievement of an environmental outcome
Reputational risks	Potential [major/moderate/minor] impact on the regulated communities' perception of the Plan and attitude towards compliance if not addressed

Decision-framework to guide compliance action

The City will develop a decision framework to guide the taking of compliance action against regulated third-parties in a way that is proportionate to the risk as determined through the compliance risk assessment.

Compliance of regulated third-parties will be undertaken by the regulatory authority responsible for these regulatory frameworks and in accordance with the compliance arrangements of these frameworks.

In many cases, the City is likely to be the regulatory authority responsible for taking compliance action for a breach as many the Plan's requirements are being delivered through the planning system. In some cases, there may be a breach of another regulatory framework with a different responsible regulatory authority.

The decision-framework will:

- Identify the options for compliance action under relevant regulatory frameworks for each compliance issue
- Provide guidance on the best option for compliance action that is proportionate to the risk of the compliance issue
- Set out the process for the City to engage with other responsible regulatory authorities to agree the compliance action to be taken by that regulatory authority that is proportionate to the risk of the compliance issue

The decision-making framework will be developed in consultation with relevant responsible regulatory authorities.

Table 7-12 identifies potential compliance actions available to the City under relevant regulations.

Table 7-12: Potential options for compliance action available to the City

Compliance response	Description
Preliminary negotiation	Negotiate informally with the regulated third-party
Official warning	Issue an official warning (s 8 of *Infringements Act 2006*)
Planning infringement notice	Issue a planning infringement notice, which provides a monetary penalty and provides the City with the option to require remedial action (s 130 P&E Act)
Enforcement order/interim enforcement order	Make an application to the Victorian Civil and Administrative Tribunal for an enforcement order to achieve compliance (s 114 P&E Act) or interim enforcement order where there is a need for immediate action to prevent a negative impact (s 120 P&E Act)
Cancel or amend a permit	Make an application to the Victorian Civil and Administrative Tribunal to cancel or amend a permit (s 87, 88 and 89 P&E Act)
Carry out work	Undertake work to secure compliance with an enforcement order or intern enforcement order and recover the cost of the work done (s123 P&E Act)
Injunction	Seek an injunction in the Court to restrain a person from contravening an enforcement order or interim enforcement order (s 125 P&E Act)
Prosecution	Undertake prosecution proceedings in the Court to punish an offence (s 126 P&E Act)

NOTIFYING DCCEWW

Notifying DCCEEW will be undertaken for non-compliances in relation to both:

- Delivery of commitments by the City or support partners
- Regulated third-parties taking approved actions under the endorsed Plan

Delivery of commitments by the City or support partners

Where the City identifies a potential non-compliance (the non-compliance has occurred or is likely to occur) with the delivery of commitments that the City or a support partner is responsible for, the City will:

- Notify DCCEEW of the non-compliance within 30 days, including:
  - Nature of the non-compliance and whether it has occurred or is likely to occur
  - Risk category of the non-compliance
  - Any reasons for the non-compliance
- If the non-compliance is identified as high risk, provide DCCEEW with a plan setting out the compliance actions proposed to be taken to rectify the non-compliance and the timing for implementing these actions within 3 months
- For other non-compliance risk categories, undertake compliance actions appropriate to the risk category and respond to any requirements of DCCEEW in relation to the non-compliance within a reasonable timeframe
- Report to DCCEEW regularly on progress in implementing the compliance actions

Non-compliances and the steps taken (or that will be taken, including estimated timing for taking these steps) to rectify these non-compliances, will be reported in the annual progress reports.

Regulated third-parties taking approved actions under the endorsed Plan

Where the City identifies a potential non-compliance (the non-compliance has occurred or is likely to occur) by regulated third-parties taking approved actions under the endorsed Plan, the City will:

- Undertake an initial assessment of the potential non-compliance to determine:
  - Nature of the non-compliance and whether it has occurred or is likely to occur
  - Risk category of the non-compliance
- Notify DCCEEW of the non-compliance following the initial assessment within 30 days
- Respond to the non-compliance in accordance with the decision framework for taking compliance action

- Report to DCCEEW regularly on progress in implementing the compliance actions

Non-compliances and the steps taken (or that will be taken, including estimated timing for taking these steps) to rectify these non-compliances, will be reported in the annual progress reports.

REPORTING ON COMPLIANCE

The City will undertake regular reporting on compliance to ensure transparency and accountability. Reporting on compliance will be undertaken in accordance with the MERI program (see Section 7.5). The MERI program requires compliance to be reported in annual progress reporting and five-yearly assurance reports.

Annual progress reporting will report on:

- Any activities undertaken by the City to support voluntary compliance
- Number of non-compliances for the reporting period and the nature of the non-compliance
- Any compliance action taken by the City or other relevant responsible regulatory authority to each high-risk non-compliance and the outcomes of the compliance action taken

Five-yearly independent assurance reports, which present the results of the independent five-yearly evaluations and assurance review, will report on:

- Analysis and key findings on extent of compliance with the Commonwealth conditions of approval
- Any recommendations for improving the implementation of the Plan, including compliance

7.7 DATA MANAGEMENT PROCESS

7.7.1 CONTEXT

A wide range of data was used to develop the Plan and will be used and updated throughout implementation the Plan.

Key types of data include:

- Spatial and other data on existing biodiversity values
- Data on the impacts of the development on biodiversity values
- Boundary data, such as the boundaries of development land and avoided land
- Monitoring data to be collected in accordance with the MERI framework, including:
  - Implementation data
  - Environmental data
  - Compliance data

7.7.2 COMMITMENT FOR DATA MANAGEMENT

The Plan's commitment for data management is provided in Table 7-13.

Table 7-13: Commitment for data management

No.	Commitment
21	A data management and sharing agreement will be developed to set out how data associated with the Plan will be managed and shared

7.8 PROCESS FOR CHANGING THE IMPLEMENTATION DOCUMENTS

7.8.1 CONTEXT

The Plan and its commitments will not be changed once endorsed under Part 10 of the EPBC Act.

As the Plan will be implemented over a long time-period it is important that there is an appropriate level of flexibility provided during implementation to ensure the outcomes are achieved. Adaptive management of the Plan may be needed because of new opportunities that arise, changes in economic and social conditions, local events such as fires, floods and disease, climate variation and administrative issues.

Flexibility during implementation is provided for by incorporating measures to deliver the commitments into the implementation documents for the Plan – the BCS, the Commitments and Measures document, and the Funding Program (see Section 1.3).

7.8.2 REQUIREMENTS FOR CHANGING THE IMPLEMENTATION DOCUMENTS

TRIGGER POINT FOR ADAPTIVE MANAGEMENT

The five-yearly evaluations will be the primary trigger point and basis for any adaptive management of the Plan through changes to the implementation documents (see 1.3.2). Adaptive management may also be triggered on an ad hoc basis in response to issues or opportunities that arise and need to be addressed immediately (see Section 7.5.3).

Criteria will be established to determine trigger points for when adaptative management should be considered outside the five-yearly evaluations.

OPTIONS FOR ADAPTIVE MANAGEMENT

Options for adaptive management will vary according to the situation and will be determined on a case-by-case basis through a process which forms part of the improvement steps under the Plan's MERI framework (see adaptive management in Section 7.5.4).

CRITERIA FOR CHANGING THE IMPLEMENTATION DOCUMENTS

Changes to the implementation documents are possible if the following requirements can be met:

- Five-yearly evaluations recommend changes that are endorsed by the Executive Committee
- The changes are consistent with the Commonwealth approval conditions
- The changes do not compromise the ability to achieve the outcomes and commitments of the Plan
- The changes do not materially increase the impacts to MNES that were determined and assessed through the Strategic Assessment Report. This requirement relates to the nature, duration, extent, and likely severity of the impacts on the environment of the changes

7.8.3 PROCESS FOR MAKING CHANGES TO THE IMPLEMENTATION DOCUMENTS

Proposed changes to the implementation documents will be provided to the Executive Committee for approval. A request to change an implementation document will include the following:

- The details of the proposed changes
- Justification for the changes and how they will improve achievement of outcomes and delivery of commitments or other improvements to implement the Plan
- How the changes meet the requirements for changing the implementation documents identified in Section 7.8.2
- The proposed revised implementation document

The Executive Committee will consider any proposed changes and:

- Approve the changes, or
- Recommend amendments to the implementation document changes

Once the changes to the implementation document are finalised, the City must formally update the document and provide a notice to the public on their website about the amendments.

Should the changes necessitate a review of the subordinate implementation documents that are included in the Greater Geelong Planning Scheme these changes will be implemented via a planning scheme amendment.

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Appendix A: Where the Plan addresses the endorsement criteria

Endorsement criteria section	Endorsement criteria requirement	Chapter of the Plan
General 1. The Plan must:	a) describe how the Plan is to operate;	**1.2** – Purpose of the Plan **1.3** – Overview of the Plan and supporting documents
	b) use plain English and be written in a way that assists readers who do not have background in or detailed knowledge of the requirements of Part 10 of the EPBC Act;	**Entire Plan** **1.6** – Regulatory context and legal effect of the Plan
	c) provide clarity about legal responsibilities affected by the Plan following endorsement and approval;	**1.6** – Regulatory context and legal effect of the Plan **1.7** – Responsibilities for implementing the Plan **7.3** – Governance framework
	d) incorporate an agreed outcomes framework that uses a consistent hierarchy and language to clearly specify what the Plan (and any supporting documents) will deliver for protected matters. For the purposes of this Agreement and the Terms of Reference (noting that a different framework may be used for the Plan) these include: i) 'outcomes' which represent the highest level of what the Plan will deliver for protected matters, commitments, and measures' ii) 'commitments' which represent what the approval holder (or holders) will do over the life of the Plan to deliver the outcomes iii) 'measures' which represent the specific activities that the approval holder (or holders) will undertake to meet the commitments	**3** – Objective and outcomes of the Plan
	e) should allow for flexibility and adaptive management with respect to matters of development and conservation to deal with changes over the timeframe of the approval. This flexibility may be in relation to: i) spatial matters and where approved actions may be undertaken; ii) conservation measures, including which areas of land may be used to meet the approval holder's conservation commitments and how developments in scientific information will be incorporated by the approval holder into the conservation measures; and iii) how the City of Greater Geelong will administer and implement the Plan in the future in conjunction with existing Local Government mechanisms which may change over time;	**4.5** – Changes to the boundaries of land subject to development **7.5** – MERI framework **7.8** – Process for changing the implementation documents
	f) be clear about what aspects of the Plan cannot be altered.	**1.3.2** – Supporting documents **7.8** – Process for changing the implementation documents

Endorsement criteria section	Endorsement criteria requirement	Chapter of the Plan
Scope 2. The Plan must:	a) provide an approval holder (or holders);	**1.7.1** – Approval holder
	b) describe the role and responsibilities of the approval holder (or holders) and the Commonwealth;	**1.7** – Responsibilities for implementing the Plan **7.3** – Governance framework
	c) define the action or class of actions that are included in the Plan;	**4.3** – Development classes of actions
	d) define persons who can take an action under the Plan;	**4.4** – Persons who can undertake development and their obligations
	e) define the timeframe of the Plan;	**1.5** – Timing for implementation of the Plan
	f) define the spatial area of the strategic assessment;	**1.4** – Area covered by the Plan
	g) define the class of action boundaries;	**4.2** – Location of development
	h) describe the funding arrangements for implementation; and	**7.4** – Funding framework
	i) define matters excluded from the scope of the Plan, including but not limited to: i) actions that have already been found not to be controlled actions under section 75(1) of the EPBC Act; ii) actions that have already been approved under section 133(1) of the EPBC Act; and iii) actions not assessed or specifically excluded from the Plan.	**4.3.6** – Development not covered by the Plan
Environmental management 3. The Plan must:	a) identify the Protected matters that are relevant to the Plan (relevant protected matters);	**5.3** – Relevant protected matters
	b) summarise the expected duration, extent and likely severity of the Impacts to which this Agreement relates;	**5.4** – Avoidance and minimisation of impacts **5.5** – Mitigation of impacts **5.6** – Residual impacts and offsets **6.3** – Avoidance and minimisation of impacts **6.4** – Mitigation of impacts **6.5** – Offsets for residual impacts
	c) describe how the Impacts to which this Agreement relates will be avoided or mitigated and may refer to enhancement or management activities relating to these Protected Matters;	**5.4** – Avoidance and minimisation of impacts **5.5** – Mitigation of impacts **6.3** – Avoidance and minimisation of impacts **6.4** – Mitigation of impacts
	d) provide for appropriate offsets in accordance with the principles of the EPBC Act Environment Offsets Policy, in the event that impacts to protected matters cannot be fully avoided or mitigated;	**5.6** – Residual impacts and offsets **6.5** - Offsets for residual impacts
	e) define clear and measurable outcomes and commitments for the achievement of administrative and regulatory efficiencies, including specific, measurable, achievable,	**3.4** – Outcomes of the Plan **3.5** – Commitments

Endorsement criteria section	Endorsement criteria requirement	Chapter of the Plan
	relevant and timely performance indicators to demonstrate progress towards achieving these outcomes and commitments	
	f) define clear and measurable outcomes and commitments for the management and conservation of protected matters that are relevant to the Plan, including specific, measurable, achievable, relevant and timely performance indicators to demonstrate progress towards achieving these outcomes and commitments.	**3.4** – Outcomes of the Plan **3.5** – Commitments
Implementation 4. The Plan must include at a minimum, a commitment to develop and outline:	a) an assurance and implementation plan that includes the best practice monitoring programs, regular review, public reporting and independent auditing processes proposed to: i) ensure outcomes, commitments and measures for protected matters contained in the Plan are, documented, delivered and adequately resourced throughout the life of the Plan.	**7** – Assurance and implementation framework
	ii) ensure the results of monitoring will be used to understand the effectiveness of outcomes, commitments and measures for protected matters and improve implementation, in particular, to adapt where monitoring demonstrates delivery of the commitments and measures are not leading to the predicted outcomes or where there are risks to protected matters.	**7.5** – MERI framework
	iii) ensure new information relating to protected matters, including legislative changes, may be assessed and accounted for in implementation of the Plan.	**7.5** – MERI framework (Improvement (adaptive management))
	iv) provide mechanisms that track persons who are relying on a strategic assessment approval to take an action and ensure persons undertaking actions are informed of their obligations under the endorsed Plan and approval.	**7.5** – MERI framework (Monitoring)
	v) detail all governance arrangements including the roles and responsibilities of the Parties and the named approval holder (or holders), including in the post approval phase, for the implementation of the Plan and Part 10 approval	**7.3** – Governance framework
	vi) describe how the named approval holder (or holders) will demonstrate and adaptively manage the effectiveness of proposed regulatory, administrative and protected matter outcomes	**7.5** – MERI framework (Improvement (adaptive management))
	vii) ensure compliance with the Plan will be monitored and non-compliance will be reported.	**7.6** – Compliance framework
	viii) provide for a 5-yearly assurance review and report.	**7.5** – MERI framework (five-yearly evaluation and assurance review)
	b) governance processes to ensure that all activities are undertaken in accordance with the Plan;	**4.4** - Persons who can undertake development and their obligations **7.3** – Governance framework

Endorsement criteria section	Endorsement criteria requirement	Chapter of the Plan
	c) outcomes and commitments for regulatory and administrative efficiencies including for governments and third-party developers	**7.3** – Governance framework
	d) a conservation plan which implements the 'avoidance, mitigation, offset' hierarchy approach;	**5** – Conservation framework **6** – Delivery of external infrastructure
	e) a process for data management and sharing of data; and	**7.7** – Data management process
	f) a process for stakeholder engagement (including with the Commonwealth).	**7.3.5** – Stakeholder engagement strategy
Implementation	5. The information provided for these commitments should be of sufficient detail to enable an assessment of the suitability and effectiveness of the proposed approach.	**Entire Plan** (refer to Chapter 29.7 of the SAR)

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OPENLINES
Environmental consulting

MAY 2023

DRAFT NWGGA STRATEGIC ASSESSMENT REPORT

PUBLIC EXHIBITION VERSION

PREPARED FOR THE CITY OF GREATER GEELONG

ACKNOWLEDGEMENT OF COUNTRY

The Country known now as Geelong is the traditional lands of the Wadawurrung, "the people who belong to the water". Wadawurrung Country spreads from the Great Dividing Range of Ballarat, through to the coast from Werribee to Aireys Inlet. Wadawurrung Country includes the cities of Geelong (Djilang), Ballarat (Ballaarat) and Torquay (Jan Jook).

Open Lines and Biosis acknowledge the Wadawurrung Ancestors who care for and nurture Wadawurrung country. We acknowledge the harm and hardships Wadawurrung people have suffered, and continue to feel today. We acknowledge the Wadawurrung Traditional Owners today, who continue to practice and share their culture and maintain their role in looking after Country.

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The Assessment Report presents a range of maps which are provided as separate PDF files. These are accessed by clicking on the map links throughout the report and the maps will open in a separate tab in your internet browser.

The table below outlines the maps in the report. Note that the map number is associated with the relevant chapter (for example, Map 3-1 is the first map in Chapter 3).

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Terms and acronyms used in the Strategic Assessment Report

Term	Acronym / Abbreviation	Description
Biodiversity Conservation Strategy	BCS	The overarching strategy for protecting matters of state environmental significance and national environmental significance.
Catchment Management Authority	CMA	The regulatory body responsible for integrated planning and coordination of water, land, and biodiversity management within each catchment.
Class of Actions	CoA	The term used to describe a single group of actions proposed to be undertaken for development under the strategic assessment
Classes of Actions	CoAs	The term used when referring to all 'class of actions' for the strategic assessment collectively.
Commonwealth Government Department of Climate Change, Energy, the Environment and Water	DCCEEW	The Commonwealth Government department primarily responsible for environment protection and conservation at a national level.
Commonwealth Minister for the Environment	The Minister	The Commonwealth Minister responsible for the *Environment Protection and Biodiversity Conservation Act 1999*.
Cowies Creek Conservation Area		The section of Cowies Creek within the WGGA to be protected and managed for conservation purposes under the Plan.
Cumulative impact assessment	CIA	Cumulative impacts relate to the combined impact of a range of activities within a region. Assessing cumulative impacts recognises that the combined effects of multiple activities on protected matters may be greater than the impact of an individual activity.
Development land		Specified land within the Strategic Assessment Area where development under the Plan is proposed to occur.
Development under the Plan		The broad term used to describe the scope of all development covered by the Class of Actions under the Plan.
Ecological Vegetation Classes	EVC	The standard unit used to classify vegetation types in Victoria.
Ecologically Sustainable Development	ESD	Defined as using, conserving, and enhancing the community's resources so that ecological processes, on which life depends, are maintained, and the total quality of life, now and in the future, can be increased. An additional definition can be found in Section 3A of the *Environment Protection and Biodiversity Conservation Act 1999*.
Ecology and Heritage Partners	EHP	The consulting company that completed ecological surveys within the Growth Areas.
***Environment Protection and Biodiversity Conservation Act 1999* (Cth)**	EPBC Act	The Commonwealth Government's central piece of environmental legislation, which provides a framework to protect and manage Matters of National Environmental Significance.
Extent of occurrence	EOO	The area contained within the shortest continuous imaginary boundary which can be drawn to encompass all known, inferred, or projected sites of present occurrence of a species or ecological community, excluding cases well outside an entity's normal distribution.

Term	Acronym / Abbreviation	Description
External infrastructure footprints		Proposed location of land within the Strategic Assessment Area but outside of the Growth Areas that is subject to development under the Plan.
Finalised priority assessment list	FPAL	List of species, ecological communities, and key threatening processes that have been nominated and approved for assessment and consideration for listing by the Minister responsible for the *Environment Protection and Biodiversity Conservation Act 1999*.
Indirect impacts		Secondary impacts to protected matters which can occur adjacent to or downstream of development from either construction or operational phases of development under the Plan
Interim Biogeographic Regionalisation for Australia subregion	IBRA subregion	Developed by the Commonwealth Government as a key planning tool to identify land for conservation. It has since become a spatial mapping and information source on vegetation communities and ecosystems across Australia.
Land subject to development		Development land within the Growth Areas subject to all classes of actions under the Plan.
Local Government Authority	LGA	The regulatory body responsible for managing local government matters.
Matters of National Environmental Significance	MNES	Defined under the *Environment Protection and Biodiversity Conservation Act 1999* as: • Listed threatened species and communities • Migratory species • Wetlands of international importance (listed under Ramsar) • Commonwealth marine environment • World Heritage properties • National Heritage places • The Great Barrier Reef Marine Park • Nuclear actions • A water resource, in relation to coal seam gas development and large coal mining development
Native vegetation removal regulations		The Victoria requires a permit to destroy, remove or lop areas of native vegetation. These regulations are referred to as the native vegetation removal regulations and are mostly implemented through the planning schemes for local councils.
NGGA Conservation Area		The area of land within the Northern Geelong Growth Area to be avoided for conservation purposes under the Plan.
Northern and Western Geelong Growth Areas	NWGGA	The two Growth Areas identified by the City for urban development.
Northern and Western Geelong Growth Areas Framework Plan	The Framework Plan	The planning document developed by the City to describe the Growth Areas and their future development until 2047.
Northern Geelong Growth Area	NGGA	One of the two Growth Areas identified by the City for urban development.
Precinct Structure Plan	PSP	The master plan for a local area to provide a guide for localised investment and development. Precinct Structure Plans incorporate relevant directions outlined in a higher level Framework Plan.

Term	Acronym / Abbreviation	Description
Protected matters search tool	PMST	A database that identifies whether MNES or other matters protected by the *Environment Protection and Biodiversity Conservation Act 1999* are likely to occur within an area or vicinity.
Ramsar Wetlands		A list of Wetlands of International Importance identified in the Ramsar Convention, which is maintained by the Commonwealth.
State Wide Integrated Flora and Fauna Teams	SWIFFT	An independent network comprised of community groups, government agencies and authorities, education and research institutes, conservation organisations, and landholders and managers with an interest in threatened species and biodiversity conservation.
Strategic assessment		Landscape-scale assessments undertaken under Part 10 of the *Environment Protection and Biodiversity Conservation Act 1999*. Unlike project-by-project assessments, which look at individual actions, strategic assessments can consider a much broader set of actions over a much larger scale and timeframe, such as a plan, policy, or program.
Strategic Assessment Agreement		The formal agreement between the Commonwealth Minister for Environment and the City of Greater Geelong to enter into the Strategic Assessment for the Northern and Western Geelong Growth Areas. It is a mandatory requirement under the *Environment Protection and Biodiversity Conservation Act 1999*, and formally establishes the expectations of both parties.
Strategic Assessment Area	SAA	The area subject to assessment of impacts on biodiversity values in the Strategic Assessment Report under the *Environment Protection and Biodiversity Conservation Act 1999*.
Strategic Assessment Report	SAR	An assessment report done in accordance with the Terms of Reference for the strategic assessment provided under the Strategic Assessment Agreement. See also Strategic Assessment Agreement.
Terms of Reference	ToR	Terms of Reference are a requirement under the *Environment Protection and Biodiversity Conservation Act 1999* for undertaking a strategic assessment and are prepared in accordance with the Strategic Assessment Agreement. The Terms of Reference outline the requirements for the Strategic Assessment Report, including how impacts to matters of national environmental significance should be assessed and how outcomes of the Plan are evaluated.
The City of Greater Geelong	The City	The Greater Geelong Local Government Authority. The City is responsible for the implementation of the Part 10 Strategic Assessment.
The Consulting Team		The consultants (including Biosis and Open Lines) commissioned by the City to undertake the Strategic Assessment.
The Northern and Western Geelong Growth Areas EPBC Plan	The Plan	The Northern and Western Geelong Growth Areas EPBC Plan (the Plan) has been prepared as part of the statutory requirements under Part 10 of the EPBC Act.
The Port Phillip Bay (Western Shoreline) & Bellarine Peninsula Ramsar Site.	The Ramsar site	The Ramsar site is one of the MNES relevant to the implementation on the Plan. It is a site listed under the Ramsar convention and occurs within the Study Area downstream of the Growth Areas.
Threatened Ecological Communities	TEC	An ecological community may be listed as vulnerable, endangered, or critically endangered under the *Flora and Fauna Guarantee Act 1988* and/or *Environment Protection and Biodiversity*

Term	Acronym / Abbreviation	Description
		Conservation Act 1999 depending on the level of threat and risk of its collapse.
Victoria Planning Provisions	VPP	Comprehensive planning provisions for reference to construct planning schemes in Victoria.
Victorian Environment Protection Act 2017	EP Act	The Victorian legislation which includes environmental obligations and protections. The EP Act gives the Environmental Protection Authority enhanced authority to prevent impacts to the environment from waste and pollution.
Victorian Planning and Environment Act 1987	P&E Act	The Victorian Government Act which provides a framework for the use and development of land, and urban planning, in Victoria.
Victorian State Department of Environment, Energy and Climate Action	DEECA	The Victorian Government department responsible for environmental protection and conservation of biodiversity amongst other things.
The former Victorian Government Department of Environment, Land, Water and Planning	DELWP	The former Victorian Government department responsible for environmental protection, state planning regulation and various other things. The department has since been rearranged and split into DEECA and DTP
Victorian State Department of Transport and Planning	DTP	The Victorian Government department responsible for regulating state planning policies and frameworks
Western Geelong Growth Area	WGGA	One of the two Growth Areas identified by the City for urban development. Note that this area excludes the following three precincts which are not included in the Strategic Assessment: • Batesford South • Merrawarp Road • McCanns Land

biosis

OPENLINES
Environmental consulting

MAY 2023

DRAFT NWGGA STRATEGIC ASSESSMENT REPORT

PUBLIC EXHIBITION VERSION

PART 1: OVERVIEW

PREPARED FOR THE CITY OF GREATER GEELONG

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PART 1: OVERVIEW

1 Introduction

1.1 THE STRATEGIC ASSESSMENT

The City of Greater Geelong (the City) has identified two key areas for urban growth in Geelong's northwest, known as the Northern and Western Geelong Growth Areas (the Growth Areas).

The Growth Areas were identified through several State planning strategies for future growth. The City subsequently developed the *Northern and Western Geelong Growth Areas Framework Plan* (the Framework Plan) (The City of Greater Geelong, 2021b), which describes the Growth Areas and outlines considerations for their future development until 2047.

Geelong is considered to be Victoria's primary growth and population centre outside of Melbourne and contains numerous assets that are vital for the state's social, economic and environmental sustainability (Victoria State Government, 2017). The Growth Areas are the key areas identified for development to support Geelong's long-term growth. This growth is driven by a strong economy and employment opportunities that are expected to continue in the coming decades (Geelong Region Alliance, 2007; The City of Greater Geelong, 2021b).

Development within the Growth Areas and associated infrastructure development outside the Growth Areas will lead to impacts to biodiversity values protected under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) and biodiversity values protected under Victorian biodiversity regulations.

To support development in the Growth Areas and protect matters of national environmental significance (MNES), the City is undertaking a strategic assessment under Part 10 of the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). This enables a landscape scale assessment and approval of a suite of development actions under the EPBC Act and provides the opportunity to deliver improved environmental and development outcomes compared to project-by-project assessments through strategic consideration of biodiversity issues.

As part of the strategic assessment process, the City has prepared the *Northern and Western Geelong Growth Areas EPBC Plan* (the Plan) (The City of Greater Geelong, 2022). The Plan gives effect to the outcomes of the strategic assessment process and has been prepared in accordance with the Endorsement Criteria under the Agreement to undertake the Northern and Western Geelong Growth Areas strategic assessment (Strategic Assessment Agreement). See Part 2 of this document for a description of the Plan and the associated implementation documents.

The Strategic Assessment Report (SAR) (this document) has been prepared to assess the impacts of the development under the Plan on MNES. The SAR also evaluates the adequacy of the Plan's outcomes, commitments and measures in protecting MNES over the life of the Plan.

1.2 PURPOSE OF THIS REPORT

The SAR assesses the potential impacts of the proposed development under the Plan on biodiversity values and other matters regulated under the EPBC Act. The SAR has been prepared in accordance with the Terms of Reference (ToR) provided under the Strategic Assessment Agreement (refer to this link for the ToR and this link for the Strategic Assessment Agreement) between the Commonwealth Minister for the Environment and the City of Greater Geelong under the EPBC Act (27 January 2022).

The purpose of the SAR is to address the ToR and assess the impacts of the proposed development taken under the Plan on all matters protected by Part 3 of the EPBC Act (protected matters).

The SAR will be considered by the Commonwealth Environment Minister in deciding to endorse the Plan under the EPBC Act. If the Plan is endorsed by the Minister, the Minister may subsequently consider approval of the proposed development in accordance with the endorsed Plan. If approved, development can proceed in the NWGGA without further approval under the EPBC Act, as long as it is undertaken in accordance with the Plan and any conditions of the Part 10 approval under the EPBC Act.

It is important to note that the SAR does not attempt to assess the impacts and outcomes to State biodiversity matters which are regulated at the State level.

2 Regulatory context

This Chapter provides an overview of the key steps in the legislative processes for strategic assessments under Part 10 of the EPBC Act. The key steps are shown in Figure 2-1.

2.1 ENVIRONMENT PROTECTION AND BIODIVERSITY CONSERVATION ACT 1999

The EPBC Act is Australia's key piece of legislation to protect and manage Australia's nationally and internationally important biodiversity, environment and heritage places. The objectives of the EPBC Act include:

- Providing for the protection of the environment (specifically MNES)
- Promoting Ecologically Sustainable Development (ESD) through the sustainable use of natural resources
- Promoting the conservation of Australian biodiversity and heritage
- Promoting a cooperative approach to the protection and management of the environment
- Assisting in the cooperative implementation of Australia's international responsibilities
- Recognising and promoting the role and knowledge of Indigenous people in the conservation and ecologically sustainable use of Australia's biodiversity

Under Part 10 of the EPBC Act, the Commonwealth Minister for the Environment (the Minister) can agree to undertake a strategic assessment of the impacts of a policy, plan or program on matters protected under the EPBC Act.

The Agreement to undertake the strategic assessment was signed by the City of Greater Geelong and the Minister on 27 January 2022. The Agreement includes Terms of Reference (ToR) to guide the preparation of the Strategic Assessment Report (SAR), as well as a set of Endorsement Criteria to ensure the Plan meets the requirements of the EPBC Act and is able to be adequately implemented (refer to this link for the ToR and this link for the Strategic Assessment Agreement).

The ToR outline what the SAR must contain to allow the Minister to endorse the Plan. The Strategic Assessment Agreement, SAR and Plan must all be publicly exhibited, and any public submissions need to be considered to finalise the documentation.

The Strategic Assessment Agreement for the Northern and Western Geelong Growth Areas strategic assessment provides that, in determining whether or not to endorse the Plan, the Minister will consider the Plan against the Endorsement Criteria provided in the agreement to ensure the Plan meets the requirements of the EPBC Act and is able to be adequately implemented.

Following endorsement of the Plan, the Minister may approve the taking of actions in accordance with the endorsed policy, plan or program subject to a range of general considerations (s 146F) and constraints on decision making (s 146G-M), including to not act inconsistently with a recovery plan or threat abatement plan for a protected matter (s 146K).

Actions undertaken in accordance with a policy, plan or program endorsed by the Minister do not require further assessment and approval for impacts on protected matters under the EPBC Act. The Minister may endorse a policy, plan or program if satisfied that the Assessment Report adequately addresses the impacts on protected matters to which the agreement relates (s 146(2)(f)) and that any recommended modifications to the policy, plan or program by the Minister have been made (s 146 (2f(ii))).

2.1.1 MATTERS OF ENVIRONMENTAL SIGNIFICANCE

Matters of National Environmental Significance (MNES) are protected matters under the EPBC Act for which impacts need to be adequately addressed to enable the Minister to endorse a policy, plan or program.

Only a subset of MNES are relevant to this strategic assessment (see Chapter 18: Relevant protected matters for details). They are:

- Wetlands of international importance
- Nationally threatened species and ecological communities
- Migratory species

2.2 OTHER APPROVALS REQUIRED FOR THE PROPOSED DEVELOPMENT

The SAR has been prepared to meet the requirements of the EPBC Act (as discussed above) and does not attempt to assess the impacts and outcomes on State biodiversity matters. However, to enable development to proceed and for successful implementation of the Plan, a range of planning and environmental approvals will be required at the State level, including (but not necessarily limited to):

- Planning approvals under the *Planning and Environment Act 1987*
- Non-Aboriginal heritage approvals under the *Heritage Act 2017*
- Aboriginal cultural heritage approvals under the *Aboriginal Heritage Act 2006*
- Pollution and waste approvals under the *Environment Protection Act 2017*
- Water and waterway related approvals under the *Water Act 1989*

Implementation is described further in the Plan and Part 2 of the SAR.

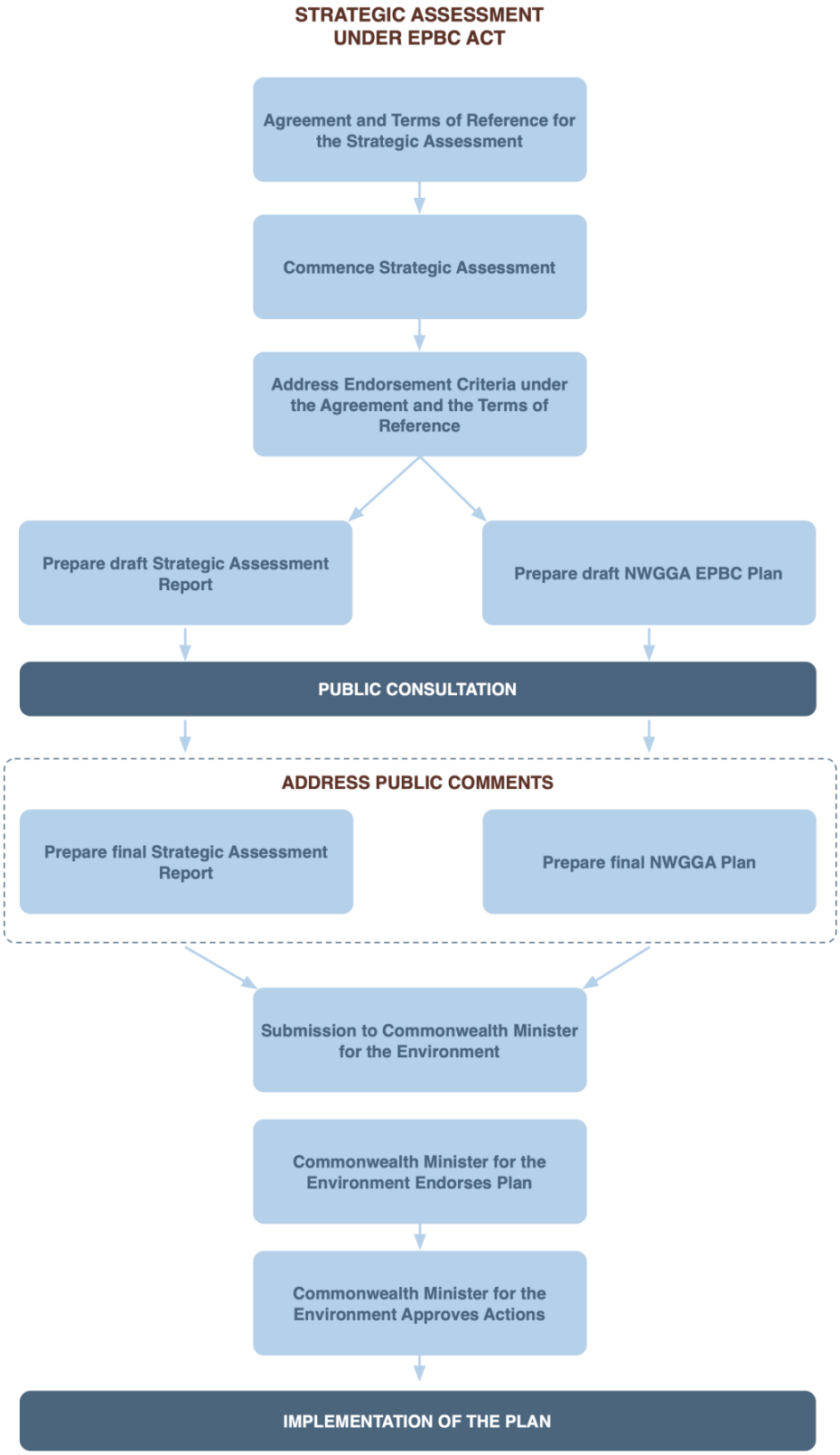

Figure 2-1: Key steps in the strategic assessment process

3 Overview of the Northern and Western Geelong Growth Areas

3.1 INTRODUCTION

The strategic assessment proposes development within two Growth Areas, located on the north-western outskirts of Geelong within Victoria. This chapter provides a brief overview of the landscape context of the region, including key environmental values and threats.

More detailed information regarding baseline data, protected matters, and assessments of potential impacts to protected matters under the Plan, are outlined later in the SAR. See Chapter 4 for a detailed outline of where specific information is located within the SAR.

The relevant items in the ToR relating to the overview of the Growth Areas are outlined in the following text box:

3.1. The Report must describe the nature of the environment within the strategic assessment area that may be impacted by actions proposed to be taken under the Plan. This must include (at a minimum):

a) a description and map of current and historical land-use, including consideration of areas which may pose an environmental risk

b) a description of indigenous land-use and values

c) the broad extent, type and quality of vegetation present in the strategic assessment area, where such information is available or is required in the relevant EPBC Act statutory document for a protected matter (such as a recovery plan)

d) a description of the nature of the terrestrial and aquatic environment, including the state of natural and physical resources, ecological processes, and threatening processes

e) a description of relevant state-protected environmental and heritage values

f) a description of the landscape context and key environmental matters, such as any known habitat connectivity, habitat fragmentation, and ecological processes

g) map or maps of areas that are already protected, including national parks, nature reserves, and known offset areas under both Commonwealth and/or State legislation

…

i) the location of any declared World Heritage properties or National Heritage places in the strategic assessment area and identification of sensitive heritage areas for protected matters

3.2 OVERVIEW OF THE STRATEGIC ASSESSMENT AREA AND GROWTH AREAS

The area covered by the Plan is called the Strategic Assessment Area.

The Strategic Assessment Area occurs within the Victorian Volcanic Plains Bioregion.

It covers 7,101 ha and includes:

- The Northern Geelong Growth Area (NGGA) which covers 2,103.9 ha and occurs in the Lovely Banks locality
- Two precincts within the Western Geelong Growth Area (WGGA) which cover 767.2 ha and occur in the Bell Post Hill/Batesford localities

The NGGA and WGGA are identified in the Framework Plan. The Strategic Assessment Area includes the entire NGGA as described in the Framework Plan but only the northern portion of the WGGA. The portion of the WGGA included in the Strategic Assessment Area comprises the Creamery Road precinct and Batesford North precinct.

The remaining section of the WGGA identified in the Framework Plan covers 2,472.3 ha and has been excluded from the strategic assessment due to a lack of information and resolution relating to a range of factors needed to support and rationalize a full assessment and approval under the EPBC Act. This includes the anticipated development demand and timing, and the detailed plans for decommission and rehabilitation of the active Batesford Quarry.

The Strategic Assessment Area also includes external infrastructure development outside of the Growth Areas, which are required to support development within the Growth Areas and help deliver the development objectives of the Framework Plan. External infrastructure development is described further in Section 7.4 of Part 2.

Refer to Map 3-1 for a map showing the locality and layout of the Study Area, Strategic Assessment Area and the Growth Areas.

3.2.1 LOCALITY

The Strategic Assessment Area occurs towards the northern half of the city of Geelong in southern Victoria, south-west of Melbourne on the western shoreline of Port Phillip Bay.

The Strategic Assessment Area boundary extends to the southern Anakie locality in the north, to the Moorabool locality in the west, and south to the Batesford locality. The eastern boundary of the Strategic Assessment Area is irregular, with two arms extending east, the southern arm capturing the region surrounding Cowies Creek to the shore of Corio Bay, and the northern arm occurring to the north of Geelong Ring Road and extending towards the Princes Freeway.

A 20 km buffer around the Strategic Assessment Area has been used to identify protected matters which may be impacted by the Plan. This area is called the Study Area.

3.2.2 ADMINISTRATIVE CONTEXT

Both of the Growth Areas occur wholly within the boundaries of the Greater Geelong City LGA. A small area of the Strategic Assessment Area (to the west of WGGA) extends into the neighbouring Golden Plains Shire LGA, otherwise the remainder of the Strategic Assessment Area is located within the Greater Geelong City LGA. The Study area occurs across the Greater Geelong City, Golden Plains Shire, Moorabool Shire, Surf Coast Shire, and Wyndham City LGAs.

The Strategic Assessment Area is wholly contained within the Corangamite Catchment Management Authority (CMA) region. The majority of the Study Area occurs within the Corangamite CMA, with the northern area extending into the Port Phillip and Westernport CMA.

Refer to Map 3-2 for a map showing the administrative context of the Study Area.

3.3 LANDSCAPE CONTEXT

This section sets out the landscape context for the strategic assessment. It provides brief descriptions of:

- Relevant IBRA bioregions
- Climate of the region
- Geology and soil
- Historical and current land uses
- Heritage values
- Terrestrial environmental values of the strategic assessment area
- Topography and surface hydrology
- Groundwater characteristics and connectivity
- Water-based environmental values

3.3.1 IBRA BIOREGIONS

The region surrounding Geelong includes multiple IBRA bioregions, reflecting the diversity of environments present within the wider landscape. Each of the IBRA regions present, and their relationship to the Strategic Assessment Area, is outlined below.

Refer to Map 3-3 for a map showing the IBRA bioregion boundaries of the Study Area.

SOUTHERN VICTORIAN VOLCANIC PLAIN BIOREGION

The Strategic Assessment Area itself is wholly contained within the Southern Volcanic Plain bioregion.

The Southern Volcanic Plains bioregion mostly occurs in Victoria (hence it was previously known as the Victorian Volcanic Plains bioregion), yet it is now recognised to extend into South Australia. It stretches from Melbourne in the east to the Mt Gambier region in the west. The bioregion is characterised by broad basaltic plains, interspersed with areas of lakes and swamps. Native grasslands occur in areas where basalts are older and more weathered to produce heavy clays which are generally fertile yet poorly drained. Younger occurrences of relatively unweathered lava flows occur as stony rises, and support thin soils and woodland vegetation (Dahlhaus *et al.*, 2003; Williams, 2022).

SOUTH-EAST COASTAL PLAIN BIOREGION

To the south and downstream of sections of the Strategic Assessment Area is the Otway Plains subregion of the South-East Coastal Plain bioregion.

The South-East Coastal Plain bioregion is comprised of undulating Tertiary and Quaternary coastal plains and hinterlands, and ranges from Tyrendarra in the west to Lakes Entrance in the east. The Otway Plain subregion includes coastal plains, river valleys and foothills from the Bellarine Peninsula, west to Princetown (Environment Australia, 2000).

The South-East Coastal Plain bioregion as a whole includes a wide variety of vegetation, ranging from lowland forests, grasslands and grassy woodlands, heathlands, shrublands, freshwater and coastal wetlands, mangrove scrubs, saltmarshes, dune scrubs and coastal tussock grasslands (Environment Australia, 2000).

VICTORIAN MIDLANDS BIOREGION

The Victorian Midlands bioregion occurs in the region as higher elevation, wooded areas to the north-east and north-west of the Strategic Assessment Area (including the Brisbane Ranges National Park and You Yangs Regional Park). The closest boundaries of this bioregion to the Strategic Assessment Area occur approximately 8.5 km to the north-east and 6 km to the north-west.

This bioregion comprises extensive areas of isolated ranges and foothills which make up the lower inland slopes of the Great Dividing Range and extends from north-eastern Victoria to Casterton in Western Victoria. Vegetation within this bioregion mostly comprises Eucalyptus forests and woodlands. Flatter and more fertile occurrences of this bioregion have been substantially cleared for agriculture or impacted by timber harvesting. In less fertile areas of this bioregion, substantial areas of native vegetation remain in good condition (Environment Australia, 2000).

3.3.2 CLIMATE

Geelong is located within a temperate climate zone, with dominant westerly winds, variable cloud cover, moderate rainfall and cool temperatures (Agriculture Victoria, 2020).

Geelong experiences average annual rainfall of around 550 mm. Summer temperatures range from average daily maximum temperatures of 24.6°C to average daily minimum temperatures of 13.2°C. Winter temperatures range from average daily maximum temperatures of 14.4°C to average daily minimum temperatures of 5.6°C (Agriculture Victoria, 2020).

The region's climate is predicted to change as a result of climate change, with predicted increases in maximum and minimum daily temperatures, increased variability in rainfall (with lower winter, spring and autumn rainfall, and increased extreme rainfall events), and increases in the length of the fire danger season (The City of Greater Geelong, 2021a).

3.3.3 GEOLOGY AND SOIL

The Victorian Volcanic Plains was created by volcanic activity which occurred between approximately 4.5 million to 10,000 years ago. Volcanic activity was mostly from many small volcanoes which created lava flows of basalt, which filled in valleys and created broad plains. There are some occurrences of more explosive eruptions in the region which created circular craters which today contain lakes and swamps (Williams, 2022).

Today, the geology of the Strategic Assessment Area is dominated by areas of basalt, interspersed with areas of alluvial deposits (associated with the Moorabool River) and aeolian deposits (associated with Cowies Creek). The areas of basalt are characterised as plains with poorly developed drainage and with shallow bedrock. Aeolian deposits tend to be characterised as plains with unconsolidated sedimentary deposits, and areas of alluvium are described as unconsolidated sediment occurring as terraces, floodplains, and coastal plains (DELWP, 2022).

3.3.4 HISTORICAL LAND USES, HERITAGE AND CURRENT LAND USES

INDIGENOUS HISTORICAL LAND USE AND HERITAGE VALUES

The traditional owners of the land are the Wadawurrung Aboriginal people, a recognised tribe consisting of 25 clans (family groups), which form part of the larger Kulin Nation of Aboriginal people. The Country known now as Geelong was occupied for at least 45,000 years by traditional owners prior to European Settlement (Rowe, 2021).

There are a number of registered Aboriginal places across the Growth Areas, comprised mostly of stone artefacts. There has been limited archaeological investigation within the Growth Areas, and the available data may not accurately reflect land use by the Wadawurrung people. Preliminary Aboriginal site sensitivity mapping has indicated areas of high archaeological potential along the waterways on the WGGA and one area in the NGGA near to a registered stone artefact (The City of Greater Geelong, 2021b).

Section 26.3 of Part 4 provides further information about the Wadawurrung people.

EUROPEAN HISTORICAL LAND USE AND HERITAGE VALUES

The open and fertile Southern Volcanic Plains bioregion was quickly colonised by European settlers in the 1830's and 1840's (Dahlhaus *et al.*, 2003). As part of this bioregion, the Geelong locality has experienced substantial historical agricultural development.

The city of Geelong itself also has a long history of development. It was first proclaimed as a town in 1838 (Monument Australia, 2010). A rail link was established between Geelong and Melbourne in 1857, and since the 1930's, Geelong has been the second largest city in Victoria (Victorian Places, 2015).

Refer to Map 3-4 for a map showing historical land uses within the Strategic Assessment Area, as indicated by aerial photographs of the region from 1947.

Post contact heritage values in the NGGA are mostly related to the early settlement of large pastoral estates, and the eventual subdivision to small-scale freehold agricultural enterprises. Post contact heritage values within the WGGA are related to early settlement of large pastoral estates, rail and road infrastructure, quarrying and the history of the Fyansford and Batesford townships (The City of Greater Geelong, 2021b).

Section 26.3 of Part 4 provides further information about post European settlement.

World Heritage Properties and National Heritage Places

There are no World Heritage Properties or National Heritage Places within the Strategic Assessment Area or wider Study Area.

State heritage places

There are two state heritage places within the Growth Areas. These include (The City of Greater Geelong, 2021b; Heritage Council Victoria, 2022):

- The Elcho Homestead, a Gothic homestead constructed in 1867, located in the north-east of the NGGA
- The bridge over Moorabool River, one of the earliest and longest stone arch road bridges in Victoria, constructed in 1859, located in the south-east corner of the WGGA

Outside of the Growth Areas and within the wider strategic assessment area, there are an additional seven state heritage places (Heritage Council Victoria, 2022):

- Cowies Creek Rail Bridge No1, a two-span segmental arch bluestone railway bridge constructed in 1860
- Cowies Creek Rail Bridge No2, a single span semicircular arch bluestone bridge constructed in 1860
- Ford Motor Company Complex, comprising of two steel-framed factory buildings with attached offices
- Former Moorabool Railway Station, a historical railway station constructed in 1861
- Former Travellers Rest Inn, an inn with a Colonial Georgian structure which was erected in 1849
- Laurence Park Homestead – a 'H' shaped colonial building constructed in 1845
- Railway Viaduct – a 396 m railway viaduct constructed over the Moorabool River in 1862

CURRENT LAND USE

Today, the Strategic Assessment Area primarily includes land which has been developed for agricultural purposes. The NGGA is primarily used for pastoral and cropping activities, associated with rural residential housing. The WGGA includes a mix of existing land uses, including agriculture, recreation reserves, Council-managed reserves, rural and medium density housing, and educational facilities. While the WGGA does not contain any formal conservation reserves, there are a number of reserves managed by the City – including the Moorabool River Reserve (EHP, 2021).

The city of Geelong is a large urban centre and supports a population of over 250,000, which is forecast to be nearly 400,000 by the early 2040's (Corangamite CMA, 2022a).

Refer to Map 3-5 for a larger scale map showing current land uses across the wider Study Area, and Map 3-6 for a more detailed map showing current land uses within the Strategic Assessment Area.

3.3.5 PROTECTED AREAS

The Strategic Assessment Area occurs within the Southern Volcanic Plain bioregion. Due to substantial agricultural development, this bioregion has become one of the bioregions most depleted of native vegetation in Victoria. As of 2003, only 4.5 per cent of the bioregion still had a cover of native vegetation. Further, as of 2003, less than 1.2 per cent of the Southern Volcanic Plains bioregion was in a formal conservation reserve (DSE, 2003).

There are minimal protected areas within the Strategic Assessment Area, including:

- Cowies Creek Frontage – A small (approximately 0.9 ha) Natural Feature Reserve occurring adjacent to Cowies Creek downstream from the WGGA
- Moorabool River Water Frontage – A Natural Feature Area which follows the Moorabool River, occurring adjacent to the WGGA and within the southern edge of the Strategic Assessment Area

There is one national park, the Brisbane Ranges National Park, that occurs partially within the Study Area approximately 15 km north of the Strategic Assessment Area. There are a number of protected areas across the broader Study Area, including:

- Inverleigh Nature Conservation Reserve – approximately 18.6 km north of the Strategic Assessment Area
- Serendip Wetlands Educational Facility – approximately 4 km north-east of the Strategic Assessment Area
- Lake Connewarre Wildlife Reserve -approximately 10.7 km south-east of the Strategic Assessment Area
- Limeburners Lagoon - approximately 1.3 km east of the Strategic Assessment Area
- The Spit Nature Conservation Reserve - approximately 9.2 km east of the Strategic Assessment Area
- The Western Grasslands Reserve - approximately 17 – 18 km north-east of the Strategic Assessment Area
- You Yangs Regional Park – approximately 5 km north of the Strategic Assessment Area
- Dog Rocks Flora and Fauna Sanctuary - approximately 0.2 km south of the Strategic Assessment Area

Refer to Map 3-7 for a map showing the existing protected areas of the Study Area.

3.3.6 TERRESTRIAL ENVIRONMENTAL VALUES OF THE STRATEGIC ASSESSMENT AREA

OVERVIEW

The condition of the environment within the Strategic Assessment Area varies and is mostly degraded. Most of the area is highly modified due to agricultural land use and is largely dominated by non-native species. Native vegetation and terrestrial fauna habitat are limited to areas which have not been historically subject to cropping, and to riparian corridors. Where native vegetation is present, much of it is highly modified with a low diversity of native species and lacking in suitable vegetation structure (EHP, 2021).

Despite this, the Strategic Assessment Area supports a range of terrestrial environmental values including habitat for threatened species and TECs, typically in areas which have been subject to reduced levels of historical disturbance. The threatened species and TECs contained within the Strategic Assessment Area are described below.

The existing level of disturbance within the Strategic Assessment Area is consistent with the broader landscape trend within the Southern Volcanic Plains Bioregion, where the vast majority of the bioregion has been developed for agriculture (DSE, 2003).

DESCRIPTION OF NATIVE VEGETATION COMMUNITIES WITHIN THE STRATEGIC ASSESSMENT AREA

Refer to Map 3-8 for a map showing the distribution of native vegetation within the Growth Areas and the Strategic Assessment Area.

Native vegetation within the Growth Areas

Threatened ecological communities

A total of 1,409.4 ha (67 per cent) of the NGGA and 666 ha (86.8 per cent) of the WGGA was subject to site surveys. The following TECs were identified within the surveyed areas of the NGGA (EHP, 2021):

- 12.7 ha of the Commonwealth listed TEC Natural Temperate Grassland of the Victorian Volcanic Plain
- 123.8 ha of the State significant ecological community Western Basalt Plains Grassland

No TECs (either Commonwealth listed or State listed) were identified within the surveyed areas of the WGGA (EHP, 2021).

A total of 694.5 ha (33 per cent) of the NGGA and 101.2 ha (13.2 per cent) of the WGGA have not been surveyed. These areas generally comprise many small, rural residential landholdings which are fragmented by windrows/landscaping and have a much higher proportion of land use for dwellings and driveways compared to the broader Growth Areas. The environment within these unsurveyed areas tends to be more modified or degraded as a result. It is possible that these unsurveyed areas contain additional patches of native vegetation, and additional Natural Temperate Grassland may occur in the unsurveyed areas of the NGGA (EHP, 2021). See Section 13.3.2 of Chapter 13 for more details on the unsurveyed areas, and Section 21.1.1 of Chapter 21 for a description of Natural Temperate Grassland in the unsurveyed areas.

Ecological Vegetation Classes

Within the surveyed areas of the NGGA 146.4 ha of *Low Rainfall* Plains Grassland (EVC 132_63) was recorded (EHP, 2021). Within the surveyed areas of the WGGA a total of 69.5 ha of native vegetation was recorded. This includes (EHP, 2021):

- 23.1 ha of Floodplain Riparian Woodland (EVC 56)
- 4.9 ha of Creekline Grassy Woodland (EVC 68)
- 41.5 ha of *Low rainfall* Plains Grassland (EVC 132_63)

Some additional patches of native vegetation may also occur within the unsurveyed areas of the Growth Areas (EHP, 2021).

Native vegetation outside of the Growth Areas within the Strategic Assessment Area

Modelled EVCs (DELWP, 2005) across the Strategic Assessment Area and broader Study Area indicate that the Study Area contains a range of native vegetation types. Vegetation is relatively fragmented across the landscape, reflecting the historical and current agricultural land use, and urbanised areas. Some large patches of native vegetation occur in protected areas such as the Brisbane Ranges National Park, You Yangs Regional Park, and in areas of the Port Phillip Bay (Western Shoreline) and Bellarine Peninsula Ramsar Site.

DESCRIPTION OF THREATENED SPECIES WITHIN THE STRATEGIC ASSESSMENT AREA

Threatened flora

Targeted surveys for six Commonwealth listed threatened flora species were undertaken within the Growth Areas, including: *Lachnagrostis adamsonii* (Adamson's Blown-grass), *Dianella amoena* (Matted Flax-lily), *Glycine latrobeana* (Clover Glycine), *Rutidosis leptorrhynchoides* (Button Wrinklewort), *Senecio macrocarpus* (Large-fruit Fireweed) and *Pimelea spinescens* subsp. *spinescens* (Spiny Rice-flower). No Commonwealth listed threatened flora species were recorded within

the surveyed areas, although, *Lachnagrostis adamsonii* (Adamson's Blown-grass) has been assumed to be present in WGGA based on relatively recent historical records, and the presence of suitable habitat (EHP, 2021).

It is considered highly unlikely that any additional Commonwealth listed flora species occur within the areas which were surveyed within the Growth Areas due to the ongoing land use of the site resulting in the absence of suitable habitat, and the highly modified condition of the understory (EHP, 2021).

One state listed flora species, *Maireana aphylla* (Leafless Bluebush) was recorded at the north-eastern boundary of the NGGA. Known records of *Eucalyptus leucoxylon* subsp. *connata* (Melbourne Yellow-gum) were confirmed to occur approximately 1 km south of the WGGA (EHP, 2021).

On site surveys have not been conducted in the Strategic Assessment Area outside the Growth Areas. There are several records of *Lachnagrostis adamsonii* (Adamson's Blown-grass) associated with Cowies Creek outside of the WGGA. One additional Commonwealth listed threatened flora species, *Pimelea spinescens* subsp. *spinescens* (Spiny Rice-flower) has been recorded within the Strategic Assessment Area, east of the NGGA.

Threatened fauna

Targeted surveys for the following Commonwealth listed threatened fauna species were undertaken within the Growth Areas, *Synemon plana* (Golden Sun Moth), *Delma impar* (Striped Legless Lizard), *Litoria raniformis* (Growling Grass Frog), *Prototroctes maraena* (Australian Grayling) and *Galaxiella toourtkoourt* (Little Galaxias) (EHP, 2021).

Surveys recorded the Striped Legless Lizard and Golden Sun Moth within the NGGA. Growling Grass Frogs were recorded in Cowies Creek within the WGGA. Targeted surveys for the Australian Grayling and Little Galaxias within the WGGA did not identify the species. However, the Australian Grayling is considered likely to be present within the broader catchment area. It is noted that the Corangamite CMA has proposed to remove barriers within the Moorabool River which currently prevent fish accessing habitat further upstream adjacent to the WGGA. Future planning for the WGGA PSPs should assume the presence of the Australian Grayling and Little Galaxias following the removal of these barriers (EHP, 2021).

A single state significant fauna species *Aythya australis* (Hardhead) was observed within the NGGA during surveys, although it is considered unlikely that the species would maintain a resident population within the Growth Areas. *Ardea modesta* (Eastern Great Egret) and *Falco subniger* (Black Falcon) have recently been recorded in close proximity to the Growth Areas, and it is likely that these species would use to the Growth Areas for opportunistic forage, or as a steppingstone throughout the broader landscape. An active *Ornithorhynchus anatinus* (Platypus) burrow was observed within the Moorabool River. The NGGA is considered to support suitable habitat for the *Pseudemoia pagenstecheri* (Tussock Skink), although the species was not recorded during Striped Legless Lizard surveys (EHP, 2021).

On site surveys have not been conducted in the Strategic Assessment Area outside the Growth Areas. Commonwealth listed threatened fauna species which have been recorded within the Strategic Assessment Area include, *Callocephalon fimbriatum* (Gang-gang Cockatoo), *Delma impar* (Striped Legless Lizard), *Litoria raniformis* (Growling Grass Frog), *Macquaria australasica* (Macquarie Perch), and *Synemon plana* (Golden Sun Moth).

3.3.7 OTHER LANDFORMS CONNECTED TO THE STRATEGIC ASSESSMENT AREA

While the Strategic Assessment Area itself is comprised largely of basaltic plains, there are a variety of other landforms within the region which are connected to the Strategic Assessment Area by virtue of being downstream. These include:

- Riparian environments (such as those of the Moorabool and Barwon Rivers)
- Wetlands (such as Limeburners Bay and the Lake Connewarre Complex)
- An estuary (Corio Bay, which is connected to Port Phillip Bay)

The degree to which each of these landforms is connected to the Strategic Assessment Area varies, depending strongly upon the topographical and hydrological characteristics of the landscape, and the distance of the landform from the Strategic Assessment Area.

Refer to Map 3-9 for a map showing the locations of each of these landforms.

3.3.8 TOPOGRAPHY AND SURFACE HYDROLOGY

The Strategic Assessment Area occurs within the Moorabool River Basin. The broader Study Area spans across the Moorabool Basin in the north, the Barwon River Basin in the south, and a small area of the Otway Coast Basin in the southern edge of the Study Area.

There are three catchments which the Growth Areas are hydrologically linked to via overland flow:

- Moorabool River catchment, which occurs to the south of the Strategic Assessment Area. The Moorabool River flows south, joining the Barwon River at Fyansford. The Barwon then continues to flow south, into the Lake Connewarre Complex. This wetland complex then drains into the ocean at Barwon Heads
- Hovells Creek catchment, which occurs to the east of the northern half of the Strategic Assessment Area. This catchment contains Limeburners Bay, and drains southward into Corio Bay
- Cowies Creek catchment, which occurs to the east of the central and southern half of the Strategic Assessment Area. This creek does not contain wetlands and drains eastward into Corio Bay

Refer to Map 3-10 for a map showing the drainage of the Growth Areas to each of these catchments.

The topography of the NGGA is varied. A largely flat, elevated area occurs in the north-western and central areas of the Growth Area. Along the eastern section of the Growth Area, an escarpment occurs, with the landscape falling steeply towards the east, draining into the Hovells Creek catchment, upstream of Limeburners Bay. In the south-west of the Growth Area, the land slopes downwards towards the south-west, draining into the Cowies Creek catchment.

The topography of the WGGA is also varied. The central area of the WGGA is largely flat. The north-eastern corner of the Growth Area slopes towards the north-east, draining into the Cowies Creek catchment. The western section of the Growth Area is steep and drains westwards, into the catchment of the Moorabool River. A small section of the south-eastern corner of the Growth Area slopes gently towards the south-east, also flowing into the catchment of the Moorabool River.

The characteristics and environmental values of each of the catchments and the estuary connected to the Growth Areas is outlined in Section 3.3.10.

3.3.9 GROUNDWATER CHARACTERISTICS AND CONNECTIVITY

Groundwater is present within the Geelong locality. The characteristics of groundwater systems vary depending upon the geological characteristics of the landscape, ranging from small, local systems where water tables rise and fall quickly, through to large, regional aquifers which operate at a basin scale and are very slow to respond to landscape change (Dahlhaus, Cox et al., 2008).

The volcanic basalt plains which dominate the Strategic Assessment Area are associated with very large-scale aquifers with high permeability and slow response times to land use change (Dahlhaus *et al.*, 2008).

However, it is noted that Hovells Creek (including Limeburners Bay) and sections of the Barwon River (including the Lake Connewarre Complex) are characterised by local groundwater systems (Dahlhaus *et al.*, 2008). It is possible that groundwater interactions with surface water play an important role in the hydrological characteristics of these systems.

3.3.10 WATER-BASED ENVIRONMENTAL VALUES

As outlined in Section 3.3.8, the Growth Areas are hydrologically connected to three catchments:

- Hovells Creek catchment, which flows into Limeburners Bay and the Corio Bay estuary
- Cowies Creek catchment, which flows into the Corio Bay estuary
- Moorabool River catchment (which then flows into the Barwon River, followed by the Lake Connewarre Complex, and eventually into the ocean at Barwon Heads)

Refer to Map 3-9 for a map showing the locations of each of these catchments.

A description of these environments is provided below.

HOVELLS CREEK CATCHMENT

Hovells Creek is the principal waterway of the Hovells Creek catchment. The majority of the creek's catchment is agricultural, with some areas of conservation reserves and urban development. In the north, the headwaters of Hovells Creek extends up towards the Anakie locality. The creek flows through a largely agricultural landscape, then flows along the western boundary of You Yangs Regional Park, before flowing through the centre of the township of Lara. Downstream of Lara, the creek widens to flow into Limeburners Bay (part of the Port Phillip Bay (Western Shoreline) and Bellarine Peninsula Ramsar Site). The north-eastern section of the Strategic Assessment Area and approximately 52 per cent of the NGGA will drain to the Hovells Creek Catchment (The City of Greater Geelong, 2016).

Based on 2010 data, the state-wide Index of Stream Condition found that the Hovells Creek was in 'very poor' environmental condition (the lowest environmental condition category in the rating system). This index takes into account a range of environmental indictors, including hydrology, physical form, riparian vegetation, water quality and aquatic life (macroinvertebrates). Contributors to the degraded state of Hovells Creek include agricultural and urban impacts to riparian zones and water quality, reduced riparian vegetation width and connectivity, degraded riparian and estuarine vegetation and reduced estuary extent, barriers to fish passage and changes to flow regime (Corangamite CMA, 2014).

The section of Hovells Creek which is downstream of the NGGA is the section which is downstream of Lara, and includes Limeburners Bay. Limeburners Bay is an internationally significant wetland which includes a range of aquatic vegetation communities and provides key habitat for birds and amphibians (including migratory and threatened species), in addition to a range of recreational values (Corangamite CMA, 2014).

Table 3-1 identifies the Commonwealth listed threatened species which have been recorded in Hovells Creek and Limeburners Bay.

Further details on the environmental values of Limeburners Bay is provided in Chapter 22 of Part 4, which provides a detailed overview and assessment of the Port Phillip Bay (Western Shoreline) and Bellarine Peninsula Ramsar Site.

COWIES CREEK CATCHMENT

Cowies Creek is a small creek, whose catchment occurs between Hovells Creek catchment (to the north-east) and the Moorabool River catchment (to the west and south). The upstream areas of the catchment extend into the Moorabool locality and include agricultural land. Downstream and to the west of the Princes Freeway, Cowies Creek traverses through heavily urbanised areas within the North Geelong locality, before discharging into Corio Bay. Most of the stream length occurs in urban areas. The Cowies Creek catchment occurs in the southern half of the Strategic Assessment Area. Approximately 25 per cent of the NGGA and 61 per cent of the WGGA drains to Cowies Creek (The City of Greater Geelong, 2016).

Cowies Creek is a densely vegetated riparian corridor with remnant Creekline Grassy Woodland (EVC 68) occurring along most of the creek. Cowies Creek supports a range of biodiversity values including a significant population of Growling Grass Frog (*Litoria raniformis*). The corridor is also known to support the Eastern Longneck Turtle (*Chelodina longicollis*). Cropping in adjacent upstream areas of the creek has implications for water quality, with salinity and turbidity in the corridor restricting access to viable habitat for some species (GbLA Landscape Architects, 2022).

Table 3-1 identifies the Commonwealth listed threatened species which have been recorded in Cowies Creek.

MOORABOOL RIVER CATCHMENT

The Strategic Assessment Area occurs entirely within the Moorabool Basin.

The Moorabool River occurs adjacent to the western border of the WGGA and continues south to into the Barwon River and Lake Connewarre Complex. The sections of the Moorabool River which are adjacent to and downstream of the WGGA contain multiple environmental values, including the environmental values of the Moorabool and Barwon Rivers and the Lake Connewarre Complex. Approximately 39 ha of the WGGA will drain into the Moorabool river adjacent to the WGGA. A small section (~ 2 per cent) of the NGGA is hydrologically linked to the Moorabool river via Sutherland Creek (The City of Greater Geelong, 2016).

The Moorabool River, Barwon River, and Lake Connewarre Complex are described below.

Values of the Moorabool River and Barwon River

The Moorabool River and Barwon River support a diversity of flora and fauna. The Moorabool river is an important biodiversity habitat corridor between the Brisbane Ranges National Park and the Barwon River, and sustains critical ecological processes for native fish, macroinvertebrates, mammals, birds, and vegetation communities (Corangamite CMA, 2016). The Barwon River supports aquatic vegetation communities and provides important breeding and feeding habitat for wetland dependant birds and native fish (Corangamite CMA, 2014).

The condition of the Moorabool and Barwon River is impacted heavily by land use upstream from the Geelong locality. Upstream water extraction has led to significantly reduced flows in both rivers. This trend in declining flow is predicted to continue with climate change. Further, agriculture and land clearing in the upstream catchment reaches has resulted in increased river turbidity and nutrient loads, causing algal blooms and reduced fish habitat (Corangamite CMA, 2022b).

Where the Barwon River flows through Geelong, much of the river is bordered by parkland which is valued and actively used by residents for a range of recreational activities including fishing, water skiing, angling, rowing and paddle sports, and major on-water events. During hot and dry summers, regular algal blooms can disrupt the enjoyment and use of the river for weeks to months (Barwon River Ministerial Advisory Committee, 2020).

The natural water flows of the lower Barwon within Geelong have been substantially disturbed since settlement. A weir (which was first constructed in 1898) is located where the Barwon River discharges into the Lake Connewarre Complex, which prevents the incursion of saline water upstream, and has raised the river level upstream (Barwon River Ministerial Advisory Committee, 2020).

Based on 2010 data, the state-wide Index of Stream Condition found that the Moorabool River and Barwon River segments downstream of the Strategic Assessment Area were in 'very poor' environmental condition (Corangamite CMA, 2014). In the past decade, there has been significant progress to improve the flows and waterway management in the Barwon catchment to improve the environmental condition of the river (Barwon River Ministerial Advisory Committee, 2020).

Table 3-1 identifies the Commonwealth listed threatened species which have been recorded in the Barwon and Moorabool Rivers.

Lake Connewarre Complex

South of Geelong, the Barwon River flows into the Lake Connewarre Complex. This complex includes a series of wetlands, including Lake Connewarre, Reedy Lake, Hospital Swamp, and Murtnaghurt Lagoon. The wetland is an estuarine system which supports a diverse range of aquatic vegetation communities and provides important feeding and breeding grounds for a wide range of native fish, wetland birds, migratory birds, and threatened species (Corangamite CMA, 2014).

The Lake Connewarre Complex is important both culturally and socially. The site is significant for the Wadawurrung people, the traditional owners of Geelong. The area is also used recreationally for fishing (with a recreational fishing licence), small craft boating (such as canoes, kayaks, and small fishing boats) and duck hunting within designated areas during duck hunting season (March to June) (DELWP, 2020).

Further details on the environmental values of the Lake Connewarre Complex are provided in Chapter 22 of Part 4, which provides a detailed overview and assessment of the Port Phillip Bay and Bellarine Peninsula Ramsar Site. Table 3-1 identifies the EPBC listed threatened species which have been recorded in the Lake Connewarre Complex.

CORIO BAY ESTUARY

Corio Bay is a small bay on the western edge of Port Phillip Bay. Port Phillip Bay is the largest marine embayment in Victoria, covering approximately 1930 km^2 with a coastline of 333 km in length. While the maximum depth of Port Phillip Bay is 24 m, the majority of the bay (including Corio Bay) is shallower than 8 m (Walker, 1999; DELWP, 2017). Corio Bay occurs to the east of the Strategic Assessment Area.

Drainage into Corio Bay from the Growth Areas will occur through three drainage pathways (The City of Greater Geelong, 2016):

- Wharf Road and St Georges drainage system - 21 per cent of the NGGA
- Hovells Creek and Limeburners Bay – 52 per cent of the NGGA
- Cowies Creek – 25 per cent of the NGGA, and 61 per cent of the WGGA

Cumulatively, a total of 98 per cent of the NGGA and 61 per cent of the WGGA will drain to Corio Bay.

Port Phillip Bay is connected to the ocean via a narrow entrance at Port Phillip Heads. The narrow entrance limits water exchange between the ocean and the bay. Movement of water is important for dispersing water from the bay to ocean, including freshwater, nutrients, and sediments. However, the efficiency of mixing and flushing across the wider bay varies. Due to its location, depth and other hydrodynamic characteristics, Corio Bay has limited mixing and flushing (DELWP, 2017).

Environmental management of Port Phillip Bay, including Corio Bay, is guided by the Port Phillip Bay Environmental Management Plan 2017-2021. This plan outlines a range of priorities, including ensuring nutrient and sediment loads do not exceed current levels, reducing pollutant loads, reducing litter, managing marine pests, and conserving and restoring habitats and marine life (DELWP, 2017).

Corio Bay has a range of significant environmental values. The northern shoreline of Corio Bay is comprised of two areas of the Port Phillip Bay (Western Shoreline) and Bellarine Peninsula Ramsar site, Point Wilson / Limeburners Bay area, and Werribee River / Avalon. The point Wilson / Limeburners Bay area supports a seagrass community and is recognised to provide significant habitat for native and migratory species (DELWP, 2017). Further details and assessment of the environmental values of this Ramsar site are provided in Chapter 22 of Part 4.

Further, the shoreline of Point Henry (the south-eastern boundary to Corio Bay) is also recognised to support significant environmental values. Seagrass communities occur along both the eastern and western shores of Point Henry (DELWP, 2017). The locality of Point Henry has been identified as an Important Bird Area by Birdlife Australia, supporting internationally significant numbers of migratory birds, in addition to nationally significant numbers of the critically endangered Curlew Sandpiper (Birdlife Australia, 2020).

Land use of Point Henry peninsula is guided by the Moolap Coastal Strategic Framework Plan, which protects areas for environmental, historical and cultural purposes, in addition to providing opportunities for new residential, industrial and tourism developments. It is noted the peninsula has previously been used as an aluminium smelter and rolling mill, which recently closed operations in 2014 (DELWP, 2019a).

Table 3-1 identifies the Commonwealth listed threatened species which have been recorded in Corio Bay.

Table 3-1: Threatened species recorded within the catchments downstream of the Growth Areas

Scientific name	Common name	EPBC listing	Presence within catchments				
			Hovells Creek	Cowies Creek	Barwon / Moorabool	Lake Connewarre	Corio Bay Estuary
THREATENED FLORA							
Glycine latrobeana	Clover Glycine	Vulnerable			✓		
Lachnagrostis adamsonii	Adamson's Blown-grass	Endangered		✓			
Lepidium aschersonii	Spiny Peppercress	Vulnerable			✓	✓	
THREATENED FAUNA							
Anthochaera phrygia	Regent Honeyeater	Critically Endangered					✓
Botaurus poiciloptilus	Australasian Bittern	Endangered	✓		✓	✓	✓
Calidris canutus	Red Knot	Endangered, Migratory, FPAL	✓			✓	✓
Calidris ferruginea	Curlew Sandpiper	Critically Endangered, Migratory, FPAL				✓	✓
Calidris tenuirostris	Great Knot	Critically Endangered, Migratory, FPAL				✓	✓
Callocephalon fimbriatum	Gang-gang Cockatoo	Endangered	✓	✓	✓	✓	✓
Charadrius leschenaultii	Greater Sand Plover	Vulnerable, Migratory					✓
Charadrius mongolus	Lesser Sand Plover	Endangered, Migratory					✓
Dermochelys coriacea	Leatherback Turtle	Endangered, Migratory					✓
Diomedea exulans	Wandering Albatross	Vulnerable, Migratory			✓	✓	
Halobaena caerulea	Blue Petrel	Vulnerable				✓	
Hirundapus caudacutus	White-throated Needletail	Vulnerable, Migratory	✓		✓	✓	✓
Isoodon obesulus obesulus	Southern Brown Bandicoot	Endangered			✓		
Lathamus discolor	Swift Parrot	Critically Endangered	✓		✓	✓	
Lepidochelys olivacea	Pacific (Olive) Ridley	Endangered					✓

Scientific name	Common name	EPBC listing	Presence within catchments				
			Hovells Creek	Cowies Creek	Barwon / Moorabool	Lake Connewarre	Corio Bay Estuary
Limosa lapponica baueri	Western Alaskan Bar-tailed Godwit	Vulnerable, FPAL				✓	✓
Litoria raniformis	Growling Grass Frog	Vulnerable		✓	✓	✓	✓
Maccullochella peelii	Murray Cod	Vulnerable			✓		
Macquaria australasica	Macquarie Perch	Endangered			✓		
Macronectes giganteus	Southern Giant-Petrel	Endangered, Migratory				✓	✓
Macronectes halli	Northern Giant Petrel	Vulnerable, Migratory				✓	
Mirounga leonina	Southern Elephant Seal	Vulnerable					✓
Nannoperca obscura	Yarra Pygmy Perch	Vulnerable			✓	✓	
Neophema chrysogaster	Orange-bellied Parrot	Critically Endangered	✓			✓	✓
Neophema chrysostoma	Blue-winged Parrot	Vulnerable	✓		✓	✓	
Numenius madagascariensis	Eastern Curlew	Critically Endangered, Migratory, FPAL	✓			✓	✓
Pachyptila turtur	Fairy Prion (southern)	Vulnerable		✓		✓	
Pedionomus torquatus	Plains-wanderer	Critically Endangered				✓	✓
Prototroctes maraena	Australian Grayling	Vulnerable			✓	✓	
Pteropus poliocephalus	Grey-headed Flying-fox	Vulnerable			✓		✓
Rostratula australis	Australian Painted Snipe	Endangered			✓	✓	
Sternula nereis nereis	Australian Fairy Tern	Vulnerable	✓			✓	✓
Thalassarche carteri	Indian Yellow-nosed Albatross	Vulnerable, Migratory				✓	
Thalassarche melanophris	Black-browed Albatross	Vulnerable, Migratory				✓	
Thinornis cucullatus cucullatus	Eastern Hooded Plover	Vulnerable				✓	

3.4 KEY THREATS

A key threat to biodiversity values within the Geelong locality is loss of habitat for development. The region surrounding Geelong has historically been heavily developed for agricultural production, resulting in substantial losses of native vegetation (DSE, 2003). The city of Geelong itself has also long been a centre of development in Victoria and has been the second largest city in Victoria since the 1930's (Victorian Places, 2015). Historical development and clearing has resulted in loss of native vegetation and landscape degradation, reducing habitat availability and quality for native species.

Today, Geelong's population is continuing to grow, with a predicted 2.5 per cent annual growth rate, and is anticipated to have an additional 500,000 residents by 2050 (The City of Greater Geelong, 2021b). Careful management is required to minimise impacts of development to support this forecast increase in population.

Other key environmental threats within the region include:

- Invasive species, including pests and weeds
- Modification of water systems, including historical construction of infrastructure such as dams and weirs, ongoing water abstraction, and water pollution from agricultural and urban sources
- Disturbance pressures upon habitats used recreationally, such as estuarine and beach environments
- Climate change

Each of these is discussed briefly below.

3.4.1 INVASIVE SPECIES

As a result of extensive historical development, there is a high density of weeds within the Geelong locality. For instance, surveys conducted within the Growth Areas found a high density of weeds and introduced pasture species across most of the surveyed areas (EHP, 2021). Weeds also pose a threat within the wider Study Area, including within the Port Phillip Bay (Western Shoreline) & Bellarine Peninsula Ramsar site (DELWP, 2020).

Pest animals are also present within the region. Within the Growth Areas, there is evidence that sites are occupied by rabbits, hares and foxes (EHP, 2021). Additionally, foxes, cats, rabbits, deer are identified as invasive species of concern at the Port Phillip Bay (Western Shoreline) & Bellarine Peninsula Ramsar site (DELWP, 2020). Other invasive species, such as pigs, goats, are likely to also be present within the region. It is not considered possible to eradicate existing pests within the region and therefore asset protection approaches are considered the most effective management mechanism to minimise potential impacts to MNES (EHP, 2021).

3.4.2 WATER SYSTEM MODIFICATION

All of the major watercourses within the Geelong region have experienced environmental impacts from development.

In-stream dams or similar barriers are located where the Barwon River discharges into Lake Connewarre, and along the Barwon and Moorabool Rivers (upstream of Geelong) (Corangamite CMA, 2014). Dams pose a range of threats to riverine environments, including acting as barriers to fish passage, through altering characteristics of the water (such as water temperature and oxygen content), and through artificially altering water levels.

Water extraction from the Barwon and Moorabool rivers occurs to support consumptive and agricultural purposes. Current environmental water allocations for both of these rivers is not sufficient to meet environmental needs into the future (DELWP, 2021).

The environmental values of the Moorabool River, Barwon River, Hovells Creek, and Lake Connewarre Complex are all threatened by indirect impacts from agricultural and urban development within these catchments, including grazing pressures, invasive species, poor water quality, erosion and sedimentation, and degradation of native vegetation (Corangamite CMA, 2014).

3.4.3 RECREATIONAL DISTURBANCE

The Geelong locality is a popular destination for recreational purposes. Recreational activities in estuarine and coastal environments (including dog walking on beaches, driving vehicles off-road, and water-based activities such as jet skiing, kite surfing, kayaking) can pose a threat of disturbance, particularly to waterbirds and migratory birds which occur in coastal environments, and within and near the Port Phillip Bay (Western Shoreline) & Bellarine Peninsula Ramsar site. The consequence of disturbance impacts upon waterbirds and migratory birds (many of which are protected under the EPBC Act) can be significant, leading to nest abandonment, population declines, or potentially reduced migratory success. The impacts of disturbance are forecast to increase as the human population within the region increases (DELWP, 2020).

3.4.4 CLIMATE CHANGE

Climate change is rapidly emerging as one of the most significant threats to ecosystems and biodiversity (Prober *et al.*, 2019). Victoria's climate is among the driest and most variable globally, and ecosystems in Victoria are particularly vulnerable to climate change (Jin, Cant and Todd, 2009). Various changes in Victoria's climate have been recorded in recent decades: temperatures have increased by over 1.0°C since 1910, and fire season length and severity has increased. Future projections forecast that Victoria will continue to experience increased temperatures, in addition to less rainfall and more extreme weather events (DELWP, 2019b). Victoria's Climate Change Strategy, released in 2021, outlines the Victorian Government's approach to managing climate change, including emissions reductions targets and measures to build climate resilience (DELWP, 2021b).

More locally in the Geelong region, climate change poses specific threats through:

- Sea level rise, which particularly threaten coastal and estuarine habitats, including the Port Phillip Bay (Western Shoreline) & Bellarine Peninsula Ramsar site (DELWP, 2020)
- Increased storm intensity and frequency, which is likely to exacerbate the impacts of sea level rise (DELWP, 2020)
- Decreased water availability, which threatens water supply within the region and environmental values (Corangamite CMA, 2014; DELWP, 2021a)

4 How to read this report

This chapter:

- Sets out the structure of the report
- Provides advice about how best to navigate the document in electronic form
- Describes how the report addresses regulatory requirements

4.1 STRUCTURE OF THE REPORT

Table 4-1 outlines the structure and content of each of the main components (parts) of the SAR. Each part contains multiple chapters. Please refer to the 'Contents of the NWGGA Strategic Assessment Report' at the beginning of this document for the full SAR contents.

Table 4-1: SAR part structure and descriptions

Report part	Content description
Part 1: Overview	Provides a general introduction to the project, the regulatory context, an overview of the landscape context, and outlines how to read the SAR.
Part 2: Description of the Plan	Describes the Plan, including its development, conservation framework, and assurance and implementation framework.
Part 3: Assessment approach	Provides details of the assessment approach, including: • Methods for identifying relevant protected matters that need assessing in the SAR • Methods for mapping native vegetation, TECs and species habitat • Identification of impacts that may occur as a result of implementing the Plan • The Plan's approach to addressing uncertainty and risk
Part 4: Impact assessment	Covers the requirements of the ToR relating to identifying existing biodiversity values and assessing the impacts of the Plan on relevant protected matters.
Part 5: Evaluation of the outcomes of the Plan	Evaluates how the Plan meets the principles of ecologically sustainable development and the adequacy of the Plan in relation to the ToR and endorsement criteria.

4.2 ADVICE ABOUT HOW BEST TO NAVIGATE THE DOCUMENT IN ELECTRONIC FORM

We recommend viewing the SAR using Adobe Acrobat Reader as per the following instructions:

- Download and install Adobe Acrobat Reader by following this link https://get.adobe.com/reader/
- Download the report and save to your computer
- Right click on the report and select 'Open with Adobe Acrobat Reader'
- Click the bookmark symbol in the Adobe interface - the headings for each report Part will appear
- Click on the > symbol next to the Part headings - the headings for each report Chapter will appear
- Navigate through the report by clicking on the Part and Chapter headings

As outlined previously, the Assessment Report presents a range of maps which are provided as separate PDF files. These are accessed by clicking on the map links throughout the report and the maps will open in a separate tab in your internet browser.

4.3 HOW THIS REPORT ADDRESSES REGULATORY REQUIREMENTS

The requirements for preparing a SAR are set out under the ToR under the Part 10 Strategic Assessment Agreement.

Table 4-2 sets out the ToR requirements for preparing the SAR and identifies where each of these requirements are addressed.

Table 4-2:Where requirements for preparing a SAR are addressed in this Assessment Report

Section	ToR requirement	Chapter of Assessment Report
1. Purpose of the strategic assessment report	1.1. The Report must assess the impacts of actions under the Plan on all relevant protected matters.	Part 4 (Chapter 16)
	1.2. The Report must address how those impacts will be avoided, mitigated and offset (where necessary or appropriate) to ensure the long-term protection of protected matters.	Part 4 (Chapter 16, 17)
	1.3. The Report must provide sufficient detail to enable an evaluation of the ability of the Plan to ensure the long-term protection and conservation of the relevant protected matters.	Part 4
2. Description of the plan	2.1. The Report must describe the Plan to which the Agreement relates: a) The Report must provide a summary outlining the Plan's overall purpose, key elements, spatial extent, and timeframes, including how long the Plan is proposed to be in effect b) The Report must provide details about the key elements of the Plan, including: i. the outcomes, commitments, and measures to be delivered for protected matters ii. the class or classes of actions likely to be taken under the Plan over the term of the Plan iii. the legal and administrative frameworks to implement and ensure compliance with the Plan, and the persons and authorities responsible for implementation and compliance iv. the relationship of the Plan to other relevant Commonwealth and State policies, plans and guidelines, commitments, regulations and legislation, including environmental approvals, including impacts of the Plan on biodiversity and other state-protected environmental and heritage matters v. an identification of actions or classes of actions that are outside the scope of the Plan vi. management and funding arrangements for implementing the Plan and complying with any approval given with respect to the Plan under Part 10 of the EPBC Act, including but not limited to: • a description of the mechanism that will be used by City of Greater Geelong to verify the persons who are proposing to take an action in accordance with the Plan, and to inform those persons of approval conditions c) The Report must describe the need and justification for the Plan including the environmental, social and economic drivers for its development	Part 2 Part 5 (Chapter 28)

Section	ToR requirement	Chapter of Assessment Report
	d) The Report must describe the decision-making framework that was used in considering alternatives and developing conservation outcomes of the Plan. It should identify the alternative options that were evaluated to reach the final Plan, and why these options were not supported e) The Report must describe how the principles of ecologically sustainable development (as set out in section 3A of the EPBC Act) are considered and promoted in the development of the Plan	
3. Description of the protected matters impacted by the plan	3.1. The Report must describe the nature of the environment within the strategic assessment area that may be impacted by actions proposed to be taken under the Plan. This must include (at a minimum): a) a description and map of current and historical land-use, including consideration of areas which may pose an environmental risk b) a description of indigenous land-use and values c) the broad extent, type and quality of vegetation present in the strategic assessment area, where such information is available or is required in the relevant EPBC Act statutory document for a protected matter (such as a recovery plan) d) a description of the nature of the terrestrial and aquatic environment, including the state of natural and physical resources, ecological processes, and threatening processes e) a description of relevant state-protected environmental and heritage values f) a description of the landscape context and key environmental matters, such as any known habitat connectivity, habitat fragmentation, and ecological processes g) map or maps of areas that are already protected, including national parks, nature reserves, and known offset areas under both Commonwealth and/or State legislation h) a description of the type of baseline data that will be used to inform future monitoring of biodiversity i) the location of any declared World Heritage properties or National Heritage places in the strategic assessment area and identification of sensitive heritage areas for protected matters	Part 1 (Chapter 3) Part 4
	3.2. The Report must identify and describe each protected matter that may be impacted directly, indirectly and/or cumulatively by actions proposed to be taken under the Plan (these are the 'relevant protected matters'), including (at a minimum): a) maps of listed ecological communities and descriptive information including listing status, threatening processes, habitat quality and landscape context b) maps of species records and habitat for listed threatened species including habitat quality and landscape context c) descriptive information for listed threated species including listing status, threatening processes, estimates of population size or abundance and distribution within and adjacent to the strategic assessment area d) extent and condition and ecological character of declared Ramsar wetlands. This must include information on past, present and	Part 4 (Chapters 19 to 25)

Section	ToR requirement	Chapter of Assessment Report
	projected trends in the ecological character and its likelihood to change over time e) spatial and descriptive information for declared world Heritage properties and National Heritage places and their values, located within or adjoining to the strategic assessment area. f) spatial and descriptive information on the environment of Commonwealth land within or adjoining the strategic assessment area g) maps of species records and habitat for listed migratory species located within or adjoining the strategic assessment area, including estimates of habitat usage and species abundance in the context of global populations	
4. Assessment of the impacts of the plan on protected matters	4.1. The Report must describe and assess the likely direct, indirect and cumulative impacts of actions taken under the Plan on all relevant protected matters. This must include, but not necessarily be limited to, an assessment of impacts of clearing, disturbance and fragmentation	Part 3 (Chapter 11) Part 4 (Chapters 17 and 25)
	4.2. The Report must describe and provide justification for the method used to assess likely impacts on all protected matters arising from actions proposed to be taken under the Plan. The method must: a) be appropriate for assessment at a strategic scale b) rely on the best available information c) discuss uncertainty, including reference to the data and information relied upon	Part 3 (Chapters 14 and 14)
	4.3. The Report may also consider protected matters that are potentially eligible for listing as a result of inclusion in a final priority assessment listing held by the Commonwealth, or a recommendation to the Minister for listing by the Threatened Species Scientific Committee prior to the Report being submitted	Part 4 (Chapter 24)
	4.4. The Report must include analysis of: a) how impacts on protected matters will be avoided b) the duration, extent and likely severity of the impacts c) the mitigation measures that will be implemented and their likely effectiveness to reduce impacts on the protected matters. An evaluation of effectiveness must include whether the key mitigation measures for protecting MNES are feasible, achievable and economically viable d) how unavoidable impacts will be offset in accordance with the principles of the Environment Protection and Biodiversity Conservation Act, Environmental Offsets Policy, 2012 e) the proposed funding arrangements and the timeframes for the delivery of mitigation and offset requirements	Part 4 (Chapter 16, 17 Part 5 (Chapter 29)
	4.5. The Report must include an analysis of the conservation benefits (beneficial impacts) of the Plan, including: a) how protected matters will be conserved, protected and managed within the strategic assessment area b) information regarding the process for establishing conservation areas. This must include information regarding land tenure, timing, funding and legal protective mechanisms.	Part 2 (Chapter 8, 9) Part 5 (Chapter 29)

Section	ToR requirement	Chapter of Assessment Report
	c) the adequacy and likely effectiveness of the outcomes, commitments and measures under the Plan in protecting and managing protected matters, including the effectiveness of implementation, funding arrangements and who will be responsible for delivery d) available evidence to support conclusions reached regarding the effectiveness of the outcomes, commitments and measures identified in the Plan	
	4.6. The Report must consider the extent to which the impacts on relevant protected matters of actions proposed under the Plan would be consistent with the EPBC Act, including but not limited to: a) how approving a class of actions to be taken in accordance with the Plan would not be inconsistent with Australia's international obligations, including under the Convention on Biological Diversity, World Heritage Convention, Ramsar Convention and the Convention for Migratory Species to the extent they apply to the relevant protected matters (section 146G, 146J, 146K and 146L of the EPBC Act) b) how approving a class of actions to be taken in accordance with the Plan would not be inconsistent with recovery plans and threat abatement plans (section 146K(2) of the EPBC Act) c) how regard has been and will be given to relevant information in conservation advices (section 146K(3) of the EPBC Act), threat abatement plans and recovery plans d) how approving a class of actions to be taken in accordance with the Plan would not be inconsistent with management plans for National Heritage places (sections 324S and 324X of the EPBC Act), management plans for declared World Heritage properties (sections 146G of the EPBC Act), the Australian World Heritage management principles (section 146G of the EPBC Act) and the National Heritage management principles (section 146H of the EPBC Act)	Part 4 (Chapters 17, 22 and 23)
	4.7. The Report must include information regarding the process for establishing conservation areas. This must include information regarding land tenure, timing, funding and management	Part 2
	4.8. The Report must include justification for key methods used in the assessment	Part 3 (Chapter 13)
	4.9. The Report must include or refer to data from ecological surveys	Part 3 (Chapter 13)
5. Evaluation of the overall outcomes of the plan	5.1. The Report must evaluate the overall outcomes, commitments and measures for protected matters taking into account likely impacts on protected matters from actions proposed to be taken under the Plan	Part 5 (Chapter 29)
	5.2. The evaluation must include: a) the extent to which protected matters are represented in the strategic assessment area b) the extent to which protected matters are represented in areas to be protected or managed under the Plan c) the extent to which any areas to be protected or managed under the Plan will ensure the long-term protection of each protected matter, and the ongoing function of any key ecosystem services needed for the ongoing viability of protected matters	Part 5 (Chapter 29)

Section	ToR requirement	Chapter of Assessment Report
	d) the extent to which the outcomes, commitments and measures under the Plan address any significant vulnerabilities of protected matters under reasonable climate change scenarios e) the likely effectiveness of the outcomes, commitments and measures under the Plan in protecting and managing protected matters and any risks and uncertainties f) an assessment of how the Plan meets the endorsement criteria, asset out in Attachment 2 of the Agreement	
6. Addressing uncertainty and risk	6.1. The Report must identify key uncertainties and risks associated with implementing the Plan, responses to these and proposed adaptations to changing circumstances. Key uncertainties may include: a) knowledge gaps in scientific understanding and responding to new knowledge b) assumptions made in assessing potential impacts and benefits c) how changes to Commonwealth, State and local government legislation, policies, plans and advice are to be accounted for in the management of the areas impacted by the Plan d) the capacity to ensure the Plan is implemented e) differences in survey results relating to MNES and how to evaluate and resolve discrepancies	Part 3 (Chapter 14) Part 5 (Section 29.4 of Chapter 29)
7.Assurance and implementation framework	7.1. The Report must include an evaluation of the adequacy of the Plan's Assurance and Implementation Framework which describes the best practice monitoring programs, regular review, public reporting and independent auditing processes proposed to: a) ensure outcomes, commitments and measures for protected matters contained in the Plan are, documented, delivered and adequately resourced throughout the life of the Plan b) ensure the results of monitoring will be used to understand the effectiveness of commitments and measures for protected matters and improve implementation, in particular, to adapt where monitoring demonstrates delivery of the commitments and measures are not leading to the desired outcomes or where there are risks to protected matters c) ensure new information relating to protected matters, including legislative changes, may be assessed and accounted for in implementation of the Plan d) provide mechanisms that track persons who are relying on a strategic assessment approval to take an action and ensure persons undertaking actions are informed of their obligations under the endorsed Plan and approval e) ensure compliance with the Plan will be monitored and non-compliance will be reported f) provide for a 5-yearly assurance review and report	Part 5 (Section 29.6 of Chapter 29)
	7.2. The Report must include an evaluation of the Plan's framework for monitoring actions taken under the Plan and addressing the responsibilities of the Minister and City of Greater Geelong as to these matters	Part 5 (Section 29.6 of Chapter 29)

Section	ToR requirement	Chapter of Assessment Report
8. Social and economic impacts	8.1. The Report must assess the social and economic impacts of the Plan	Part 4 (Chapter 26)
	8.2. The Report must describe the consultation with the public (including affected parties) undertaken during the development of the Plan	Part 4 (Chapter 26)
	8.3. The Report must describe the process by which parties who may be affected by the strategic assessment will be accorded natural justice and procedural fairness as part of the assessment of impacts of the plan	Part 4 (Chapter 26)
9. Information sources	9.1. The Report must identify the sources of information and data relied upon including the reliability and currency of the data.	Part 3 (Chapter 13)

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OPENLINES
Environmental consulting

MAY 2023

DRAFT NWGGA STRATEGIC ASSESSMENT REPORT

PUBLIC EXHIBITION VERSION

PART 2: DESCRIPTION OF THE PLAN

PREPARED FOR THE CITY OF GREATER GEELONG

DOCUMENT TRACKING

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PART 2: DESCRIPTION OF THE PLAN

5 Introduction

This part (Part 2) of the assessment report provides a description of the Plan and is structured to address the following:

- The overall purpose, content and structure of the Plan and associated documents (Chapter 5)
- The need and justification for the Plan and how it was developed, including consideration of alternatives (Chapter 6)
- Development that is supported by the Plan including the classes of actions (Chapter 7)
- An overview of the conservation that will be delivered by the Plan (Chapter 8)
- An overview of the assurance and implementation processes for the Plan (Chapter 9)

The sections of the ToR that are relevant to Part 2 are outlined in the following text box:

2.1. The Report must describe the Plan to which the Agreement relates:

a) The Report must provide a summary outlining the Plan's overall purpose, key elements, spatial extent, and timeframes, including how long the Plan is proposed to be in effect.

b) The Report must provide details about the key elements of the Plan, including:

i. the outcomes, commitments, and measures to be delivered for protected matters.

ii. the class or classes of actions likely to be taken under the Plan over the term of the Plan.

iii. the legal and administrative frameworks to implement and ensure compliance with the Plan, and the persons and authorities responsible for implementation and compliance

iv. the relationship of the Plan to other relevant Commonwealth and State policies, plans and guidelines, commitments, regulations and legislation, including environmental approvals

v. an identification of actions or classes of actions that are outside the scope of the Plan

vi. management and funding arrangements for implementing the Plan and complying with any approval given with respect to the Plan under Part 10 of the EPBC Act, including but not limited to:

- *a description of the mechanism that will be used by City of Greater Geelong to verify the persons who are proposing to take an action in accordance with the Plan, and to inform those persons of approval conditions*

c) The Report must describe the need and justification for the Plan including the environmental, social and economic drivers for its development.

d) The Report must describe the decision-making framework that was used in considering alternatives and developing conservation outcomes of the Plan. It should identify the alternative options that were evaluated to reach the final Plan, and why these options were not supported.

4.5. The Report must include an analysis of the conservation benefits (beneficial impacts) of the Plan, including:

a) how protected matters will be conserved, protected and managed within the strategic assessment area

b) information regarding the process for establishing conservation areas. This must include information regarding land tenure, timing, funding and legal protective mechanisms.

4.7. The Report must include information regarding the process for establishing conservation areas. This must include information regarding land tenure, timing, funding and management

The following chapter provides an overall description of the Plan including:

- Purpose and content of the Plan
- Implementation documents which support the Plan
- Objective and outcomes of the Plan

5.1 PURPOSE AND CONTENT OF THE PLAN

The purpose of the Plan is to ensure development within the Growth Areas and associated infrastructure development outside the Growth Areas protects MNES and proceeds in accordance with the requirements of the EPBC Act.

The Plan does not address Victorian planning, biodiversity or other regulatory requirements. Separate approvals are needed in accordance with State regulatory requirements before the development under the Plan can proceed.

The Plan:

- Describes the development (classes of actions) for which approval is being sought under the EPBC Act
- Sets out an objective, and a series of outcomes and commitments to define what the Plan will achieve
- Sets out a conservation framework to address the impacts of the development on MNES, including through avoiding and minimising, mitigating, and offsetting residual impacts
- Describes the process for delivering infrastructure outside the Growth Areas
- Sets out an assurance and implementation framework to implement the Plan

The Plan recognises the importance of the biodiversity values within the Greater Geelong area for MNES and will facilitate Geelong's future growth by streamlining EPBC Act approvals and ensuring implementation is cost efficient in its support of both urban growth and the protection of MNES.

The commitments in the Plan represent agreed pledges by the approval holder (The City of Greater Geelong) for undertaking actions to address impacts to MNES. The commitments will not be changed once the Plan is endorsed under Part 10 of the EPBC Act, and the approval holder will be responsible for the delivery of these commitments over the life of the Plan.

5.1.1 PLAN TIMING

Implementation of the Plan will commence at the point that the Plan is endorsed and one or more of the classes of action has been approved. Implementation will occur for a period of 30 years. This timing is consistent with the implementation of the development under the *Northern and Western Geelong Growth Areas Framework Plan* (The City of Greater Geelong, 2021b) to 2047 and allows additional time to complete the implementation of the commitments under this Plan.

5.1.2 KEY ELEMENTS OF THE PLAN

The Plan includes the following key elements:

- Development – details the types of development (the classes of actions) that endorsement and approval under Part 10 of the EPBC Act will cover, including the scope and location of the development
- Conservation framework – describes conservation under the Plan, including the commitments that the Plan will deliver to avoid and minimise, mitigate and offset the impacts of the development on MNES
- Delivery of external infrastructure – describes how external infrastructure development located outside the Growth Areas within the Strategic Assessment Area will be delivered to avoid and minimise, mitigate and offset impacts on MNES
- Assurance and implementation framework – describes how the Plan will be implemented and what assurance mechanisms will be put in place to ensure the Plan's outcomes are achieved

The key elements are described respectively in detail in Chapters 4, 5, 6 and 7 of the Plan.

5.2 THE SUPPORTING DOCUMENTS

The Plan is supported by four documents. These include:

- Three implementation documents:
  - The Northern and Western Geelong Growth Areas Commitments and Measures
  - The Northern and Western Geelong Growth Areas Biodiversity Conservation Strategy (BCS)
  - The Northern and Western Geelong Growth Areas Funding Program

- A Strategic Assessment Report (SAR) (this document)

Figure 5-1 shows the relationship between the documents associated with the strategic assessment.

The three implementation documents do not form part of the Plan to be endorsed by the Minister under Part 10 of the EPBC Act. While the commitments will not be changed once the Plan is endorsed under Part 10, the measures set out in the implementation documents may be updated from time to time as part of adaptive management (see Section 7.5 of the Plan).

5.2.1 COMMITMENTS AND MEASURES DOCUMENT

The Plan identifies a broad objective and national level outcomes relating to the protection of MNES under the EPBC Act and socio/economic considerations. The Plan's outcomes represent standards of environmental protection that will be achieved for MNES under the Plan in accordance with the requirements of the EPBC Act. The Plan's objective and outcomes will be achieved through the delivery of a set of commitments and measures. The outcomes, commitments and measures were developed through an 'outcomes framework' based on program logic principles (see Section 5.3).

The outcomes and commitments are set out in the Plan and will not be changed once the Plan is endorsed under Part 10 of the EPBC Act. However, the measures to implement the commitments may be updated from time to time over the life of the Plan through an adaptive management process in accordance with the Plan's MERI framework (see Section 7.5 of the Plan). The measures are set out in the Commitments and Measures document, including the following details for each measure are also provided:

- Responsibility
- Key support partner/s (if relevant)
- Timing

Additionally, the BCS identifies another broad objective focussing on state and local biodiversity, and subsequent state level outcomes, commitments and measures. Some of the Plan's outcomes are also relevant to the BCS. The commitments and measures for the BCS are also detailed in the Commitments and Measures document.

5.2.2 BIODIVERSITY CONSERVATION STRATEGY

The BCS satisfies the delivery of three key actions (Action N1.3.1, N1.3.2 and W1.3.1) under the Framework Plan for the protection of biodiversity in the Growth Areas. The Framework Plan says an "overarching biodiversity conservation strategy will be prepared for the growth area[s] that provides high level guidance for the management of nationally and state significant biodiversity values…The strategy will spatially identify how outcomes for matters of national environmental significance will be delivered…" (The City of Greater Geelong, 2021b).

The purpose of the BCS is to:

- Identify the national, state and local biodiversity values that are present in the Growth Areas and set out a conservation program for providing genuine, long-term positive results for those values
- Set out how the conservation elements of the EPBC Plan for the Growth Areas will be implemented including through avoiding and minimising, mitigating, and offsetting residual impacts in accordance with the mitigation hierarchy (DSEWPC, 2012; DELWP, 2017b)
- Guide the preparation of Precinct Structure Plans and subsequent development within the Growth Areas will address and implement requirements under Victorian biodiversity regulations to ensure the outcomes are consistent with State biodiversity policy

5.2.3 FUNDING PROGRAM

The Plan includes a funding framework that will ensure the Plan is adequately funded throughout its life. The funding framework is described in Section 7.4 of the Plan. The detailed measures that describe how the commitment for funding in the Plan will be implemented are provided in the Commitments and Measures document.

The City is also developing a Funding Program that will set out how the funding framework will be implemented. It describes how measures to achieve the commitments for funding will be implemented. The key commitments that will require funding are those that relate to:

- Offset establishment, management, monitoring and audit
- Securing and managing the NGGA Conservation Area and Cowies Creek Conservation Area
- Implementing conservation measures
- Implementing the MERI framework and compliance framework

5.2.4 STRATEGIC ASSESSMENT REPORT

The Strategic Assessment Report (SAR) (this document) has been prepared to assess the impacts of the development under the Plan on MNES. The SAR also evaluates the adequacy of the Plan's outcomes, commitments, and measures in protecting MNES over the life of the Plan.

The SAR has been prepared in accordance with the Commonwealth Terms of Reference (ToR) for the strategic assessment provided under the Strategic Assessment Agreement.

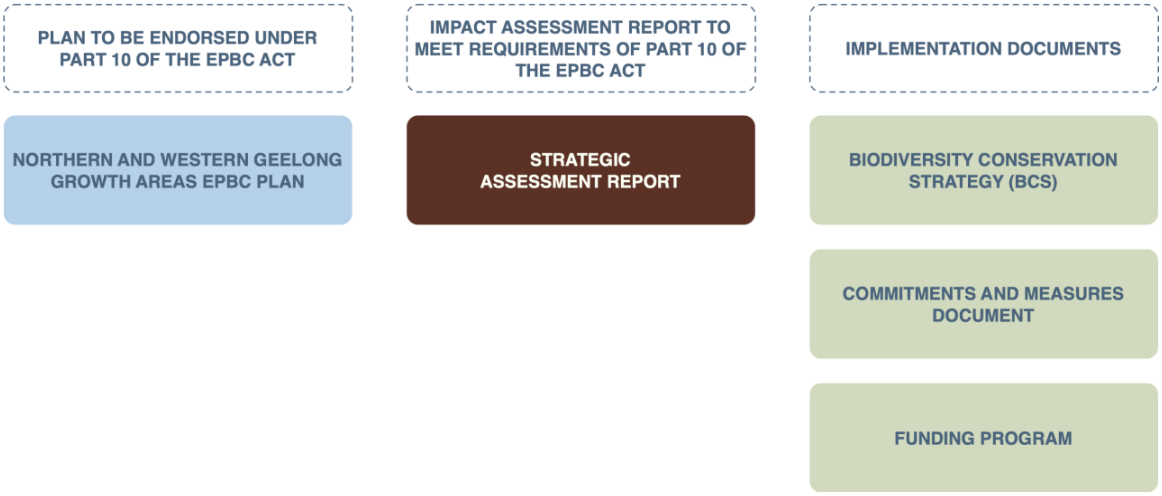

Figure 5-1: Strategic assessment documents

5.3 OBJECTIVE AND OUTCOMES OF THE PLAN

The Plan identifies a broad objective, as well as six outcomes relating to the protection of MNES under the EPBC Act and socio/economic considerations. The Plan's outcomes represent standards of environmental protection that will be achieved for MNES under the Plan in accordance with the requirements of the EPBC Act. The Plan's objective and outcomes will be achieved through the delivery of a set of commitments and measures.

The outcomes, commitments and measures were developed through an 'outcomes framework' based on program logic principles. The outcomes framework provides a way to structure what the Plan will deliver for the conservation of protected matters in a clear and logical way. It supports accountability and transparency by providing the basis and set of benchmarks for monitoring, reporting, and ongoing evaluation and adaptive management of the Plan.

The outcomes framework is a requirement of the Endorsement Criteria in the Strategic Assessment Agreement.

5.3.1 OUTCOMES FRAMEWORK

The outcomes framework is comprised of four components:

- A broad ***objective***
- ***Outcomes***

- ***Commitments*** to deliver the outcomes
- ***Measures*** to implement the commitments

The definition of each of these is provided in Table 5-1.

Table 5-1: Definition of the components of the outcomes framework

Framework component	Definition
Objective	The contribution that the outcomes of the Plan will make to broader State-wide, regional and local planning policies. It articulates the reason the Plan is being undertaken and the broad goal it is intended to support
Outcomes	The impacts or changes to environmental and socio/economic conditions that are expected to be achieved because of the delivery of the commitments and that are needed to achieve the overall objective of the Plan
Commitments	The direct results of implementing the measures that are expected to lead to the achievement of the outcomes
Measures	The specific actions that will be undertaken to meet the commitments

5.3.2 OBJECTIVE OF THE PLAN

The objective of the Plan is to:

Provide for the protection of matters of national environmental significance while supporting the delivery of the Northern and Western Geelong Growth Areas Framework Plan and its objectives

5.3.3 OUTCOMES OF THE PLAN

The outcomes of the Plan are set out in Table 5-2. Refer to the Commitments and Measures document for an explanation and justification for each outcome.

The outcomes are fixed for the life of the Plan for the purposes of the EPBC Act once the Plan is endorsed. The measures to implement the commitments are set out in the implementation documents for the Plan and are not set out in the Plan (see Table 5-2)

While the commitments in this Plan will not be changed once the Plan is endorsed, the measures set out in the implementation documents may be updated from time to time over the life of the Plan through an adaptive management process in accordance with the Plan's MERI framework (see Section 7.5 of the Plan).

The improvement step of the MERI framework provides the opportunity to adaptively manage implementation of the Plan to ensure the commitments are successfully delivered and the Plan's objective and outcomes are achieved.

The approval holder is responsible for tracking progress against the achievement of outcomes under the Plan's MERI framework and adjusting measures as necessary through adaptative management to ensure the outcomes will be achieved.

Table 5-2: Outcomes of the Plan

No.	Outcome
1	Populations of Golden Sun Moth and Striped Legless Lizard are maintained within the NGGA Conservation Area
2	The long-term viability of the important population of the Growling Grass Frog along Cowies Creek is supported through the protection and enhancement of habitat within the WGGA
3	The protection and management of land outside of the Growth Areas makes an important contribution to the recovery efforts for Natural Temperate Grassland, Golden Sun Moth and Striped Legless Lizard in Victoria

No.	Outcome
4	Matters of national environmental significance associated with waterways, riparian areas and wetlands are protected from any adverse impacts of development under the Plan
5	The Plan improves regulatory efficiency by streamlining EPBC Act approvals
6	Implementation of the Plan is effective, timely, and cost efficient

5.3.4 COMMITMENTS

The commitments of the Plan are set out under the development, conservation and assurance and implementation chapters in the Plan.

The commitments are fixed for the life of the Plan for the purposes of the EPBC Act once the Plan is endorsed.

The Plan's commitments cover:

- Incorporating the Plan into the planning system hierarchy so that development occurs in accordance with the Plan
- A series of conservation commitments relating to:
  - Avoiding and minimising impacts
  - Mitigating impacts
  - Offsetting residual impacts
- A series of assurance and implementation commitments, relating to:
  - Governance
  - Funding
  - MERI
  - Compliance

Commitments ae referenced throughout the SAR where relevant. A full list of commitments is provided in the Commitments and Measures document

5.3.5 MEASURES

Each commitment has a set of measures associated with it. The implementation of those measures is expected to deliver the commitments.

The measures set out:

- What will be done to deliver the commitment
- Responsibilities for implementation
- Any relevant key support partners for implementation
- Timing of implementation
- Where appropriate:
  - The relevant standards or methods that will be applied
  - Any conditions relating where, when and under what circumstance actions will be carried out

Measures may be adjusted as necessary through adaptative management to ensure the outcomes and commitments are delivered (see Section 9.4).

The full list of the Plan's measures is provided in the Commitments and Measures document.

6 Need for the Plan and consideration of alternatives

6.1 INTRODUCTION

The Plan has been prepared as part of a broader and complex long-term planning process for the Geelong region that aims to address a range of key planning challenges including population growth and housing availability.

This Chapter sets out:

- Key planning challenges and trends for Geelong
- Planning and policy context
- Need and justification for the Plan
- Considerations of alternatives in development of the Plan

6.2 KEY PLANNING CHALLENGES AND TRENDS

Geelong is subject to several key planning challenges, including those relating to:

- Population growth
- Housing affordability and availability
- Protecting the natural environment and amenity

6.2.1 POPULATION GROWTH

Geelong is considered to be the primary population centre outside of Melbourne and is the largest regional city in Victoria, with a current population of approximately 317,857 people (Victoria State Government, 2017; ABS, 2020).

Population growth in Geelong has been strong in recent years with population growing at a rate higher than Victoria and Greater Melbourne, averaging 1.7% per annum between 2007-2016 and reaching 2.7% in 2015-2016 (The City of Greater Geelong, 2021b).

Geelong's population growth slowed in 2020-21 in line with the rest of Australia as a result of the COVID-19 pandemic and Victoria's population declined for the first time in recent history (Parliament of Australia, 2021). However, from 2023-24 onwards, Melbourne is expected to be the fastest growing capital city in Australia and is likely to overtake Sydney's population in 2029-30 (Parliament of Australia, 2021).

Greater Geelong is the largest and closest regional city to Melbourne and is likely to grow in line with Melbourne, especially as urbanisation continues to spread from Greater Melbourne (The City of Greater Geelong, 2021b). The following key factors are considered to contribute to increasing population growth in Geelong (The City of Greater Geelong, 2021b):

- Increasing land and housing demand in Melbourne
- Increased traffic congestion and other perceived stress associated with 'big city' living in Melbourne
- Urban growth in Melbourne is shifting to the inner areas and the west (closer to Geelong)
- Geelong offers a high level of amenity and accessibility, with cheaper land and house prices and reduced congestion compared to Melbourne
- Geelong residents have easy access to the metropolitan job market, lifestyle and facilities
- Increasing online and flexible work arrangements may increase Geelong's viability for perspective residents
- Geelong is likely to continue to benefit from the demand for holiday and retirement housing

Based on recent analysis, the City is projected to exceed a population of 500,000 by 2050 with an anticipated, average annual growth rate of 2.5% (The City of Greater Geelong, 2021b).

6.2.2 HOUSING

Population growth is the main driver for increased urban growth and housing demand. In order to accommodate Geelong's future population, large areas of urban development are required (The City of Greater Geelong, 2021a).

Recently (partly the result of the COVID-19 pandemic), housing availability has not adequately kept pace with demand, which has led to high house and land prices (Ratio, 2022). This trend has been seen across most of Australia and supply of affordable housing is needed (Informed Decisions, 2022; Ratio, 2022).

Increasing the availability and variety of housing options will help to relieve the pressure on the current housing market. Providing diverse housing is also important for the success of new urban areas, as it attracts a range of potential residents at all stages of their life (The City of Greater Geelong, 2021a).

Without adequate planning for Geelong's future growth, there could be a range of negative consequences for Geelong including (The City of Greater Geelong, 2021a):

- Land and housing shortages
- Increasingly poor housing affordability
- Restricted housing options
- Slowed and reduced economic and social growth

The City has already identified existing and future residential areas (including the Growth Areas) which have the capacity to accommodate approximately 25 years of population growth. However, this may vary depending on the actual growth rate experienced over the coming decades (The City of Greater Geelong, 2021a).

6.2.3 NATURAL ENVIRONMENT AND AMENITY

The natural environment and built heritage of Geelong provides important social, cultural, aesthetic, economic, historic, and environmental values to the region. The environment of Geelong is under increasing pressure from historical and proposed new land uses (see Chapter 3 in Part 1) and balancing the protection of the environment and heritage with other urban development objectives is a significant planning challenge.

6.3 PLANNING AND POLICY CONTEXT

In order to address Geelong's planning challenges, a range of planning documents have been developed. An overview of the key planning and policy context for the identification and development Growth Areas is provided in this section.

The Victorian planning system is also the key delivery framework for implementing the Plan. The implementation of the Plan through Victorian regulatory frameworks is detailed in Section 2.3 of the Plan.

6.3.1 PLANNING POLICY FRAMEWORK

The Planning Policy Framework (PPF) is the policy content of planning schemes and provides overarching policy to guide land use, subdivision and development in Victoria. The PPF is informed by Victorian Government policy.

The PPF includes planning policies under three tiers:

- State-wide – policies of state significant that apply in all planning schemes in Victoria
- Regional – policies of state significant that apply to allied planning schemes based on geographic groupings
- Local – policies of location significant that apply to an individual local planning scheme

Clause 71.02 requires responsible authorities to take into account and give effect to all planning policies in the PPF in approving development and making other planning decisions under the Geelong Planning Scheme.

The State PPF provides key directions for settlement, housing, environment, infrastructure and transport. A key requirement of the State PPF is that all councils maintain at least a fifteen-year supply of land for residential development.

Relevant State PPF considerations for the Growth Areas to address Geelong's planning challenges include (The City of Greater Geelong, 2021b):

- Ensuring a sufficient supply of land is available for residential, commercial, retail, industrial, recreational, institutional and other community uses
- Locating urban growth close to transport corridors and services and provide efficient and effective infrastructure to create sustainability benefits
- Managing the sequence of development in areas of growth so that services are available from early in the life of new communities
- Protecting, restoring and enhancing sites and features of nature conservation, biodiversity, geological or landscape value
- Protecting and restoring catchments, water bodies, groundwater and water quality
- Providing housing choice and delivering more affordable housing closer to jobs, transport and services
- Supporting the establishment and maintenance of communities by delivering functional, accessible, safe and diverse physical and social environments through the appropriate location of use and development and through high quality buildings and urban design
- Establishing and maintaining a diverse and integrated network of public open space that meets the needs of the community
- Providing fair distribution and access to social and cultural infrastructure and health and education services
- Encouraging the concentration of major retail, residential, commercial, administrative, entertainment and cultural developments into activity centres that are highly accessible to the community
- Delivering an average overall residential density in growth areas to a minimum of 15 dwellings per hectare
- Supporting a diversified economy that builds on the region's competitive strengths
- Creating a safe and sustainable transport system by integrating land use and transport
- Sustainably managing water supply, water resources, wastewater, drainage and stormwater through an integrated water management approach
- Promoting the provision of renewable energy
- Providing social and physical infrastructure to be provided in a way that is efficient, equitable, accessible and timely.

Table 6-1 provides details of the key planning documents that are relevant to identification and development of the Growth Areas.

Table 6-1: Overview of planning policy documents and their relevance to the Growth Areas

Planning document	Purpose and objectives for addressing planning challenges	Relevance to the Growth Areas
Housing Diversity Strategy (The City of Greater Geelong, 2008)	The aims of the strategy are to: • Provide for the development of a range of housing types and densities and encourage urban consolidation within existing urban areas • Provide certainty to the existing and future community with regard to where different housing types would be supported or discouraged • Provide for a sustainable overall urban structure for Geelong Under these broad aims, a principal role of the strategy is to help address three key influences on housing in Geelong: • The environmental, social and economic need to manage urban sprawl and improve accessibility to urban services through consolidating urban development around places of activity and public transport infrastructure • The need to accommodate contemporary changes in housing needs, particularly the growing demand for medium and higher density housing that is close to urban services and lifestyle destinations • The need to manage the impact of urban consolidation and changing housing needs on the City's existing neighbourhood character, particularly the character of established suburban areas	The Growth Areas had not yet been identified when the document was developed. However, the Growth Areas help to address the aims of the strategy through the development of the *Greater Geelong Settlement Strategy 2020* (see below) which incorporated the aims of the *Housing Diversity Strategy*.
G21 Regional Growth Plan (Geelong Region Alliance, 2013)	The G21 Region Plan was developed to establish a strategic framework for the environment, settlement, land use, community cohesion and the economy in the G21 region (includes Greater Geelong, Surf Coast Shire, Golden Plains Shire, Colac Otway Shire and Borough of Queenscliffe). The plan identifies how challenges for future growth may be addressed, including the delivery of priority projects to enable future productivity, liveability and sustainability.	The plan first identified the Growth Areas as 'Further Investigation Areas' for urban growth. The research undertaken to inform the G21 region plan included a projection of future population growth within the G21 region of 500,000 people by 2050.

Planning document	Purpose and objectives for addressing planning challenges	Relevance to the Growth Areas
Plan Melbourne 2017 – 2050 (Victoria State Government, 2017)	Plan Melbourne guides the growth of Melbourne over 35 years. It sets the strategy for supporting jobs, housing and transport, while building on Melbourne's legacy of distinctiveness, liveability and sustainability. The document sets out the Victorian Government's policy to take pressure off Melbourne by channelling growth into regional Victoria. It also seeks to integrate long-term land use, infrastructure and transport planning, and support jobs and growth.	Investing in development of regional Victoria (which includes Geelong) is one of the Plan's seven outcomes: *"Continuing to invest in regional Victoria is important to support housing and economic growth, enhance social and economic participation and grow strong, healthy communities."* The plan also states that development in regional Victoria: • Should keep with the character and amenity of individual towns • Balance the protection of productive land, economic resources and biodiversity values that are critical to the Victoria's economic and environmental sustainability

Council Plan 2018–22: Putting Our Community First (The City of Greater Geelong, 2018)	Outlines the City's priorities to make Greater Geelong a clever and creative city-region. It aims to guide the City's resources to deliver infrastructure, services and programs to the community in a sustainable way
	
	The Plan helps deliver local PPF policies are used to implement the objectives and strategies of the Municipal Strategic Statement.
	
	Includes 11 strategic priorities:
	
	• Improved health and safety of our community
	• Informed social infrastructure and planning
	• A more inclusive and diverse community
	• Planned sustainable development
	• Effective environmental management
	• Vibrant arts and culture
	• Integrated transport connections
	• A thriving and sustainable economy
	• Growing our tourism and events
	• Innovative finances and technology
		The plan informed the Northern and Western Geelong Growth Areas Framework Plan (see below), and the strategic priorities will also shape the subsequent precinct structure planning process for the Growth Areas.
		
		Relevant local PPF considerations for the Growth Areas identified in the document include:
		
		• Clause 21.06 Settlement and Housing that prioritises the investigation of future residential and industrial land use needs for Geelong, as a basis for future growth area planning, including:
		  ○ Assessment of the environmental, resource, landscape, development pattern, access, servicing, land use, economic and social constraints and opportunities associated with possible growth areas around Geelong
		  ○ Identification of a preferred growth area or areas
		  ○ Preparation of detailed growth area plans
		• Clause 21.08 Development and Community Infrastructure that provides direction around development contributions to ensure that infrastructure, open space and transport infrastructure is delivered in an efficient and timely manner in line with population growth.

Planning document	Purpose and objectives for addressing planning challenges	Relevance to the Growth Areas
	• Organisational leadership, strategy and governance	
Greater Geelong Settlement Strategy 2020 (The City of Greater Geelong, 2021a)	The purpose of the strategy is to: • Analyse future housing needs and trends • Develop a clear policy framework that will guide planning and decision-making and • Help meet Greater Geelong's future housing needs The strategy is intended to address municipal housing needs until 2036 which addresses the State Planning Policy Framework that all Victorian councils must plan to accommodate projected population growth over a 15-year period. The strategy makes a number of recommendations to maintain Geelong's housing advantages: • Preserve significant landscapes and environments from urban encroachment • Contain urban development within settlement boundaries • Encourage urban consolidation, to increase the contribution it makes to the overall housing supply • Manage future growth to deliver more sustainable, well-serviced communities	Under the strategy, the City aims to direct the majority of Geelong's future housing needs to urban areas including the Northern and Western Geelong Growth Areas: • Includes a target of 50 per cent of housing growth occurring in established areas and 50 per cent accommodated in three major growth areas – Armstrong Creek, Northern Growth Area and the Western Growth Area • Identifies that the land within the Growth Areas has the capacity to accommodate 110,000 residents (16,000 dwellings in the NGGA and 18,000 dwellings in the WGGA) • States that the Growth Areas should comprise of a mix of housing types and densities to be consistent with state and local policy. Managing future growth in the Northern and Western Geelong Growth Areas is a key focus of the Settlement Strategy as reflected in its principles and directions: • Provide clear strategic direction on the spatial distribution of residential growth in Greater Geelong • Ensure housing diversity is achieved in existing and growth area communities • Increase the level of affordable and social housing in Greater Geelong. • Ensure growth areas are well planned and deliver sustainable communities • Manage the release of new growth areas to make sure infrastructure, services and facilities are provided in a timely and efficient way
Greater Geelong: A Clever and Creative Future (The City of Greater Geelong, 2022)	This document presents a 30-year vision for Geelong and was prepared in consultation with over 16,000 Geelong residents. The community's vision is:	Functions as a key resource for designing and establishing the new communities in the Growth Areas and includes nine community led aspirations which will be implemented throughout the development of the Growth Areas:

Planning document	Purpose and objectives for addressing planning challenges	Relevance to the Growth Areas
	"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." The document seeks to include the following community values into future development of Geelong: • Green spaces and corridors, including farmland and recreational space, between urban areas • Easy access to open space and parkland near homes Geelong clever and • The uniqueness and significance of natural bushland, coastlines, wetlands, rivers and beaches • Sustainable development that responds to climate change • Design that makes best use of technology for better and more sustainable living • Development that enhances the identity of diverse neighbourhoods • Design excellence and innovation in new buildings and public spaces • Creating high amenity neighbourhoods that are well connected and sustainable.	• A prosperous economy that supports jobs and education opportunities • A leader in developing and adopting technology • Creativity drives culture • A fast, reliable and connected transport network • People feel safe wherever they are • An inclusive, diverse, healthy and socially connected community • Sustainable development that supports population growth and protects the natural environment • Development and implementation of sustainable solutions • A destination that attracts local and international visitors
Northern and Western Geelong Growth Areas Framework Plan (The City of Greater Geelong, 2021b)	The Framework Plan was prepared to outline development of the Growth Areas as part of the City's plan to address the long-term growth in Geelong. The overarching Framework Plan vision is: *"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."* The Northern and Western Geelong Growth Areas Framework Plan is the largest greenfield planning project in regional Victoria with the capacity to accommodate 110,000 new Geelong residents. The Framework Plan's objectives are: • Create diverse and vibrant new urban communities	The Framework Plan is a high-level strategic document that: • Outlines considerations for future development in the Growth Areas • Describes the existing social, economic and environmental context of the Growth Areas • Summarises pre-existing technical investigations • Provides an overarching vision for the Growth Areas and subsequent objectives and actions to achieve the vision • Outlines concept plans for future land uses within the Growth Areas A key function of the Framework Plan is to guide the future preparation of detailed Precinct Structure Plans (PSPs) for the Growth Areas, which will set-out the specific land uses within each urban precinct

Planning document	Purpose and objectives for addressing planning challenges	Relevance to the Growth Areas
	• Integrate transport and land use planning • Plan for local employment • Create growth areas with high amenity and character • Protect biodiversity, waterways and cultural heritage values • Create integrated open space networks • Plan for environmental sustainability • Stage development to ensure the efficient and orderly provision of infrastructure and services The Framework Plan is incorporated into the Geelong Planning Scheme at Clause 11.02.	

6.4 NEED AND JUSTIFICATION FOR THE PLAN

The Plan is needed for the following key reasons. It:

- Supports the delivery of the Growth Areas
- Supports the delivery of key planning documents and subsequently addresses key planning challenges for Geelong
- Provides a mechanism to address conservation challenges for the Victorian Volcanic Plain bioregion in a strategic way

6.4.1 SUPPORTS THE DELIVERY OF THE GROWTH AREAS

The Plan supports delivery of the Northern and Western Geelong Growth Areas (the Growth Areas).

The Growth Areas provide strategic prioritisation of land for urban growth as part of Geelong's need to address long-term population growth and meet social, economic and environmental outcomes for Geelong and the wider region. The Growth Areas provide two new areas for urban growth that are the key focus of urban development over the coming decades and will be the centres of economic and social activity in Geelong.

A range of social, economic and environmental benefits will be provided to Geelong and the wider region through delivery of the Growth Areas. Chapter 8 below describes conservation that will be delivered through development of the Growth Areas and Chapter 26.3 of the SAR provides a detailed analysis of the socio-economic impacts of the Plan.

6.4.2 SUPPORTS THE DELIVERY OF KEY PLANNING DOCUMENTS

The Plan supports the delivery of key planning policies and documents for Geelong and Victoria. By supporting the delivery of these, the Plan is directly helping to address the key environmental, social, and economic planning challenges facing Geelong outlined in Section 6.2.

The key planning policies and documents that the Plan is supporting are listed in Section 6.3 and described in Section 2.3 of the Plan.

6.4.3 PROVIDES A MECHANISM TO ADDRESS CONSERVATION CHALLENGES

Conservation planning in the Victorian Volcanic Plain is subject to a number of challenges. Historically, biodiversity values in the region have been subject to significant loss and degradation due to agricultural practices and more recently as the result of urban growth (DSE, 2003; EHP, 2021). Many ecological communities and species are listed as threatened under both State and Commonwealth legislation in the region. Areas of remaining native vegetation are often of high conservation value, but at the same time, the population of Geelong is growing, and housing availability and affordability is a priority.

These issues make it challenging to identify options that satisfy regulatory and community expectations around biodiversity conservation while also addressing the need for cost effective development.

Strategic assessment processes provide significant opportunities to address the key conservation challenges in the Victorian Volcanic Plain bioregion while facilitating cost effective development.

Strategic assessments can have the following benefits:

- Streamline the assessment and approval process and reduce duplication between regulatory requirements
- Enable effort to be focused on the highest biodiversity value areas of the landscape
- Address ecological function and landscape-scale ecological processes, such as habitat connectivity
- Manage threats at a landscape scale that can maximise benefits to multiple species
- Be designed and implemented strategically, such as by consolidating offsets into large and more viable patches
- Be implemented ahead of impacts occurring from development, to help reverse any trend of decline

Conservation benefits of this Strategic Assessment are described in Chapter 8 below.

6.5 CONSIDERATION OF ALTERNATIVES

This section describes the decision-making framework used in considering alternatives and developing conservation outcomes for the Plan.

Alternatives to the Plan can be discussed in terms of:

- Alternatives to the Growth Areas
- Alternative approaches to delivery of urban development
- Alternative conservation outcomes

6.5.1 ALTERNATIVES TO THE GROWTH AREAS

Alternatives to the Growth Areas can be considered at two levels:

- The 'no action' alternative (i.e., not delivering the Growth Areas at all)
- Alternative location and size of the Growth Areas

NO ACTION ALTERNATIVE

When considering alternatives, it is common to assess the possibility of not undertaking the proposed action, or in this case not delivering the Growth Areas. However, this is not considered to be a viable alternative as there is a strong need and justification for large areas of urban development to support Geelong's projected future growth and the associated challenges (as explained in 6.4).

ALTERNATIVE LOCATION AND SIZE OF THE GROWTH AREAS

Identification of the Growth Areas (including their location and size) was determined through a detailed strategic state planning processes that aimed to address Geelong's key planning challenges (as described in Sections 6.2 and 6.3). In summary:

- The locations of the two Growth Areas were first identified as 'Future Investigation Areas' in the *G21 Regional Growth Plan* (Geelong Region Alliance, 2013)
- The exact location and size of the Growth Areas and their and capacity to support Geelong's projected growth and housing needs was defined in the *Greater Geelong Settlement Strategy 2020* (The City of Greater Geelong, 2021a)
- The Framework Plan was prepared to outline development of the Growth Areas and inform future PSPs for the Growth Areas (The City of Greater Geelong, 2021b)

These key planning processes were informed by numerous other state planning objectives and policies (see Section 6.3) and involved numerous consultation processes with the community and other stakeholders (described in Part 4, Chapter 26.4 of the SAR). Given the extensive pre-existing planning and decision-making process to determine the size and location of the Growth Areas, it was not considered necessary or economically feasible to evaluate other alternatives to the size and location of the Growth Areas as part of the strategic assessment process. Instead, the strategic assessment process focussed on evaluation of alternative conservation outcomes within the Growth Areas (as explained in Section 6.5.3 below).

6.5.2 ALTERNATIVE APPROACHES TO DELIVERY OF URBAN DEVELOPMENT

The Growth Areas provide large areas for greenfield urban development that were identified through various strategic planning documents (as described in Section 6.3). The Growth Areas represent a planned approach to delivery of urban development in Geelong. The City has taken responsibility for setting outcomes, planning, and co-ordinating the delivery of development for the Growth Areas.

Delivering the Growth Areas as one package is the most effective approach to address the key planning challenges facing Geelong (see Section 6.2) as it provides for a planned and strategic approach for urban development and allows for:

- Co-ordinated precinct structure planning and better integration of land use and transport to maximise social and economic benefits, including housing, employment, community facilities, transport networks, and open space
- More effective investment by infrastructure agencies when planning for services
- Better co-ordination and alignment between the objectives of different government agencies
- Better direction for the development industry about where future development will occur and greater certainty for landowners about the future use of their land
- A co-ordinated approach to development contributions to help fund the delivery of key infrastructure
- A more efficient use of local government resources when responding to development proposals

The alternative to the proposed approach for delivering the Growth Areas is a larger number of smaller urban precincts or projects that are separately identified and approved. This approach does not provide the benefits that come with the co-ordinated planning and approval, and consolidated development within the Growth Areas.

6.5.3 ALTERNATIVE CONSERVATION OUTCOMES

As discussed above, the strategic planning process to identify and define the Growth Areas involved various levels of decision making, primarily through preparation of the Framework Plan which involved high-level design of the urban structure of the Growth Areas. However, development of the Plan through the strategic assessment process provided an opportunity to further consider alternative conservation outcomes within the Growth Areas based on updated information on biodiversity values.

The City reviewed the avoidance priorities of the Framework Plan and confirmed that:

- Further avoidance was needed for the NGGA to better avoid impacts to MNES and native vegetation
- The avoidance outcomes for WGGA are appropriate for MNES and native vegetation – this avoidance outcome has been incorporated into the Plan as the Cowies Creek Conservation Area

The City subsequently ran a structured decision making (SDM) project to consider further avoidance for the NGGA (Gregory *et al.*, 2010). The SDM project addressed the following question:

"What is the optimal layout of development and avoidance within the Northern Geelong Growth Area?"

It did this by considering five decision objectives and eleven performance criteria. The decision objectives covered environmental, social, and economic issues and were:

1. Avoid the loss of biodiversity
2. Maximise the protection and management of biodiversity
3. Maximise community access to infrastructure and the delivery of 20 minute neighbourhoods
4. Minimise the cost of the conservation program
5. Maximise the supply of affordable housing delivered in the precinct

The project considered five different alternative layouts and scales of avoidance across the NGGA. The layout that performed best has been incorporated into the Plan as the NGGA Conservation Area.

7 Development under the Plan

7.1 INTRODUCTION

This Chapter describes the development that is proposed under the Plan including details of the following:

- Where development can occur
- Development actions that are supported by the Plan
- Development that is not covered by the Plan
- A description of external infrastructure
- Who can undertake development and their requirements

7.1.1 COMMMITMENTS FOR DEVELOPMENT

The Plan's commitments for development are provided in Table 7-1. The measures to implement these commitments are described in the Commitments and Measure document.

Table 7-1: Commitments for development

No.	Commitment
1	Development within the Strategic Assessment Area will proceed in accordance with any Commonwealth approval conditions and generally in accordance with the EPBC Plan and NWGGA Biodiversity Conservation Strategy
2	Proposed minor changes to the boundaries of land subject to development will meet the eligibility for consideration and be in accordance with the process for considering changes set out in Section 4.5 of the Plan

7.2 LOCATION OF DEVELOPMENT

The strategic assessment area scope, size and location is described Part 1 (Section 3.2)

Refer to Map 7-1 for a map showing the development land within the Strategic Assessment Area

7.2.1 DEVELOPMENT IN THE GROWTH AREAS

Development under the Plan is only proposed to occur within specific locations in the Strategic Assessment Area (development land). This includes:

- 'Land subject to development' within the Growth Areas. Development within this land is proposed for all classes of actions (see Section 7.3)
- The 'NGGA Conservation Area' within the avoided land in the NGGA. Development within this area is restricted to the environmental management class of actions (see Section 7.3.5)
- The 'Cowies Creek Conservation Area' and Moorabool River Corridor within the avoided land in the WGGA. Development within these areas is restricted to the environmental management class of actions and limited activities under the supporting infrastructure and services class of actions (see Sections 7.3.4 and 7.3.5)

The Plan provides a process to allow minor changes to the boundaries of land subject to development where this is necessary to address planning issues during the preparation of PSPs. Provided these changes are made in accordance with the requirements of the Plan, any impacts of these changes on MNES are covered by the Part 10 EPBC approval associated with the Plan and additional approval is not required under Part 9 of the EPBC Act.

Proponents of the boundary change may include the City, developers, or infrastructure providers.

The process for allowing minor boundary changes is set out in Section 4.5 of the Plan. This process requires any changes to meet the eligibility for consideration and be in accordance with the process for considering changes set out in this section.

7.2.2 EXTERNAL INFRASTRUCTURE DEVELOPMENT

Some development – called 'external infrastructure development' – may occur outside the Growth Areas within the Strategic Assessment Area. This development is limited to the supporting infrastructure and services class of actions and the environmental management class of actions (see Sections 7.3.4 and 7.3.5)

The Plan shows indicative locations where external infrastructure development is intended to occur (Refer to Map 7-1) and includes a set of commitments to ensure this development is located to avoid and minimise impacts to MNES.

The delivery of external infrastructure development is described further in Chapter 6 of the Plan.

7.3 DEVELOPMENT CLASSES OF ACTIONS

There are five classes of actions for development under the Plan:

- Urban and commercial development
- Industrial development
- Rural development
- Supporting infrastructure and services
- Environmental management

Each class of actions includes a number of broad 'development types' under which a variety of specific 'impact activities' (as defined in the *Victoria Planning Provisions*) may be undertaken. Examples of specific impact activities for each development type are provided in Chapter 4 of the Plan.

Certain development and actions are also considered to be outside the scope of the Plan (see Section 7.3.6).

7.3.1 URBAN AND COMMERCIAL DEVELOPMENT

The urban and commercial development class of actions covers actions and activities associated with residential and commercial areas. It includes the construction, operation, maintenance, and decommissioning of the following:

- Residential buildings and accommodation
- Education centres
- Leisure and recreation premises
- Offices
- Places of assembly and public buildings
- Retail premises
- Community services

All activities under the urban and commercial development class of actions can only occur within the land subject to development (refer to Map 7-1).

7.3.2 INDUSTRIAL DEVELOPMENT

The industrial development class of actions covers actions and activities associated with the construction and operation of facilities for industrial use. It includes the construction, operation, maintenance, and decommissioning of:

- Industry
- Warehouses
- Energy generation

All activities under the industrial development class of actions can only occur within the land subject to development (refer to Map 7-1).

7.3.3 RURAL DEVELOPMENT

The rural development class of actions covers actions and activities associated with the use of rural land for agriculture and associated activities. Examples of the types of activities included under this CoA include:

- Grazing animal production
- Animal training
- Domestic animal husbandry
- Horticulture
- Market garden
- Saleyard
- Winery

All activities under the rural development class of actions can only occur within the land subject to development (refer to Map 7-1).

7.3.4 SUPPORTING INFRASTRUCTURE AND SERVICES

The supporting infrastructure and services class of actions covers actions and activities that are required to facilitate and support all other types of development. This covers a wide range of activities including (but not limited to) those required for the supply of water, electricity, fuel, transport, telecommunications, the removal of waste, as well as safety interventions like erosion prevention. It includes the construction, operation, maintenance, and decommissioning of:

- Transport terminals
- Utility installation
- Supporting infrastructure

All activities under the supporting infrastructure and services class of actions can only occur within the following locations (except where this is external infrastructure development – see below) (refer to Map 7-1):

- Land subject to development
- Cowies Creek Conservation Area (noting the limited scope of permissible activities outlined below)
- Moorabool River Corridor (noting the limited scope of permissible activities outlined below)

Within Cowies Creek Conservation Area and Moorabool River Corridor, the following specific impact activities (as defined in the VPP) are not permissible under the supporting infrastructure and services class of actions:

- All activities included within the 'transport terminals' category under the VPP
- The following activities included within the 'utility installation' category under the VPP:
  - Data centre
  - Telecommunications facility
- All activities included within 'transport system' under the VPP (except for cycling paths and footpaths and their associated infrastructure)
- The following specific impact activities (as defined in the VPP):
  - Car park
  - Freeway service centre
  - Helicopter landing site

Within the Cowies Creek Conservation Area and Moorabool River Corridor, development under this class of actions must also be undertaken in accordance with the following principles and standards:

- Development does not prevent the achievement of any environmental objectives, outcomes, commitments or management actions established for the areas
- Development does not directly impact habitat for MNES
- Potential indirect impacts are minimised as much as possible by implementing mitigation measures

In addition, for the Cowies Creek Conservation Area, opportunities to enhance the MNES values of the conservation area are maximised in the design and planning process for the class of actions.

EXTERNAL INFRASTRUCTURE DEVELOPMENT

External infrastructure development includes the supporting infrastructure and services class of actions where that is located outside the Growth Areas within the Strategic Assessment Area. Map 7-1 shows indicative locations where external infrastructure development is intended to occur.

The delivery of external infrastructure development is described further in Chapter 6 of the Plan and summarised in Chapter 8.6.

7.3.5 ENVIRONMENTAL MANAGEMENT

The environmental management class of actions covers actions and activities that are required to facilitate environmental management under the Plan. The types of activities included under this CoA include:

- Constructing and managing wetlands to provide habitat for the Growling Grass Frog in the Cowies Creek Conservation Area
- Biomass reduction to manage native grasslands (such as controlled burns and sheep grazing)
- Pest plant and animal control works
- Revegetation activities (such as direct seeding) to restore degraded vegetation
- Exclusion fencing
- Signage
- Paths or tracks required for management activities

All activities under the environmental management class of actions can only occur within the following locations (except where this is external infrastructure development – see below) (refer to Map 7-1):

- Land subject to development
- NGGA Conservation Area
- Cowies Creek Conservation Area
- Moorabool River Corridor

Activities under this class of actions must be undertaken in accordance with the following principles and standards:

- Activities will only be undertaken only where it is sympathetic to or enhances habitat values or attributes for MNES
- Activities are consistent with any environmental objectives, outcomes, commitments or management actions established for the relevant areas
- The overall benefit of the activities is greater than the potential impacts
- The activities will be consistent with relevant best practice methods or guidelines, such as the *Growling Grass Frog Habitat Design Standards* (DELWP, 2017a) and other relevant MNES standards as relevant (noting that these are likely to change and/or be updated throughout implementation of the Plan)
- The mitigation hierarchy is applied to ensure any negative impacts are avoided and mitigated as much as practicable while still allowing the necessary environmental management activity to be undertaken

EXTERNAL INFRASTRUCTURE DEVELOPMENT

External infrastructure development includes the environmental management class of actions where that is located outside the Growth Areas within the Strategic Assessment Area. Map 7-1 shows indicative locations where external infrastructure development is intended to occur.

The delivery of external infrastructure development is described further in Chapter 6 of the Plan and summarised in Chapter 8.6.

7.3.6 DEVELOPMENT NOT COVERED BY THE PLAN

Development that is not covered the Plan includes the following:

- Actions that are already approved under the EPBC Act
- Actions that do not require approval under the EPBC Act because:
  - They have prior authorisation or are subject to continuing use provisions (in accordance with sections 43A and 43B of the EPBC Act)
  - They are within the scope and are undertaken in accordance with a previous referral that was determined to be 'not a controlled action' under Part 7 of the EPBC Act
- Any classes of actions that are not described in the Plan
- The following specific impact activities (as defined in the VPP) that were considered in the planning process for the strategic assessment and excluded from the Plan:
  - Airport
  - Aquaculture
  - Broiler farm
  - Cattle feedlot
  - Heliport
  - Intensive animal production
  - Intensive dairy farm
  - Marine dredging
  - Pig farm
  - Poultry farm
  - Poultry hatchery
  - Reservoir
  - Rice growing
  - Timber production
  - Wharf
  - All activities included within the 'earth and energy resources industry' category under the VPP
  - All activities included within the 'recreational boat facility' category under the VPP
  - All activities included within the 'energy' category under the VPP (except for solar energy facility which is permitted under the industrial development class of action, see Table 4-3 in the Plan)

If actions that have been excluded from the scope of the Plan are proposed to take place within the Plan area in the future, they will be subject to separate assessment and approval under the EPBC Act.

7.4 PERSONS WHO CAN UNDERTAKE DEVELOPMENT AND THEIR OBLIGATIONS

Any person can undertake development within the Plan area and access the associated Part 10 EPBC approval provided the following requirements are met:

- Development must comprise the classes of actions as defined in this Chapter
- Development must only occur in the development land as defined in this Chapter
- Development must proceed in accordance with any Commonwealth conditions of approval
- Development must proceed generally in accordance with the Plan, including the avoidance and minimisation, mitigation and offset requirements of the Plan
- Developers must pay any required biodiversity levy (see Section 7.4 of the Plan)
- Development must be registered in accordance with the developer registration system (see Section 7.5.3 of the Plan)

Development that does not meet these requirements may need separate approval under the EPBC Act.

The Victorian planning system is the key delivery framework for implementing the Plan (see Section 2.3 of the Plan). The planning system has a key role in ensuring regulated third-parties (developers) undertake development under the Plan in accordance with the Commonwealth approval conditions and requirements of the Plan.

The Commitments and Measures document details the specific measures that will be taken to ensure the Plan's requirements are incorporated in the Greater Geelong Planning Scheme.

8 Conservation framework

8.1 INTRODUCTION

This Chapter outlines the conservation framework for the Plan, including:

- Overview of the conservation framework
- Avoidance and minimisation of impacts
- Mitigation of impacts
- Residual impacts and offsets
- Delivery of external infrastructure

Section 5 of the Plan provides a detailed description of the conservation framework.

8.2 OVERVIEW OF THE CONSERVATION FRAMEWORK

The purpose of the conservation framework is to ensure:

- Development within the Plan area avoids and minimises, mitigates, and offsets impacts to MNES in accordance with the requirements of the EPBC Act and the Endorsement Criteria in the Strategic Assessment Agreement
- The Plan's biodiversity-related outcomes for MNES are achieved

The Plan's conservation framework for protecting MNES has been developed in accordance with the offset mitigation hierarchy (DSEWPC, 2012). The mitigation hierarchy requires impacts on MNES to be firstly avoided and minimised to the greatest extent practicable, and then mitigated. The remaining residual impacts can then be offset.

The conservation framework set outs the commitments that will be delivered for:

- Avoiding and minimising impacts to MNES
- Mitigating impacts to MNES
- Offsetting residual impacts to MNES

The conservation framework is supported by a range of implementation mechanisms to ensure its delivery. These are summarised in Chapter 9.

Part 5 of the SAR provides an evaluation of the adequacy of conservation program in addressing the impacts of the development.

8.2.1 IMPLEMENTATION OF THE CONSERVATION FRAMEWORK

The Plan's conservation framework for protecting MNES will be implemented through a series of commitments and measures that are set out in this Chapter and provided in the Commitments and Measures document. Further description of the measures and their implementation are provided in the BCS.

Refer to Section 5 of the Plan for further details of the conservation framework and its implementation.

8.3 AVOIDANCE AND MINIMISATION OF IMPACTS

8.3.1 CONTEXT

Avoiding and minimising impacts to MNES is the first step in the offset mitigation hierarchy. The avoidance process provides opportunities to avoid and protect areas of high biodiversity value and is fundamental to a determination that commitments adequately address the likely impacts on MNES and reducing the need for offsets.

There may be several reasons why land is avoided, including because land:

- Has high biodiversity values and is avoided for biodiversity purposes
- Is not strategically located and is therefore not a priority for development
- Is not generally suitable for development for another reason such as topography or land use conflict

Avoidance is defined in the Plan as any land not directly impacted by development within the Growth Areas.

Avoidance is described in detail in the BCS, and avoidance outcomes for MNES are described and justified in the Part 4 of the SAR.

8.3.2 COMMITMENTS FOR AVOIDANCE AND MINIMISATION

The Plan's commitments for avoidance and minimisation are provided in Table 8-1. The detailed measures for implementing these commitments are provided in the Commitments and Measures document.

Table 8-1: Commitments for avoidance

No.	Commitment
3	The NGGA Conservation Area will be established in perpetuity to avoid and protect 74 ha of habitat for Striped Legless Lizard and 108 ha of habitat for Golden Sun Moth
4	A Conservation Management Plan will be prepared and implemented for the protection and ongoing management of Striped Legless Lizard and Golden Sun Moth within the NGGA Conservation Area
5	The Cowies Creek Conservation Area will be established in perpetuity to avoid and protect habitat needed to support the continued persistence of the Growling Grass Frog in the WGGA
6	A Conservation Management Plan will be prepared and implemented for the protection and ongoing management of Growling Grass Frog and areas of potential habitat for Adamson's Blown-grass within the Cowies Creek Conservation Area

Refer to Map 7-1 for the locations of the NGGA Conservation Area in the NGGA and Cowies Creek Conservation Area in the WGGA.

8.4 MITIGATION OF IMPACTS

8.4.1 CONTEXT

Mitigating impacts to MNES is the second step in the offset mitigation hierarchy. The mitigation process reduces how likely or significant unavoidable impacts may be and further reduces the need for offsets.

Development under the Plan has the potential to indirectly impact habitat and populations of MNES within the Growth Areas and within the Plan area outside the Growth Areas. These indirect impacts relate to:

- Altered fire regimes
- Changes to water flows and water quality
- Disturbance due to noise, dust, litter, or light
- Disturbance from increased public access to natural areas
- Fauna mortality and barriers to movement
- Inadvertent impacts on adjacent habitat or vegetation
- Predation or competition by pest or domestic fauna
- Spread of infection or disease
- Spread or introduction of weeds

The Plan includes commitments to ensure each of these indirect impacts is mitigated. These commitments are expected to substantially reduce the risk of residual impacts to MNES associated with these indirect impacts to the extent that offsets for these impacts are not required (see Part 4 of the SAR).

8.4.2 COMMITMENTS FOR MITIGATION

The Plan's commitments for mitigation are provided in Table 8-2. The detailed measures for implementing these commitments are provided in the Commitments and Measures document.

Table 8-2: Commitments for mitigation

No.	Commitment
7	Standard mitigation measures will continue to be implemented to minimise the indirect impacts of the development on MNES in accordance with the requirements of the *Greater Geelong Planning Scheme* (The City of Greater Geelong, 2022), as updated from time to time, and generally in accordance with the Framework Plan (The City of Greater Geelong, 2021)
8	The following additional specific mitigation measures will be implemented to minimise the indirect impacts of development on the NGGA Conservation Area and Cowies Creek Conservation Area: • Establish a conservation interface for the conservation areas • Design and baffle public lighting to prevent light spill and glare within the Cowies Creek Conservation Area • Prepare Construction Environmental Management Plans for construction works on land immediately adjacent to the conservation areas
9	Additional specific mitigation measures will be implemented to minimise the indirect impacts of the development on MNES associated with waterways, riparian areas and wetlands including: • EPBC listed threatened and migratory birds • *Galaxiella toourtkoourt* (Little Galaxias) • *Litoria raniformis* (Growling Grass Frog) • *Nannoperca obscura* (Yarra Pygmy Perch) • *Prototroctes maraena* (Australian Grayling) • *Lachnagrostis adamsonii* (Adamson's Blown Grass) • Port Phillip Bay (Western Shoreline) and Bellarine Peninsula Ramsar site

8.5 RESIDUAL IMPACTS AND OFFSETS

8.5.1 CONTEXT

Offsetting impacts to MNES is the final step in the offset mitigation hierarchy. Offsetting is intended to compensate for any residual impacts that remain after impacts have been avoided and minimised, and mitigated.

A detailed impact assessment of development under the Plan has been undertaken in Part 4 of the SAR. This impact assessment determined that there will be residual impacts in the NGGA to Natural Temperate Grassland, Golden Sun Moth, and Striped Legless Lizard (summarised in Section 8.5.2).

The Plan establishes a strategic offsets approach that aims to maximise the benefits to MNES. It does this through two key approaches to ensure the Plan's outcomes are achieved:

- Prioritising offsetting early in the life of the Plan to reduce the risk that impacts occur head of the benefits gained through offsets and to secure values in the landscape ahead of a background a rate of decline
- Focusing offsets on large patches of native vegetation and habitat that are well located in the landscape from a biodiversity perspective, including sites that:
  - Occur within key biodiversity corridors and improve connectivity across the landscape
  - Are connected to existing conservation reserves

Conservation planning science (for example, see (Gordon, Langford et al., 2011)) confirms the benefits of strategic approaches and supports the position that the Plan's approach to offsets will be substantially stronger than what would occur under standard project-by-project approvals.

The BCS includes further justification for this strategic approach to offsetting and a summary of the results of analysis that was done to determine the adequacy of the offset targets reflected in the offset commitments in the Plan (see Section 5.6.3 of the Plan) in combination with the overall design of the offsets program.

8.5.2 RESIDUAL IMPACTS FROM THE DEVELOPMENT WITHIN THE GROWTH AREAS

The development under the Plan will result in the clearance and direct loss of the following MNES in the NGGA:

- Natural Temperate Grassland – 18.6 ha
- Golden Sun Moth (*Synemon plana*) – 657.7 ha
- Striped Legless Lizard *(Delma impar*) – 153.4 ha

There will be no residual impacts to MNES in the WGGA and offsets are not required for that Growth Area (refer to Part 4 of the SAR).

The residual impacts within the NGGA will result from clearing of native vegetation and species habitat during construction of the development. The impacts will be permanent due to the ongoing use of the developed land. A detailed assessment of the residual impacts of the development on MNES is provided in the Part 4 of the SAR.

8.5.3 COMMITMENTS FOR OFFSETS

The Plan's commitments for offsetting residual impacts are provided in Table 8-3. The detailed measures for implementing these commitments are provided in the Commitments and Measures document.

The amount of offsets reflected in the commitments was determined in accordance with the principles of the EPBC Act Offsets Policy (DSEWPC, 2012). A detailed explanation and justification of the offset targets and the consistency of the offsets package with the principles of the EPBC Act Offsets Policy is provided in the BCS.

Table 8-3: Commitments for offsetting

No.	Commitment
3	The NGGA Conservation Area will be established in perpetuity to avoid and protect 74 ha of habitat for Striped Legless Lizard and 108 ha of habitat for Golden Sun Moth
4	A Conservation Management Plan will be prepared and implemented for the protection and ongoing management of Striped Legless Lizard and Golden Sun Moth within the NGGA Conservation Area
10	Offset sites will be established in strategic locations to protect and manage a minimum of the following amounts of habitat to support the following MNES: • 45 ha of Natural Temperate Grassland • 375 ha of known habitat for Striped Legless Lizard • 585 ha of known habitat for Golden Sun Moth
11	Within the first five years of Plan implementation the City of Greater Geelong will secure the following offsets at a minimum: • 100% of the offset requirement for Natural Temperate Grassland • 70% of the offset requirement for Striped Legless Lizard • 50% of the offset requirement for Golden Sun Moth
12	Offset delivery will keep pace with and occur ahead of impacts within the NGGA

8.6 DELIVERY OF EXTERNAL INFRASTRUCTURE

8.6.1 INTRODUCTION

This Chapter outlines the delivery of external infrastructure for the Plan.

Section 6 of the Plan provides a detailed description of the delivery of external infrastructure.

8.6.2 OVERVIEW OF EXTERNAL INFRASTRUCTURE

Some development – called 'external infrastructure development' – may occur outside the Growth Areas within the Strategic Assessment Area. This development is limited to the supporting infrastructure and services class of action and the environmental management class of action (see Sections 7.3.4 and 7.3.5).

External infrastructure development is required to support the urban development within the Growth Areas and help deliver the development objectives of the Framework Plan.

Planning for essential infrastructure development for the Growth Areas is in various stages and the specific locations and the types of external infrastructure that will be needed are not yet known.

The Plan shows indicative locations where external infrastructure development is intended to occur (Refer to Map 7-1). These include:

- Corridors along Staceys Road, Bacchus Marsh Road, Anakie Road, Midland Highway, and Evans Road to facilitate road and intersection upgrades
- Corridors adjacent to Cowies Creek and Tower Hill Drive to facilitate shared trail upgrades
- Stormwater related infrastructure associated with Hovells Creek, Elcho Road drain and Wharf road outfall

These indicative locations have not been surveyed and the biodiversity values of these areas is not confirmed.

While the specific locations and potential impacts of external infrastructure are not yet confirmed, the Plan includes a set of commitments that, along with their associated measures, will establish a process to ensure that external infrastructure development will avoid and minimise, mitigate, and offset any residual impacts to MNES.

8.6.3 COMMITMENTS FOR EXTERNAL INFRASTRUCTURE

The Plan's commitments for external infrastructure development are provided in Table 8-4. See the Commitments and Measures document for measures relating to external infrastructure development.

Table 8-4: Commitments for external infrastructure development

No.	Commitment
13	External infrastructure development will be designed and located to avoid and minimise impacts to MNES and native vegetation. The following specific avoidance outcomes will be delivered: • Spiny Rice-flower – any confirmed population or part of the population must be avoided and will be protected, maintained and managed to ensure the persistence of that population in the long-term • Other MNES – any confirmed population or occurrence that would be considered important or notable (for instance, due to size, condition or potential contribution to the recovery of the MNES) must be avoided and will be protected, maintained and managed to ensure the persistence of that population or occurrence in the long-term. Impacts to all other populations or occurrences will be avoided and minimised as far as practical
14	Unavoidable clearing due to the external infrastructure development of any areas confirmed to support MNES will be offset in accordance with the EPBC Act Environmental Offsets Policy and associated Offsets Assessment Guide (or equivalent) (Commonwealth of Australia, 2012; DSEWPC, 2012)

9 Assurance and implementation framework

9.1 INTRODUCTION

This Chapter outlines the assurance and implementation framework for the Plan, including:

- Governance framework
- Funding framework
- Monitoring, evaluation and reporting and improvement (adaptive management) framework
- Compliance framework

Section 7 of the Plan provides a detailed description of the assurance and implementation framework.

The Plan's assurance and implementation framework will be implemented through the detailed set of measures which are described in the Commitments and Measures documents, and through the Funding Program, which act as implementation documents for the Plan (see Section 5.2).

9.2 GOVERNANCE FRAMEWORK

Governance is a key part of the Plan's assurance and implementation framework. It will ensure the objective and outcomes of the Plan are achieved, and the commitments and measures are efficiently and effectively implemented.

The Plan establishes a governance framework to ensure implementation of the Plan complies with Commonwealth approval conditions, is transparent and accountable, and is efficient and effective.

The governance framework includes a governance structure, and governance mechanisms and processes.

9.2.1 COMMITMENTS FOR GOVERNANCE

The Plan's commitments for governance are provided in Table 9-1. The measures to deliver the Plan's governance commitment are set out in the Commitments and Measures document.

Table 9-1: Commitments for governance

No.	Commitment
15	Governance arrangements will be established to implement the Plan, consistent with the Plan's governance framework
16	A Stakeholder Engagement Strategy will be developed to guide engagement with key stakeholders on the implementation of the Plan

9.3 FUNDING FRAMEWORK

The City is considering a range of options for funding the Plan and has identified a proposed funding framework informed by initial consultation with key stakeholders, including developers.

The key elements of the proposed funding framework are:

- Establishment of an implementation fund to fund the costs of implementing the commitments and measures, including securing and managing offsets for MNES required under the Plan in perpetuity
- Provision of upfront funding from the City into the implementation fund to secure and manage a substantial proportion of the offsets for MNES early during early implementation of the Plan
- Full recovery of the costs incurred by the City in implementing the commitments and measures, through a biodiversity levy payable by developers in the Growth Areas
- Establishment of governance and administrative arrangements to administer the implementation fund and the collection and application of the biodiversity levy

The proposed funding arrangements are described in Section 7.4 of the Plan. A Funding Program (see Section 5.2.3) developed to give effect to the funding framework is available as part of the package of documents for public exhibition. The Funding Program will be finalised before any development within the Growth Areas proceeds.

9.3.1 COMMITMENTS FOR FUNDING

The Plan's commitment for funding is provided in Table 9-2.

Table 9-2: Commitment for funding

No.	Commitment
17	Funding arrangements will be established to fund the implementation of the Plan's commitments and measures over the life of the Plan, consistent with the Plan's funding framework

All the commitments in the Plan will require funding over the life of the Plan. The key commitments that will require funding to protect MNES are those which relate to:

- Offset establishment, management, monitoring and audit
- Securing and managing the NGGA Conservation Area and Cowies Creek Conservation Area
- Implementing conservation measures
- Implementing the MERI framework and compliance framework

The measures to deliver the Plan's Funding commitment are set out in the Commitments and Measures document.

9.4 MERI FRAMEWORK

Monitoring, evaluation, reporting and improvement (MERI) is a key component of the Plan's assurance and implementation framework. MERI provides a system for understanding how well a policy, plan or program is performing, communicating that to regulators and the public, and adapting implementation as needed.

Strategic assessments represent complex, long term programs for managing both development and conservation. Ongoing decisions over the life of a policy, plan or program are necessary to ensure successful implementation.

The MERI framework for the Plan is comprised of the following components:

- Monitoring
- Evaluation
- Reporting
- Improvement (adaptive management)

The purpose of the MERI framework for the Plan is to:

- Provide transparency and accountability for implementation of the Plan
- Determine whether the:
  - Plan's objective and outcomes are being achieved
  - Plan's commitments to achieve the objective and outcomes are efficient and effective
  - Measures set out in this document and the BCS to achieve the Plan's commitments are efficient and effective
- Enable new information over the life of the Plan to be assessed and integrated into implementation
- Adaptively improve implementation of the Plan where necessary to ensure the objective and outcomes are achieved

9.4.1 COMMITMENTS FOR MERI

The Plan's commitments for MERI are provided in Table 9-3. The measures to deliver the Plan's MERI commitment are set out in the Commitments and Measures document.

Table 9-3: Commitments for MERI

No.	Commitment
18	A MERI program will be implemented over the life of the Plan, consistent with the Plan's MERI framework
19	A development registration system will be developed and implemented to track development under the EPBC Part 10 approval

9.5 COMPLIANCE FRAMEWORK

A robust compliance framework is critical to the successful implementation of the Plan. The purpose of the compliance framework is to ensure the City achieves the Plan's outcomes and delivers the commitments and regulated third-parties undertake approved actions under the endorsed Plan in accordance with the Commonwealth approval conditions.

9.5.1 COMMITMENTS FOR COMPLIANCE

The Plan's commitment for compliance is provided in Table 9-4. The measures to deliver this commitment are set out in the Commitments and Measures document.

Table 9-4: Commitment for compliance

No.	Commitment
20	A compliance program will be implemented over the life of the Plan, consistent with the Plan's compliance framework

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Environmental consulting

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DRAFT NWGGA STRATEGIC ASSESSMENT REPORT

PUBLIC EXHIBITION VERSION

PART 3: ASSESSMENT APPROACH

PREPARED FOR THE CITY OF GREATER GEELONG

DOCUMENT TRACKING

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PART 3: ASSESSMENT APPROACH

10 Introduction

This Strategic Assessment Report has been developed to meet the Terms of Reference (ToR) and provide a robust, defendable, clear and transparent assessment of the potential impacts of the Classes of Action (CoAs) on matters protected under the EPBC Act.

The purpose of Part 3 of the SAR is defined by the ToR, which state that the report needs to:

- Assess the impacts of actions under the Plan on all relevant protected matters
- Address how those impacts will be avoided, mitigated, and offset (where necessary or appropriate) to ensure the long-term protection of protected matters
- Provide sufficient detail to enable an evaluation of the ability of the Plan to ensure the long-term protection and conservation of the relevant protected matters
- Use methods that are appropriate for assessment at a strategic scale, rely on the best available information and discuss uncertainty, including with reference to the data and information that is relied upon

Additional key themes for Part 3 of the SAR drawn from the ToR include:

- The use and definition of methods that are justifiable and evidence based
- The need to identify and assess areas of uncertainty and risk
- The need to assess consistency with the key legislative requirements of the EPBC Act

This part (Part 3) of the assessment report provides an overview of the approach to assessing the CoAs. The approach is structured around the following elements:

- Identifying the relevant potential impacts of development under the Plan (Chapter 11)
- Identifying the protected matters that may be affected by development under the Plan (Chapter 12)
- Using best available information to understand the occurrence and distribution of MNES values to enable an assessment of potential impacts on those values (Chapter 13)
- Using approaches that adequately identify and address uncertainty and risks (Chapter 14)

11 Identifying relevant potential impacts

This chapter:

- Summarises the types of development under the Plan in order to provide context about potential impacts
- Identifies, defines, and describes the impacts which have the potential to occur under the Plan and provides a high level description of the approach used to assess the impact types
- Identifies potentially relevant Key Threatening Processes (KTPs) and Threat Abatement Plans (TAPs)

It is noted that detailed assessments of potential impacts on the relevant protected matters are contained later in Part 4 of this Assessment Report.

The relevant items in the ToR relating to the identification of potential impacts and approach to assessing them are outlined in the following text box:

> *4.1. The Report must describe and assess the likely direct, indirect, and cumulative impacts of actions taken under the Plan on all relevant protected matters. This must include, but not necessarily be limited to, an assessment of impacts of clearing, disturbance, and fragmentation*
>
> *…*
>
> *4.6. The Report must consider the extent to which the impacts on relevant protected matters of actions proposed under the Plan would be consistent with the EPBC Act, including but not limited to:*
>
> *- how approving a class of actions to be taken in accordance with the Plan would not be inconsistent with recovery plans and threat abatement plans (section 146K(2) of the EPBC Act)*
>
> *- how regard has been and will be given to relevant information in conservation advices (section 146K(3) of the EPBC Act), threat abatement plans and recovery plans*

11.1 SUMMARY OF DEVELOPMENT UNDER THE PLAN

The relevant potential impacts of development under the Plan have been identified based on an understanding of the existing environmental context of the Strategic Assessment Area, as well an understanding of the scope and location of the Classes of Actions (CoAs) covered by the Plan.

11.1.1 LOCATION OF THE STRATEGIC ASSESSMENT AREA

The Strategic Assessment Area (SAA) defines the boundary within which development under the CoAs may occur. The majority of development will occur within the two Growth Areas (NGGA and WGGA), with some additional development occurring outside of the Growth Areas but within the SAA for external infrastructure development and conservation areas.

The SAA is located in a region on the north-western outskirts of Geelong. Chapter 3 in Part 1 provides a detailed description of the SAA locality and the environment relevant to the Plan.

11.1.2 CLASSES OF ACTIONS UNDER THE PLAN

There are five CoAs that are included in the Plan. They are:

- Urban and commercial development
- Industrial development
- Rural development
- Supporting infrastructure and services
- Environmental management

Chapter 7 in Part 2 provides a description of each class of actions and where they can take place within the SAA.

11.2 DESCRIPTION OF IMPACT TYPES AND THE APPROACH TO ASSESSING THEM

The Plan has the potential to result in three types of impacts which are assessed in this report:

- Direct impacts – which occur from the direct loss of individuals and/or habitat for threatened species, TECs or other protected matters through land clearing
- Indirect impacts – which include secondary impacts to protected matters which can occur adjacent to or downstream of development from either construction or operational phases of development under the Plan
- Cumulative impacts – which considers the combined effects of impacts from development under the Plan, in addition to existing and proposed development that is reasonably foreseeable within the wider region

Each of these impact types is further defined and described below.

11.2.1 DIRECT IMPACTS

For the purposes of this Assessment Report, direct impacts relate to the direct loss of relevant protected matters (such as threatened species and TECs) and their habitat due to land clearing which will occur under the Plan to facilitate development within the Growth Areas and the external infrastructure footprints. Land clearing is associated with the following CoAs under the Plan: urban and commercial development, industrial development, rural development, supporting infrastructure and services, and potentially environmental management.

Direct impacts may result in the mortality of individuals of protected species, loss of habitat for protected species, loss of areas of occurrence of TECs, or the fragmentation of habitat.

Direct impacts will occur:

- Within the areas subject to development within the NGGA and WGGA. The location of these areas is shown in Map 7-1
- Within the external infrastructure footprints that occur outside of the Growth Areas and within the Strategic Assessment Area, as shown in Map 7-1
- Within the NGGA Conservation Area and Cowies Creek Conservation Area, as shown in Map 7-1. Direct impacts in these areas will be limited as much as possible and only permitted when facilitating positive environmental management (see Chapter 7 in Part 2)

APPROACH TO ASSESSING DIRECT IMPACTS

For the purposes of the assessment, it is assumed that all MNES values will be lost within the areas subject to development within the NGGA and WGGA as a result of direct impacts under the Plan. In reality, some retention and enhancement of MNES values and functions within the areas subject to development is likely. The BCS provides the strategy and process for delivering biodiversity protection within these areas; largely by delivering biodiversity co-benefits in areas that are less intensively developed (for example, along drainage lines). However, the extent and outcomes of this will not be defined until the time of precinct planning. This assessment has applied a precautionary approach in assuming loss of all MNES values within these areas given the current lack of detail and certainty around the outcomes that will be delivered.

Direct impacts have been calculated based on an overlay of:

- The areas subject to development within the Growth Areas, and
- The baseline mapping of MNES values that has been developed for the relevant MNES that are assessed in detail in Part 4 of this report

The assessment also recognises that some direct impacts associated with clearing may affect protected matters within the external infrastructure footprints. However, direct impacts to protected matters will be avoided to the fullest extent possible within these footprints, as informed by targeted surveys and detailed infrastructure design. Commitment 13 under the Plan restricts the total scale of direct impacts based on a set of avoidance prescriptions relating to particular MNES. The assessment of direct impacts to protected matters within the external infrastructure footprints assumes that clearing of MNES values may occur within these areas up to the allowable extent specified in Commitment 13 as a result of direct impacts.

A detailed assessment of direct impacts under the Plan on protected matters is contained within Part 4 of this Assessment Report. This detailed assessment includes the specific methods used to develop baseline mapping of values and assess direct impacts to each MNES, alongside an analysis of relevant avoidance, mitigation measures and offsets.

11.2.2 INDIRECT IMPACTS

For the purposes of this Assessment Report, indirect impacts are any impacts that could adversely affect biodiversity values beyond the development land. Table 11-1 identifies the indirect impacts which have the potential to occur under the Plan, and the CoAs which are associated with them. A broad description of each indirect impact is also provided.

More detailed evaluation of each indirect impact (including duration, extent and likely severity) and consideration of how they may affect protected matters is included within Part 4 of this Assessment Report. An evaluation of relevant mitigation measures under the Plan for each indirect impact is also contained within Part 4.

APPROACH TO ASSESSING INDIRECT IMPACTS

A largely qualitative approach has been taken to the assessment of indirect impacts. This included assessing indirect impacts from the following three perspectives:

- As part of the analysis of the CoAs. This involved determining how the different CoAs under the Plan may lead to specific types of indirect impacts (see Table 11-1), followed by considering how effectively these impacts will be mitigated under the Plan (see Chapter 17 of Part 4)
- As part of the identification of MNES relevant to the assessment. This involved considering any indirect impact pathways that might have the potential to affect the broad list of MNES that were determined to be potentially relevant to the assessment. The method used in identifying relevant MNES is described in Chapter 12, and the analysis and results are presented in Chapter 18 of Part 4
- As part of the detailed impact assessment for relevant MNES. This involved the identification of the range of threats to each MNES based on a review of key EPBC regulatory and policy documents, an assessment of whether development under the CoAs might indirectly introduce or exacerbate any of those threats, and the identification of the need for additional specific mitigation to address any risks posed. See the detailed assessments in Chapters 19 to 24 of Part 4

Table 11-1: Indirect impact types potentially associated with the Plan

Indirect impact type	Urban/ Comm.	Industrial	Rural	Infra.	Environ.	Description
Water flows and quality	✓	✓	✓	✓	✓	**Changes to surface water and groundwater flows** Development under the Plan may lead to changes to surface water and groundwater flows. This is primarily related to: • Disruption to natural flows and processes across land surfaces from buildings and infrastructure • Increase of hard surfaces leading to an increased volume of water entering downstream waterways • Diversion of surface water through flood mitigation works • Construction works involving large excavations **Reduction in surface water and groundwater quality** Development under the Plan may reduce surface water and groundwater quality. This is primarily related to: • Stormwater run-off associated with urban, industrial, and agricultural land-uses • Sedimentation from soil disturbance due to construction works and land clearing • Disturbance to contaminated soils due to construction works • Management of spoil during construction **Matters at risk of impacts** Changes to water flows and quality can impact several biodiversity values. Species and TECs that rely on aquatic environments such as waterways and wetlands, riparian corridors, estuarine environments, and groundwater dependent ecosystems are particularly at risk.
Spread of infection/disease	✓	✓	✓	✓	✓	Development under the Plan may increase the risk of the spread of infection/disease. This is primarily related to: • Soil transportation on contaminated footwear, vehicles, and machinery, and in residential garden establishment • Earthworks and activities conducted during construction • Stormwater run-off associated with urban, industrial, and agricultural land-uses Spread of infection/disease can affect species and have associated impacts on TECs.

Indirect impact type	Urban/ Comm.	Industrial	Rural	Infra.	Environ.	Description
Spread of weeds	✓	✓	✓	✓	✓	Development under the Plan has the potential to increase the spread of weeds. This is primarily related to: • Clearing which changes environmental conditions at the edges of habitat that favours weeds • Accidental dispersal of weed seeds/plant material into natural areas during construction or increased human access • Use of inappropriate species in landscaping and revegetation • Altered fire regimes Species are most susceptible to this threat where development occurs adjacent to known populations or habitat. Weeds can reduce the viability of adjacent habitat or vegetation for listed species and TECs and can reduce the health of important habitat features.
Predation/ competition by pest/domestic fauna	✓	✓	✓	✓	✓	Development under the Plan has the potential to increase the spread of pest fauna and/or access to natural areas by domestic fauna such as cats, dogs, and rabbits. This is primarily caused by: • Clearing which changes environmental conditions at the edges of habitat that favours pest fauna • Clearing that creates new movement pathways that can be used by pest fauna to expand their range • Increased presence of domestic fauna (such as cats and dogs) associated with urban development Increased presence of pest/domestic fauna can result in increased predation of native fauna, increased competition with native fauna, and increased habitat disturbance and disease transmission by pest fauna.
Altered fire regimes	✓	✓	✓	✓	✓	Development under the Plan has the potential to alter fire regimes and increase fire risk. This is primarily related to: • Increased burns for hazard reduction to protect assets, particularly within Asset Protect Zones • Reduced burns in some areas due to the risk to urban areas • Arson or the accidental lighting of fires associated with increased urban populations Changed fire regimes can reduce habitat suitability for TECs and threatened species, affect foraging resources, and prey species, and cause direct mortality from heat and smoke.
Disturbance from increased public access to natural areas	✓	✓	✓	✓		Development under the Plan will increase human activity in the vicinity of the Growth Areas, which can impact natural areas including conservation areas protected under the Plan and existing reserves. This is primarily related to: • Trampling of flora species and disturbance to flora and fauna habitat • Track creation • Rock removal and disturbance

Indirect impact type	Urban/ Comm.	Industrial	Rural	Infra.	Environ.	Description
						• Rubbish dumping and disturbance from associated clean-up activities • Timber collection and removal of dead wood • Illegal collection of flora and fauna species • Dog walking • Recreational activities such as mountain-biking, four-wheel driving, and horse riding • Water-based recreational activities such as fishing, boating and jet skiing Species and TECs most at risk from this threat occur on land that is publicly accessible.
Fauna mortality and barriers to movement	✓	✓	✓	✓	✓	Development under the Plan may increase the likelihood of fauna mortality and may introduce barriers to fauna movement. This is primarily related to: • Direct mortality through vehicle strike or new structures, or secondary poisoning for pest control • Introduction of linear barriers such as fences, roads, and railways, which can affect fauna movement
Disturbance due to noise, dust, or light	✓	✓	✓	✓	✓	Development under the Plan may increase noise, dust, and light. This is primarily related to: • Construction activities, including use of heavy vehicles and machinery • Increased noise levels from traffic due to new roads or increased traffic on existing roads • Artificial light from urban areas Increased noise can impact fauna species that vocalise or rely on hearing for hunting or breeding. Artificial light can affect the behaviour of nocturnal and diurnal species and influence the abundance and behaviour of predators. Light can also disrupt flora species through interfering with plant growth signals. Dust has potential to increase exposure of fauna to contaminants and can impact flora through smothering of leaves and disrupting photosynthesis.
Inadvertent impacts on adjacent habitat or vegetation	✓	✓	✓	✓	✓	Development under the Plan may cause inadvertent impacts on adjacent habitat, vegetation, or important habitat features. This is primarily related to: • Impacts adjacent to construction sites • Maintenance activities associated with roads, easements, or Asset Protection Zones • High frequency land management such as mowing and slashing or weed control

11.2.3 CUMULATIVE IMPACTS

Cumulative impacts relate to the combined impact of a range of activities within a region. Assessing cumulative impacts recognises that the combined effects of multiple activities on protected matters may be greater than the impact of an individual activity.

A cumulative impact assessment (CIA) for the protected matters relevant to the assessment is presented in Chapter 25 of Part 4 of this report. The approach to the CIA involved the following key components:

- An understanding of the potential cumulative impacts and key threatening processes for relevant protected matters
- A quantitative assessment of cumulative direct impacts of the actions taken under the Plan and other projects in the Study Area on relevant protected matters
- A qualitative assessment of cumulative impacts to relevant protected matters in the Study Area which considers potential direct impacts of smaller-scale developments, in addition to potential indirect impacts associated with development more broadly
- An evaluation of the adequacy of the Plan's proposed avoidance, mitigation, and offset commitments in relation to cumulative impacts for relevant protected matters

11.3 IDENTIFICATION OF RELEVANT EPBC KEY THREATENING PROCESSES AND THREAT ABATEMENT PLANS

Relevant Key Threatening Processes (KTP) and Threat Abatement Plans (TAP) have been identified as follows:

- All of the possible impacts related to the implementation of the Plan have been considered to determine whether there is a corresponding KTP listed under the EPBC Act
- All of the identified KTPs have been considered to identify whether a corresponding TAP has been prepared

The results of this analysis are presented in Chapter 17.

12 Identifying the protected matters relevant to the assessment

12.1 INTRODUCTION

This Chapter describes the methods for identifying the protected matters that have the potential to be impacted by development under the Plan. These are known as the 'relevant protected matters'. The results of this process are presented in Chapter 18 of Part 4.

Matters on the Finalised Priority Assessment List (FPAL) for inclusion under the EPBC Act were also considered as part of this process.

Note that the other protected matters covered by the EPBC Act have not been considered here for the following reasons:

- Development under the Plan is not occurring within, or within the vicinity of, a Commonwealth marine area
- Development under the Plan is not occurring within, or within the vicinity of the Great Barrier Reef Marine Park
- Development under the Plan does not relate to nuclear actions (including uranium mines)
- Development under the Plan does not involve water resources that relate to coal seam gas development and large coal mining development

12.2 REQUIREMENTS FOR IDENTIFYING PROTECTED MATTERS

This Chapter addresses the following requirements outlined in the ToR:

> *3.2. The Report must identify and describe each protected matter that may be impacted directly, indirectly and/or cumulatively by actions proposed to be taken under the Plan (these are the 'relevant protected matters')…*
>
> *…*
>
> *4.3. The Report may also consider protected matters that are potentially eligible for listing as a result of inclusion in a final priority assessment listing held by the Commonwealth, or a recommendation to the Minister for listing by the Threatened Species Scientific Committee prior to the Report being submitted*

12.3 METHODS FOR IDENTIFYING THE RELEVANT PROTECTED MATTERS

Identification of the relevant protected matters was undertaken using different methods for each of the following groups:

- Commonwealth listed threatened species and species on FPAL
- Commonwealth listed threatened ecological communities (TECs) and communities on FPAL
- Commonwealth listed migratory species
- Wetlands of international importance (listed under the Ramsar Convention)
- Commonwealth land
- World heritage properties, national heritage properties

The methods are discussed below.

Matters that were considered relevant were assigned to 'Category 1' and assessed in detail in Part 4 of this report. Category 1 matters were those that were considered at risk of direct, indirect, or cumulative impacts due to implementation of the Plan.

Matters that were identified and examined, but determined not to be relevant were assigned to 'Category 2'. These matters are not at risk of direct, indirect, or cumulative impacts due to implementation of the Plan or are not reliant on or present within the Strategic Assessment Area. For these matters, no further assessment is required.

12.3.1 THREATENED SPECIES AND SPECIES ON FPAL LIST

The method for identifying the threatened species and species on the FPAL list requiring a detailed impact assessment involved three steps. These included:

- Step 1: Identify the full list of threatened species and FPAL species potentially relevant to the assessment
- Step 2: Apply an initial set of criteria to refine this list. The purpose of this step was to remove species where they will clearly not be impacted directly, indirectly, or cumulatively
- Step 3: Undertake a preliminary assessment of the remaining threatened species and FPAL species to determine which ones may be impacted directly, indirectly, or cumulatively and will therefore require further detailed assessment in the report

STEP 1: IDENTIFY THE FULL LIST OF POTENTIAL SPECIES

The method for identifying the full list of species is intentionally broad to ensure all protected matters potentially relevant to the assessment are considered in the report. The full list of species was determined using:

- A report for the Study Area generated through the Commonwealth's Protected Matters Search Tool (PMST)
- The Victorian Biodiversity Atlas (VBA) for known records of EPBC Act listed threatened species within the Study Area. The VBA records were downloaded in June 2022
- The list of species considered in the *Existing Ecological Conditions: Northern and Western Geelong Growth Areas* report (EHP, 2021) (the EHP report)
- A review of the current FPAL listings for species which are not currently listed under the EPBC Act, yet which are proposed to be listed as threatened

For the purposes of this method, the Study Area is taken to mean the area within a 20 km buffer of the Strategic Assessment Area (See Map 3-1).

STEP 2: REFINING THE LIST TO REMOVE MATTERS THAT WILL CLEARLY NOT BE IMPACTED

The following criteria was used to identify the threatened species that will clearly not be impacted directly, indirectly, or cumulatively by actions proposed to be taken under the Plan. Threatened species were excluded from any further assessment where they met all of these criteria:

1. The Study Area contains no known records or occurrences of the threatened species based on a search of the VBA and the results of field surveys undertaken by EHP (EHP, 2021)
2. The Study Area is outside the known or likely distribution of the threatened species, based on the Commonwealth's distribution mapping as provided through the PMST report
3. The threatened species has been identified as having a 'low' or 'unlikely' likelihood of occurrence in the Likelihood of Occurrence Assessment presented in the EHP report (EHP, 2021)

For FPAL species, an initial review of the FPAL list was undertaken to identify FPAL species which occur within Victoria. All FPAL species which do not occur within Victoria were excluded from further assessment.

Of the FPAL species which occur within Victoria, a review of species' records on the VBA was undertaken to determine whether species records occur within, or in proximity to, the Study Area. Where records did not occur within proximity to the Study Area, the FPAL species was not included for further assessment.

Note that some FPAL species are also listed as migratory under the EPBC Act. These species were not included within the FPAL categorisation process as they were considered as part of the migratory species categorisation and assessment.

STEP 3: PRELIMINARY ASSESSMENT TO IDENTIFY MATTERS REQUIRING FURTHER DETAILED ASSESSMENT

A preliminary assessment was undertaken for each of the threatened species and FPAL species that remained following step 2. The purpose of the preliminary assessment was to determine which matters *may be* impacted directly, indirectly or cumulatively, where the definition for 'may be' has been adapted from the *EPBC Act Significant Impact Guidelines 1.1* (DoE, 2013) to be 'where there is a real or not remote chance or possibility' of an impact on the species.

The preliminary assessment identified the species at risk of potential direct impacts within the Growth Areas. These are the species that have been recorded or assumed present within the Growth Areas. The results of the EHP surveys (EHP, 2021), as well as other historical records, were used to identify these matters (see Chapter 13 for a brief overview of the EHP surveys and the use and interpretation of their findings in this assessment). These matters were automatically identified for further detailed assessment.

A range of additional factors were then considered for species that only occur outside of the Growth Areas to understand the potential for indirect or cumulative impacts, as well as the potential for further direct impacts where a species might occur within the external infrastructure footprints. These include:

- Whether there are any known indirect impact pathways associated with actions under the Plan that could affect the species
- The distance of known records from the Growth Areas
- The listing status of the species
- The number of known records for a species within the Study Area
- The relative importance of the Study Area compared with the broader distribution of the species, including factors such as endemism, edge-of-range, strongholds, important known sites, or habitats used for key life cycle stages

Where it is considered that there is 'a real or not remote chance or possibility' of direct, indirect, or cumulative impacts based on a review of these factors, the species was identified for further detailed assessment.

This approach to the preliminary assessment enabled an assessment of both the likelihood of a direct, indirect, or cumulative impact occurring, as well as the consequence to the species should an impact occur.

Overall, the species which were identified for further detailed assessment following application of the above methodology were assigned to Category 1. All species which were identified to not require further detailed assessment were assigned to Category 2.

12.3.2 THREATENED ECOLOGICAL COMMUNITIES AND COMMUNITIES ON FPAL LIST

THREATENED ECOLOGICAL COMMUNITIES

The method for identifying the threatened ecological communities (TECs) requiring a detailed impact assessment involved three steps. These included:

- Step 1: Identify the full list of threatened ecological communities potentially relevant to the assessment
- Step 2: Determine the likelihood of TECs occurring within the Strategic Assessment Area
- Step 3: Undertake a preliminary assessment of the remaining threatened ecological communities to determine which ones may be impacted directly, indirectly, or cumulatively and will therefore require further detailed assessment in the report

Step 1: Identify the full list of threatened ecological communities potentially relevant to the assessment

The method for identifying the full list of TECSs was based on the Commonwealth's PMST. A PMST report was produced for the extent of the Study Area to identify the TECs with a distribution that may occur within the Study Area.

Step 2: Determine the likelihood of TECs occurring within the Strategic Assessment Area

Key information sources used to determine the likelihood of a TEC identified in Step 1 occurring within the Strategic Assessment Area included:

- The results of targeted surveys including:
  - Surveys conducted by Ecology Heritage and Partners (EHP) within the Growth Areas (EHP, 2021) (see Section 13.2 of Chapter 13)
  - Additional survey data provided by the City
- Modelled Ecological Vegetation Classes (EVCs) (DELWP, 2005)
- Modelled wetlands (DELWP, 2022b)
- Expert opinion from senior flora ecologists within the consulting team

Step 3: Undertake a preliminary assessment of the remaining threatened ecological communities to determine which ones may be impacted directly, indirectly, or cumulatively and will therefore require further detailed assessment in the report

A preliminary assessment was undertaken for the TECs that remained following step 2. The purpose of the preliminary assessment was to determine which matters *may be* impacted directly, indirectly or cumulatively, where the definition for 'may be' has been adapted from the *EPBC Act Significant Impact Guidelines 1.1* (DoE, 2013) to be 'where there is a real or not remote chance or possibility' of an impact on the species.

The preliminary assessment identified areas known to, or with the potential to support TECS which may be at risk of potential impacts under the Plan. For the Growth Areas, this was informed by targeted surveys by (EHP, 2021)). For the Strategic Assessment Area and broader Study Area, the distribution and characteristics of TECs identified in Step 2 were considered to inform an assessment of the likelihood of a direct, indirect, or cumulative impact occurring.

The TECs which were identified for further detailed assessment following application of the above methodology were assigned to Category 1. All TECs which were identified to not require further detailed assessment were assigned to Category 2.

ECOLOGICAL COMMUNITIES ON THE FPAL LIST

For FPAL communities, an initial review of the FPAL list was undertaken to identify FPAL communities which occur within Victoria. All FPAL communities which do not occur within Victoria were excluded from further assessment.

FPAL communities were then reviewed with regards to their potential distribution, to determine whether the community could occur within the Study Area. Where the community could not occur within the Study Area, it was excluded from further assessment.

A preliminary assessment of FPAL communities which have potential to occur within the Study Area was then completed. Communities which had potential to be directly, indirectly or cumulatively impacted were assigned to Category 1 for further assessment. Where impacts were considered unlikely, the community was assigned to Category 2.

12.3.3 MIGRATORY SPECIES

DATA USED TO ASSESS SPECIES PRESENCE AND ABUNDANCE

Migratory species present within the Study Area were identified by:

- Running a protected matters search using the Protected Matters Search Tool (PMST) for the Strategic Assessment Area with a buffer of 20 km to generate a report that identifies migratory species which are known to be, or have the potential to be, present in the Study Area
- Conducting a search of the Victorian Biodiversity Atlas (VBA) for known records of migratory species within the Study Area

The VBA records for the Study Area were downloaded in June 2022.

CATEGORISATION METHOD FOR MIGRATORY SPECIES

The categorisation methodology for migratory species was applied in a series of broad steps:

1. Application of guidance from the EPBC Act Significant Impact Guidelines 1.1, which identify key concepts ('ecologically significant proportion' and 'important habitat') used in the categorisation of migratory species. To assess the presence of an ecologically significant proportion of a species' population, the entire Study Area was considered as a single location for each species
2. Where either an ecologically significant proportion of a species or important habitat may be available within the Study Area, conduct an assessment to determine whether the Plan has potential to impact upon the species or its habitat

3. Assign the species to Category 1 for further assessment if:
    - The species is also listed as a threatened species and is assigned to Category 1 as part of the threatened species categorisation process, OR
    - The following apply:
        - An ecologically significant proportion of a population of the species, or important habitat for the species, IS present within the Study Area, AND
        - There is potential for the Plan to impact the species or its habitat, based on the species' occurrence within the Study Area and its ecological characteristics
4. Assign the species to Category 2 (no further assessment required) if:
    - An ecologically significant proportion of a population of the species, or important habitat for the species, is NOT present, OR
    - An ecologically significant proportion of a population of the species, or important habitat for the species IS present within the Study Area, but there is NO potential for the Plan to substantially impact the species or its habitat, based on the species' occurrence within the Study Area and its ecological characteristics

Note that migratory species which are also threatened which are assigned to Category 1 based on the threatened species categorisation process are assessed as part of the threatened species assessment in Chapter 19.

Overview of guidance provided by the EPBC Significant Impact Guidelines 1.1

All migratory species were assessed in accordance with guidance provided by the EPBC Significant Impact Guidelines 1.1 (DoE, 2013). These guidelines identify two key components for assessing potential impacts to migratory species:

- Whether an 'ecologically significant proportion' of the species has potential to be impacted
- Whether 'important habitat' for the species has potential to be impacted

'Ecologically significant proportion' is defined in the Significant Impact Guidelines 1.1 as follows:

> *"Listed migratory species cover a broad range of species with different life cycles and population sizes. Therefore, what is an 'ecologically significant proportion' of the population varies with the species (each circumstance will need to be evaluated). Some factors that should be considered include the species' population status, genetic distinctiveness and species specific behavioural patterns (for example, site fidelity and dispersal rates)."* (DoE, 2013)

'Important habitat' is defined within the Significant Impact Guidelines 1.1 as:

> *a) "habitat utilised by a migratory species occasionally or periodically within a region that supports an ecologically significant proportion of the population of the species, and/or*
> *b) habitat that is of critical importance to the species at particular life-cycle stages, and/or*
> *c) habitat utilised by a migratory species which is at the limit of the species range, and/or*
> *d) habitat within an area where the species is declining"* (DoE, 2013)

Identifying ecologically significant proportions and important habitat for migratory bird species

There is a range of different guidance available for migratory bird species with regards to the identification of ecologically significant proportions of the species and important habitat. Broadly, migratory bird species listed under the EPBC Act can be divided into three sub-groups:

- Migratory shorebird species which are included within the *EPBC Act Policy Statement 3.21 - Industry guidelines for avoiding, assessing and mitigating impacts on EPBC Act listed migratory shorebird species* (DoE, 2017)
- Migratory bird species which are included within the *Draft referral guideline for 14 birds listed as migratory species under the EPBC Act* (Migratory Bird Referral Guidelines) (DoE, 2015)
- Other EPBC Act listed migratory bird species which are not included within EPBC policy documents

The approaches which have been used to identify ecologically significant proportions of a species' population and important habitat vary depending on which sub-group the listed migratory bird species belongs to. Each approach is outlined below.

Migratory shorebirds included within EPBC Act Policy Statement 3.21

Identification of an ecologically significant proportion of the species

The EPBC Act Policy Statement 3.21 states that wetland habitat is considered internationally important if it regularly supports 1 per cent of the individuals in a population of one species or subspecies of waterbird, and nationally important if it regularly supports 0.1 per cent of the flyway population of a single species of migratory shorebird (DoE, 2017).

A supporting document to the EPBC Act Policy Statement 3.21, *Revision of the East Asian-Australasian Flyway Population Estimates for 37 listed Migratory Shorebird Species,* provides the estimated total population, 1 per cent and 0.1 per cent thresholds for migratory shorebirds (Hansen *et al.*, 2016).

The policy statement also defines the term 'support' for permanent wetlands as follows: migratory shorebirds are recorded during surveys and/or known to have occurred within the area during the previous five years (DoE, 2017).

For the purposes of categorisation, a species included within the EPBC Act Policy Statement 3.21 was considered to meet the threshold of an ecologically significant proportion of the species if 0.1 per cent of the flyway population of a single species had been recorded within the Study Area during the previous five years (January 2017 - June 2022).

Identification of important habitat

Birdlife Australia has mapped all areas of important habitat for the 37 listed migratory shorebirds included in the EPBC Policy Statement 3.21 across Australia (Weller *et al.*, 2020).

These maps have been used to identify the locations of important habitat for migratory shorebird species within the Study Area.

Migratory birds included within the draft referral guidelines for 14 birds listed as migratory species under the EPBC Act

Identification of an ecologically significant proportion of the species

The Migratory Bird Referral Guidelines also defines 1 per cent of the total population of a migratory species to be an internationally important number of individuals, and 0.1 per cent of the total population of a species to be a nationally important number of individuals. The Referral Guidelines include the 1 per cent and 0.1 per cent thresholds for species covered by these guidelines (DoE, 2015).

The Migratory Bird Referral Guidelines do not provide guidance on the time frame over which species' records should be considered when determining whether an ecologically significant proportion of the species is present at a site (DoE, 2015).

For the purposes of categorisation, a species included within the Migratory Bird Referral Guidelines was considered to meet the threshold of an ecologically significant proportion of the species if 0.1 per cent of the population of a single species had been recorded within the Study Area. No date threshold was applied to records in this analysis.

Identification of important habitat

The Migratory Bird Referral Guidelines provide broad descriptions of habitat characteristics which have potential to constitute important habitat (DoE, 2015). However, the broad nature of these descriptions is such that mapping of important habitat based on these descriptions is not possible.

Therefore, for the purposes of this assessment, the presence of important habitat was identified through considering:

- Whether there are habitat characteristics within the Study Area which meet the broad descriptions of important habitat provided within the Migratory Bird Referral Guidelines
- Whether an ecologically significant proportion of the species has been recorded to occur within the Study Area

This method takes into consideration the broad important habitat descriptions provided in the Referral Guidelines, while providing context with species' records to determine whether the habitat within the Study Area is being used by the species.

Other migratory birds which do not have specific policy advice

Identification of an ecologically significant proportion of the species

There is a lack of guidance regarding the definition of an ecologically significant proportion of remaining bird species which do not have specific EPBC policy advice. However, it is noted that both the EPBC Act Policy Statement 3.21 and the Migratory Bird Referral Guidelines consider 0.1 per cent of the total population of a species to be a threshold of national importance (DoE, 2015, 2017).

Subsequently, for the purpose of categorisation, a species which does not have specific policy advice was considered to meet the threshold of an ecologically significant proportion of the species if 0.1 per cent of the population of a single species had been recorded within the Study Area. No date threshold was applied to records in this analysis.

Information regarding the estimated total population size for migratory birds within this category was sourced from Birdlife International's Datazone database (Birdlife International, 2022), or from relevant species-specific information where available (such as Conservation Advices or Recovery Plans).

Identification of important habitat

While there is a lack of general guidance regarding the definition of important habitat for the remaining species without specific EPBC policy advice, there is a range of information available which has been used to identify and consider the characteristics of habitat which are likely to be important to these species.

For instance, a number of migratory species within this category are also listed as threatened under the EPBC Act. Where this was the case, other EPBC related resources (such as the species' SPRAT profile, Conservation Advice and/or Recovery Plan where relevant) were considered with regards to the identification of potentially important habitat features for the species. Otherwise, information regarding habitat use and potentially important habitat features for migratory species in this category was sourced from Birdlife International's Datazone database (Birdlife International, 2022).

For the purposes of this assessment, the presence of important habitat was identified through considering:

- Whether there are habitat characteristics within the Study Area which meet descriptions of potentially important habitat features identified through the methods described above
- Whether an ecologically significant proportion of the species has been recorded to occur within the Study Area

This method takes into consideration the presence of suitable habitat features, while providing context with species' records to determine whether the habitat within the Study Area is being used by the species.

IDENTIFYING ECOLOGICALLY SIGNIFICANT PROPORTIONS AND IMPORTANT HABITAT FOR OTHER MIGRATORY SPECIES

All other migratory species were considered on a species-by-species basis drawing on guidance from the Significant Impact Guidelines 1.1 (DoE, 2013) and relevant species information.

Identification of an ecologically significant proportion of the species

Relevant species information to determine ecologically significant proportions of a species' population was drawn from a range of sources. Examples include species' Recovery Plans, Conservation Advices, Marine Bioregional Plans, and the species' SPRAT profile.

Given the diversity of sources used, information available and ecological differences between species within this grouping (e.g., whales vs. turtles), no single threshold has been developed or applied to identify ecologically significant proportions of species within this category.

Instead, available records within the Study Area from the VBA were considered and assessed with regards to individual species' ecology to determine whether a species which occurs within the Study Area could be meeting an ecologically significant proportion of that species' population.

Identification of important habitat

Identification of important habitat for species within this category was also determined through individual consideration of available information regarding each species' ecology and habitat use.

For the purposes of this assessment, the presence of important habitat was identified through considering:

- Whether there is habitat within the Study Area which could constitute important habitat for the species
- Whether an ecologically significant proportion of the species has been recorded to occur within the Study Area

This method takes into consideration the presence of suitable habitat features, while providing context with species' records to determine whether the habitat within the Study Area is being used by the species.

12.3.4 RAMSAR WETLANDS

The identification of Ramsar wetlands potentially relevant to the Plan was identified by running a protected matters search using the Protected Matters Search Tool (PMST) for the Strategic Assessment Area with a buffer of 20 km to generate a report that identifies MNES, and other matters protected by the EPBC Act which are known to be, or have the potential to be, present in the Study Area.

The risk of impacts to Ramsar wetlands was considered based on the location of the wetland and its susceptibility to impacts. Where there was a risk of potential impacts, the matter was assigned to Category 1.

12.3.5 COMMONWEALTH LAND

Commonwealth land within the Study Area was identified using the Protected Matters Search Tool (PMST) for the Strategic Assessment Area with a buffer of 20 km. An assessment of the potential for development within the Growth Areas to adversely impact any sites was then undertaken to determine if they should be assigned to Category 1.

12.3.6 WORLD HERITAGE PROPERTIES, NATIONAL HERITAGE PROPERTIES

The identification of World Heritage properties and National Heritage places potentially relevant to the Plan was undertaken by running a protected matters search using the Protected Matters Search Tool (PMST) for the Strategic Assessment Area with a buffer of 20 km to generate a report that identifies MNES, and other matters protected by the EPBC Act which are known to be, or have the potential to be, present in the Study Area. An assessment of the potential for development within the Growth Areas to adversely impact any sites was then undertaken to determine if they should be assigned to Category 1.

13 Data used in the assessments for relevant protected matters

13.1 INTRODUCTION

This chapter provides an overview of the key data sources used in the detailed assessments for relevant protected matters, and the use and interpretation of these sources.

The relevant items in the ToR relating to the use of data in the assessment are outlined in the following text box:

4.2. The Report must describe and provide justification for the method used to assess likely impacts on all protected matters arising from actions proposed to be taken under the Plan. The method must:

a) be appropriate for assessment at a strategic scale

b) rely on the best available information

c) discuss uncertainty, including reference to the data and information relied upon

4.8. The Report must include justification for key methods used in the assessment

4.9. The Report must include or refer to data from ecological surveys

6.1. The Report must identify key uncertainties and risks associated with implementing the Plan, responses to these and proposed adaptations to changing circumstances. Key uncertainties may include:

a) knowledge gaps in scientific understanding and responding to new knowledge

e) differences in survey results relating to MNES and how to evaluate and resolve discrepancies

9.1. The Report must identify the sources of information and data relied upon including the reliability and currency of the data.

13.2 KEY DATA SOURCES

A number of data sources were used in the assessment, including:

- Ecological surveys by Ecology and Heritage Partners across large parts of the Growth Areas (EHP, 2021)
- Individual surveys undertaken by some landholders within the Growth Areas
- Site observations as part of the strategic assessment process
- Species records obtained largely through the Victorian Biodiversity Atlas (VBA) (DELWP, 2022a)
- DELWP habitat and vegetation modelling (DELWP, 2005, 2017)
- Key EPBC, State and local policy or regulatory documents
- Other information sources, including scientific literature and other spatial landscape data

An overview of these data sources is provided in Sections 13.2.1 to 13.2.7. Table 13-1 provides a summary of the spatial data sources used in the assessment.

13.2.1 ECOLOGICAL SURVEYS BY ECOLOGY AND HERITAGE PARTNERS

The City commissioned Ecology and Heritage Partners (EHP) to undertake detailed ecological surveys within the Growth Areas. The surveys aimed to identify and map the presence of State and Commonwealth listed threatened species, ecological communities, and native vegetation to inform the Part 10 Strategic Assessment for the Growth Areas.

Field surveys were undertaken between November 2019 and December 2020. The methods and results of these surveys are described in '*Existing Ecological Conditions: Northern and Western Geelong Growth Areas*' (refer to this link for the EHP report) (EHP, 2021).

Two-hundred-person days were spent surveying the Growth Areas. Surveys were limited to parcels/properties where access was permitted, which totalled an area of over 2,075.3 ha, or just over 72 percent of the Growth Areas. Around 33 per cent of the NGGA and 13.2 per cent of the WGGA were not subject to site surveys due to a lack of access (see Map 7-1).

Botanists (who were accredited by DELWP in the habitat hectare methodology) undertook detailed ecological assessments to quantify the extent and quality of native vegetation values in the growth areas (EHP, 2021).

Qualified flora and fauna ecologists undertook targeted surveys for the following Commonwealth listed threated flora and fauna species and threatened ecological communities (TECs) (EHP, 2021):

- *Delma impar* (Striped Legless Lizard)
- *Dianella amoena* (Mated Flax-lily)
- *Galaxiella toourtkoourt* (Little Galaxias)
- *Glycine latrobeana* (Clover Glycine)
- *Lachnagrostis adamsonii* (Adamson's Blown-grass)
- *Litoria raniformis* (Growling Grass Frog)
- *Pimelea spinescens* subsp. *spinescens* (Spiny Rice-flower)
- *Prototroctes maraena* (Australian Grayling)
- *Rutidosis leptorrhynchoides* (Button Wrinklewort)
- *Senecio macrocarpus* (Large-headed Fireweed)
- *Synemon plana* (Golden Sun Moth)
- Natural Temperate Grassland of the Victorian Volcanic Plain

Surveys were generally undertaken in accordance with the relevant State and Commonwealth guidelines for vegetation, TECs, and threatened species surveys (EHP, 2021). Any deviations from relevant guidelines, including an explanation and justification for the methods used, are detailed in the EHP (2021) report. The methods and report underwent a process of peer and regulator review as part of developing and finalising the findings.

13.2.2 LANDHOLDER SURVEYS

In January 2022, the City provided an opportunity for landholders that had their properties surveyed during the period of the EHP surveys to provide additional information for consideration in the Strategic Assessment. The purpose of this process was to collect additional information where landholders had concerns with mapping inaccuracies and/or assumptions.

The additional information was reviewed against a set of criteria to help inform and guide decisions on appropriate changes to the dataset. Changes were considered appropriate where any of the following occurred:

- Landowner surveys addressed the relevant guidelines and were undertaken in the same survey season as EHP 2021. This recognises that native grasslands are a dynamic system that display natural variation from season to season. It is noted EHP undertook Vegetation Quality Assessment (VQA) surveys between November 2019 and January 2020
- EHP has acknowledged they were in error
- Small scale refinements were needed to address mapping anomalies and inaccuracies (e.g., mapped native grassland over buildings or driveways)

There was ongoing consultation with DELWP on the submissions received, the criteria used and the type and nature of proposed changes to the EHP dataset.

Four separate surveys were commissioned by individual landholders within the NGGA as part of this process. Surveys mainly focussed on the mapping of native vegetation. Together, these surveys covered an area of approximately 55 per cent (around 1,170 ha) of the NGGA. One survey was commissioned within the WGGA, covering an area of approximately 38 ha (or approximately 5 per cent). Refer to Map 13-2 for the area of the Growth Areas which was subject to landholder surveys.

All surveys were undertaken by DELWP accredited botanists according to relevant guidelines. Most of the submissions documented changes in site conditions (including increased weed cover, unsuitable/ incompatible species, and altered land management practices) and/or seasonal variability. However, none of the surveys were carried out during the same season as the EHP surveys. As a result, it was not possible to make a valid comparison of the native grassland extent and condition for the purposes of amending the EHP dataset on that basis. Instead, the survey information provides a useful and relevant indication of the changes in extent and condition of the grasslands for the purposes of understanding ecological trend as part of the Strategic Assessment.

The process did lead to a number of more minor changes to the extent of mapped native vegetation and species habitat where the other two criteria were met as follows:

- EHP have acknowledged and field verified native vegetation mapping errors on the property at 450 Elcho Road, Lovely Banks. The dataset was updated to include the corrected mapping from EHP for this property. This sees a reduction in the native vegetation (approximately 22 ha), the removal of areas of mapped Natural Temperate Grassland (14.2 ha) and a reduction in the potential habitat for the Striped Legless Lizard (10.5 ha)
- Small scale refinements for the EHP dataset for:
    - 35 Staceys Road, Lovely Banks - the driveway was excluded from the native vegetation habitat zone (0.1 ha) and the driveway, outbuildings and house were removed from the Golden Sun Moth habitat (1.1 ha)
    - 435 Elcho Road, Lovely Banks - the dam, house and driveway were removed from the Golden Sun Moth habitat (0.3 ha)
    - 480 - 530 Heales Road, Lovely Banks - treed area removed from Golden Sun Moth habitat (0.41ha)
    - 460 Evans Road, Lovely Banks - house and treed area removed from Golden Sun Moth habitat (0.67ha)
    - 350 Elcho Road, Lovely Banks - treed areas removed from Golden Sun Moth habitat (5.83ha)

These changes led to a revised EHP dataset, which is the final EHP dataset referred to in this report and used as part of the baseline information for the assessment of impacts to MNES.

Refer to this link for a summary of the Landholder Submission Review.

13.2.3 SITE OBSERVATIONS BY THE CONSULTING TEAM

The Consulting Team (being the consultants commissioned by the City to undertake the Strategic Assessment) have visited the Growth Areas on a number of occasions to help inform the assessment process. These visits have included:

- Initial site visits to the Growth Areas in November 2021
- Site observations of the NGGA to inform the Structured Decision Making (SDM) process in March 2022
- A visit to the NGGA/WGGA with DCCEEW in August 2022

Refer to Attachment A of Part 3 for a summary of these visits and the key observations made.

SITE VISITS IN NOVEMBER 2021

The Consulting Team undertook an initial site inspection at the end of November 2021 of a number of properties within the NGGA and WGGA which could be observed via publicly accessible vantage points. The team were able to make a number of observations relating to condition and the influence of existing threats on the biodiversity values in the area.

Steve Mueck, a lead botanist from Biosis, and Mitchell Deaves, the Biosis project manager for the NWGGA strategic assessment, attended alongside staff from the City of Greater Geelong.

SDM SITE VISIT MARCH 2022

The Consulting Team visited five properties within the NGGA in March 2022. The main purpose of this visit was to understand the condition and management potential of native vegetation within the NGGA. The site visit informed the costing and management requirements for grassland restoration in the NGGA, which was a key consideration in determining the extent and location of land to be avoided and managed within the NGGA.

Steve Mueck led the visits. Steve was supported on site by a grassland restoration and management expert, Peter Wlodarczyk.

VISIT WITH DCCEEW IN AUGUST 2022

The Consulting Team attended a site visit with DCCEEW to the Growth Areas in early August 2022. This visit provided an opportunity to view the future Conservation Area in the NGGA, as well as the biodiversity values and condition of a number of sites supporting MNES.

The Consulting Team attendees included Steve Mueck and Mitchell Deaves.

13.2.4 SPECIES RECORDS

Existing records of threatened species were obtained from the Victorian Biodiversity Atlas (VBA). The VBA is a web based database which manages information about species found in Victoria. Data is supplied to the VBA by a range of contributors including DELWP biodiversity staff, government agencies and partner organisations, non-government organisations, ecological consultants, university students, and community wildlife survey groups (DELWP, 2022a).

Submitted data is reviewed and verified by DELWP and other key partners. New records submitted to the VBA are subject to verification by an appropriate expert to review. The expert review process occurs over approximately 4 months, after which new records and spatial data sets are released (DELWP, 2022a).

The VBA provides the most comprehensive source of species records in Victoria.

These records were used to supplement survey records within the Growth Areas, and to contribute to an understanding of presence within the unsurveyed areas of the Growth Areas and the broader Study Area.

13.2.5 DELWP MODELS

Modelling produced by DELWP was used in the assessment report. This includes:

- Habitat importance models (HIMs) (DELWP, 2017)
- Modelled Ecological Vegetation Classes (EVCs) (DELWP, 2005)

HABITAT IMPORTANCE MODELS

DELWP have developed HIMs for many of the threatened species that occur within Victoria. These models (DELWP, 2018a):

- Collect and compare information on where a species has been recorded
- Relate that data to environmental variables to enable the potential distribution of a species' habitat to be estimated and mapped
- Identify the areas of habitat that may be relatively more important to the species persistence than others

HIMs provide a useful planning tool for understanding the potentially important areas of a species' habitat distribution across the landscape. The models indicate the relative importance of habitat areas from low through to high.

MODELLED ECOLOGICAL VEGETATION CLASSES

Modelled EVCs were used to inform the potential occurrence of native vegetation and TECs where survey data was unavailable. The Modelled 2005 Ecological Vegetation Classes data set combines the pre 1750 EVC modelling and the current version of modelled Native Vegetation Extent to assign EVCs and conservation status to the current native vegetation modelling (DELWP, 2005).

This data set is prepared and managed by DELWP. It is used for the implementation of the Native Vegetation Management Framework, preparation of Regional Vegetation Plans and a number of other biodiversity planning purposes (DELWP, 2005).

13.2.6 KEY EPBC, STATE AND LOCAL POLICY OR REGULATORY DOCS

The main EPBC, State and local policy or regulatory documents used to inform the assessment included:

- Commonwealth listed threatened species Recovery Plans and Conservation Advices
- Commonwealth Threat Abatement Plans
- Corangamite Regional Catchment Strategy 2021 – 2027 (CCMA, 2021)
- Corangamite Waterway Strategy 2014-2022 (CCMA, 2014)
- EPBC policy statements and guidelines
- State listed threatened species action statements
- State Wide Integrated Flora and Fauna Teams threatened species profiles (SWIFFT, 2022)
- The Northern And Western Geelong Growth Areas Framework Plan (The City of Greater Geelong, 2021)

- The Port Phillip Bay (Western Shoreline) & Bellarine Peninsula Ramsar Site Ecological Character Description (DELWP, 2020)
- The Port Phillip Bay (Western Shoreline) and Bellarine Peninsula Ramsar Information Sheet (RIS) (Parks Victoria, 1999)
- The Port Phillip Bay (Western Shoreline) and Bellarine Peninsula Ramsar Site Management Plan (DELWP, 2018b)
- The Greater Geelong Planning Scheme (The City of Greater Geelong, 2022)

13.2.7 OTHER INFORMATION SOURCES

A number of additional information sources and data sets were used in the assessment report, including:

- Peer reviewed scientific literature
- Data sets on biodiversity values, including:
  - Land management data sets (Public land, CMA)
  - Hydrology data sets (Ramsar sites, hydrolines and waterbodies)
- Expert knowledge of ecological consultants

Table 13-1: Data sets used in the Assessment Report

Data set theme	Data set name	Date	Custodian	Details	Use on project
Drainage and water bodies	Ramsar Wetland Areas in Victoria at 1:25 000	2022	DELWP	Data layer which defines RAMSAR wetland areas in Victoria	Used to identify protected wetlands under the RAMSAR Convention in the Study Area
	CMA100 TAB	2022	DELWP	Data layer which defines the Catchment Management Authority boundaries	Used to identify catchments within the Study Area
	Catchments	2016	The City	Data layer which defines catchments within the LGA	Used to identify catchments within the Study Area
Protected lands and conservation planning	Collaborative Australian Protected Areas Database (CAPAD) 2020 - Terrestrial	2021	DCCEEW	The CAPAD database provides spatial and textual information about government, Indigenous and privately protected areas in marine and terrestrial environments	Used to identify protected areas within the Study Area
	Public Land Management (PLM25)	2022	DELWP	Data layer which describes public land management across VIC, including State forests, parks and reserved and unreserved Crown Land	Used to identify protected areas within the Study Area
Species sightings and habitat	Species site survey records and mapping	2020	Ecology and Heritage Partners	Mapped habitat and records for species subject to targeted surveys during site surveys	Used in the detailed impact assessments for species where data is available
	Victorian Biodiversity Atlas (VBA)	2022	Department of Environment, Land, Water and Planning (DELWP)	Fauna and flora sightings records stored in the Victorian Biodiversity Atlas	Used to: • Determine whether a species requires consideration in the categorisation process • Assess the impacts to species during detailed impact assessments
	Habitat Importance Model's (HIM's)	2017	Department of Environment, Land, Water and Planning (DELWP)	These spatial layers estimate the relative importance of modelled species habitat	Used in the detailed impact assessments

Data set theme	Data set name	Date	Custodian	Details	Use on project
Vegetation mapping	Vegetation and TEC site survey mapping	2020	Ecology and Heritage Partners	Vegetation and TEC mapping from site surveys	Used in the detailed impact assessment of TECs
	Modelled 2005 Ecological Vegetation Classes (with Bioregional Conservation Status	2005	DELWP	Data layer which presents the modelled EVCs occurring across Victoria	Used to inform potential occurrence of native vegetation and TECs in the absence of survey data

13.3 USE AND INTERPRETATION OF DATA

The sources of data and information outlined in Section 13.2 were used to inform the impact assessment at three levels:

- Within the surveyed areas of the Growth Areas
- Within the unsurveyed areas of the Growth Areas
- Within the Strategic Assessment Area and across the broader Study Area

Data has been used and interpreted differently for each of these areas. The suitability of the approach to using and interpretating the data for use in the assessment is influenced by the quality of the datasets (relating to factors such as accuracy, coverage, currency, and reliability) as well as the nature and intensity of potential impacts on protected matters.

The use of data at each of these levels is discussed below. This discussion provides:

- An overview of the general approach to the use and interpretation of data for the assessment. The focus here is on the key data sources used to understand and map the location, extent, importance and condition of habitat or occurrences of relevant protected matters. This forms the *baseline dataset* for the impact assessment on each protected matter
- Identification of any risks, uncertainties, or gaps in the data and how these are being addressed
- An evaluation of the appropriateness of the approach for assessment at a strategic scale

A detailed outline of the data and methods used to produce the specific baseline maps for each protected matter is provided in the respective impact assessment chapters in Part 4 of this report.

13.3.1 WITHIN THE SURVEYED AREAS OF THE GROWTH AREAS

As outlined above, EHP were able to survey approximately 66 per cent of land across the two Growth Areas. The baseline dataset used to assess potential impacts to MNES within these surveyed areas has been developed largely using:

- The results of the EHP surveys (EHP, 2021)
- Historical species records (DELWP, 2022a)
- The results of other landholder surveys
- Site observations made by the consulting team during the Strategic Assessment

USE AND INTERPRETATION OF EHP SURVEY RESULTS AND HISTORICAL RECORDS

The results of the EHP surveys, as well as other historical records, were used to identify the threatened species and communities that occur within the Growth Areas. The results of the surveys informed habitat mapping within the surveyed areas for threatened species and threatened ecological communities that were recorded within the Growth Areas. The targeted surveys also identified the absence of a number of MNES within potential habitat areas of the Growth Areas.

EHP's survey results and description of the environmental condition and habitat characteristics across the Growth Areas were used to identify the key attributes relevant to the EPBC assessments, including the presence of habitat critical to survival or important populations.

USE AND INTERPRETATION OF LANDHOLDER SURVEYS AND SITE VISIT OBSERVATIONS

The landholder surveys provide a useful indication of the changes in extent and condition of grasslands within parts of the Growth Areas between survey seasons. This is relevant to help understand ecological trend as part of the Strategic Assessment. The extent of weeds and general trends observed in vegetation condition were confirmed by the Consulting Team during site visits. This information was integrated into the approach for mapping habitat for specific species, as relevant to their individual ecology.

SUITABILITY OF DATA APPROACH TO SURVEYED AREAS OF THE GROWTH AREAS

The suite of information available to understand the MNES values within the surveyed areas of the Growth Areas provides a high level of detail, resolution, and confidence for the assessment. The information is:

- Reliable and accurate, having been developed according to relevant guidelines by suitably qualified ecologists
- Current and best available, taking account of all available information in a robust way

This is both necessary and appropriate given this information has been used in the assessment to:

- Determine the most suitable areas for retention, protection, and management. These decisions need to be supported by the best available data to provide certainty around the conservation outcomes that can be delivered and inform planning in terms of management actions and costs
- Understand the scale and importance of impacts. The areas within the surveyed areas of the Growth Areas that will not be retained will be cleared for development. This is the largest area of land under the Plan that will be subject to direct impacts, which will be both permanent and irreversible. Well defined and reliable data is critical to support an assessment of the significance of these impacts, and subsequently inform the need for, type and quantum of any offsets

13.3.2 WITHIN UNSURVEYED AREAS OF THE GROWTH AREAS

As outlined above, around 33 per cent and 13.2 per cent of the NGGA and WGGA respectively were not subject to site surveys (see Map 13-1). The properties which were not accessed within the Growth Areas comprise many small, rural residential landholdings which are fragmented by windrows/landscaping and have a much higher proportion of land use for dwellings and driveways compared to the broader Growth Areas. The environment within these unsurveyed areas tends to be more modified or degraded as a result.

The baseline dataset used to assess potential impacts within these unsurveyed areas has been developed using:

- Over-the-fence observations by:
  - EHP during the time of their surveys (EHP, 2021)
  - The consulting team during site visits
- DELWP HIMs (DELWP, 2017)
- DELWP EVC modelling (DELWP, 2005)
- Historical species records (DELWP, 2022a)

USE AND INTERPRETATION OF OBSERVATIONS FROM EHP AND THE CONSULTING TEAM

EHP were able to undertake visual assessments of some of these unsurveyed areas where they could be viewed over the fence, such as from reserves, roadsides, and adjacent properties. EHP made the following general observations in their report that are relevant to understanding the potential MNES values within the unsurveyed areas (EHP, 2021):

- The majority of the Growth Areas are highly modified due to historical and ongoing agricultural and farming practices, and are dominated mostly by non-indigenous grasses and weeds
- The majority of parcels that were not surveyed comprise small, rural residential landholdings which tend to be more modified or degraded compared to the broader Growth Areas
- These unsurveyed areas may still support remnants of suitable habitat consistent with those already confirmed within the NGGA and WGGA

A similar set of observations were made by the consulting team during the July 2022 site visit.

Based on these observations, the assessment has assumed that:

- The unsurveyed areas provide potential habitat for all of the MNES identified within the respective areas of the surveyed areas
- The scale or extent of potential habitat is broadly commensurate with the extent mapped within the surveyed areas

USE AND INTERPRETATION OF DELWP MODELS

DELWP's HIM and EVC models (DELWP, 2005, 2017) were used to map the potential presence of habitat for species and communities within the unsurveyed areas, where those MNES had been confirmed by EHP to occur within the surveyed areas.

For each MNES, a comparison of the extent predicted to occur within the surveyed areas using the DELWP models was made against the actual extent confirmed by EHP. This allowed a factor to be identified and applied as necessary to the models to arrive at an extent of potential habitat for the unsurveyed areas that is broadly equivalent to that confirmed within the surveyed areas. The full extent of the HIMs was used for the assessment (i.e., no thresholds relating to importance were applied).

SUITABILITY OF DATA APPROACH TO UNSURVEYED AREAS OF THE GROWTH AREAS

The approach to baseline mapping within the unsurveyed areas of the Growth Areas is considered to:

- Appropriately reflect the potential MNES that may occur based on the observations and expert opinions of a number of ecologists
- Be suitably conservative for the purposes of this assessment as:
    - The higher intensity land use associated with the smaller, rural residential landholdings across the unsurveyed areas compared with the surveyed areas means that the habitat attributes or condition needed to support the species or communities are less likely to be retained in these areas. Basing the extent of potential habitat in these areas on the equivalent extent in the surveyed areas is therefore more likely to over-predict, rather than under-predict, potential habitat. This is an appropriate way to address any residual uncertainty that arises from a lack of targeted surveys
    - The full extent of the HIMs were used in the assessment. As a result, even areas with lower levels of relative importance to the species were considered

This information will be used in the assessment to understand the potential scale of habitat for the purposes of calculating direct impacts and an associated offset liability. The approach is considered to adequately manage risks to MNES given the current land use and condition of the unsurveyed areas substantially minimises the likelihood that these areas support an important area for MNES.

13.3.3 OUTSIDE THE GROWTH AREAS

The assessment of potential impacts under the Plan needs to address:

- The impacts that could occur as a result of external infrastructure development outside of the Growth Areas and within the Strategic Assessment Area
- The potential indirect impacts of development within the Growth Areas on protected matters outside of the Growth Areas

The baseline information used to assess potential impacts in these areas is discussed in the following sections.

EXTERNAL INFRASTRUCTURE DEVELOPMENT

The Plan allows for infrastructure development *outside* of the Growth Areas but within the SAA (referred to as 'external infrastructure'). This external infrastructure will occur according to a specified scope within a defined footprint under the Plan.

There is potential for this footprint to support small areas of habitat for MNES. Ecological surveys are yet to occur within these areas and there have been no field observations of these areas to support the assessment. The key baseline data sources used to understand potential presence of MNES for the assessment of these areas includes:

- DELWP HIMs (DELWP, 2017)
- DELWP modelled EVCs (DELWP, 2005)
- Historical records (DELWP, 2022a)

This data provides a high-level indication of potential occurrence within the external infrastructure footprints. Further information will be required to inform detailed planning and design of the relevant infrastructure projects to ensure that the potential risks to MNES are adequately addressed and that potential impacts and outcomes are appropriate. To this end, the Plan includes a number of Commitments and Measures relating to survey, design and avoidance. These include:

- A Commitment (13) to design and locate external infrastructure to avoid impacts to protected matters, along with a set of specific avoidance prescriptions relating to particular MNES that may be affected
- A Measure to undertake targeted surveys within the external infrastructure footprints for all protected matters with the potential to occur. Surveys must be undertaken prior to development to inform the detailed planning and design phase of each infrastructure project, and in accordance with relevant survey guidelines or standards
- A series of measures to report, monitor and manage avoidance outcomes against the Commitment

ASSESSMENT OF INDIRECT IMPACTS ON PROTECTED MATTERS OUTSIDE OF THE GROWTH AREAS

Development that occurs within the Growth Areas has the potential to impact protected matters outside of the Growth Areas in an indirect way. For instance, through impacts that may be operating at the interface of development and non-development areas, or through downstream pathways associated with waterways.

A Study Area has been defined for the purposes of the assessment as: the Strategic Assessment Area with a 20 km buffer. This buffer captures the key values associated with protected matters that occur downstream of the Growth Areas (such as Ramsar wetlands) and is considered to be conservative in identifying the spatial reach of any potential indirect impacts of development.

The baseline information used to inform the assessment of potential indirect impacts within the Study Area includes:

- DELWP HIMs (DELWP, 2017)
- DELWP modelled EVCs (DELWP, 2005)
- Historical records (DELWP, 2022a)

The data set provides a good indication of potential presence and relative importance of areas to MNES across the broader Study Area. It provides sufficient detail to understand the context and relationship of key MNES areas to the Growth Areas to support an assessment of potential indirect impacts.

14 Addressing uncertainty and risk

The ToR requires the assessment report to identify key uncertainties and risks associated with implementing the Plan, and identify:

- Responses to those uncertainties and risks
- Proposed adaptations to changing circumstances

The relevant ToR are:

> *6.1. The Report must identify key uncertainties and risks associated with implementing the Plan, responses to these and proposed adaptations to changing circumstances. Key uncertainties may include:*
>
> *a) knowledge gaps in scientific understanding and responding to new knowledge.*
>
> *b) assumptions made in assessing potential impacts and benefits.*
>
> *c) how changes to Commonwealth, State and local government legislation, policies, plans and advice are to be accounted for in the management of the areas impacted by the Plan.*
>
> *d) the capacity to ensure the Plan is implemented.*

The following section provides an analysis of how the Plan addresses the key risks and uncertainties. The analysis is supported by the detailed evaluation of the Plan in Part 5.

Note that ToR 6.1(e) (which relates to differences in survey results relating to MNES and the evaluation and resolution of discrepancies) is addressed in Chapter 13 of Part 3.

14.1 KNOWLEDGE GAPS IN SCIENTIFIC UNDERSTANDING AND RESPONDING TO NEW KNOWLEDGE

14.1.1 KNOWLEDGE GAPS IN SCIENTIFIC UNDERSTANDING

There are two key types of gaps in scientific understanding relevant to the assessment:

- Data gaps
- Gaps in understanding of ecological processes (for example, the particular ecology of a threatened species)

DATA GAPS

Data gaps for this assessment can be defined as a lack of information about a particular element of the environment. For example, presence or absence information for a threatened species at a particular site may not be available at the time required.

Given the large spatial scale of the Plan, it is not possible to have perfect information about the environment and some level of uncertainty in data is inherent in the project. As outlined in Chapter 13 of Part 3, a comprehensive data set has been collected for the assessment which addresses the ToR and is considered appropriate for the assessment.

The data that has been used in the assessment and any limitations are discussed in detail in:

- Chapter 13: Data used in the assessment
- Individual assessment chapters for protected matters

The main areas of data uncertainty relate to the areas within the development footprint that will be subject to direct impacts where no targeted surveys have been undertaken. These include:

- The unsurveyed areas within the Growth Areas, relating to 694.5 ha or 33 per cent in the NGGA and 101.2 ha or 13.2 per cent in the WGGA
- The external infrastructure footprints

As described in Chapter 13 of Part 3, approaches have been developed to address these gaps to sufficiently manage risks to MNES. These approaches involve:

- The use of assessment methods that are conservative or precautionary where uncertainty exists around the scale of potential impacts
- The use of Commitments and Measures under the Plan to address data gaps during implementation and provide for clear and appropriate outcomes for MNES

UNDERSTANDING OF ECOLOGICAL PROCESSES

Sufficient understanding of ecological processes is a key challenge for all environmental impact assessments. There is commonly a lack of information about issues such as:

- Species distribution
- Species habitat requirements
- Species population numbers and dynamics
- The effects of key threatening processes (e.g., climate change)
- The best approaches for minimising and mitigating potential impacts

The assessment addresses these uncertainties through:

- Gathering the best available information from scientific literature, expert knowledge, on-ground surveys
- The use of Commitments and Measures under the Plan to generate the technical information needed to address information gaps and inform planning and development in a way that adequately protects MNES
- Applying a precautionary approach to understanding and evaluating potential impacts. An analysis of the application of the precautionary principle is provided in Part 5

The Plan addresses uncertainty through its monitoring, evaluation, reporting and improvement (MERI) framework combined with ongoing adaptive management. This is discussed below in Section 14.5.

14.1.2 RESPONDING TO NEW KNOWLEDGE

Given the long timeframe of the Plan, new knowledge about environmental issues will become available through:

- New scientific research
- Monitoring as part of implementation of the Plan

It will be critical that the Plan can consider this information and respond appropriately. The Plan's approach to this is discussed below in Section 14.5.

14.2 ASSUMPTIONS MADE IN ASSESSING POTENTIAL IMPACTS AND BENEFITS

One of the key risks in environmental impact assessment is making incorrect assumptions about the nature of potential impacts and benefits of a project. In particular, it is important that the consequences of potential impacts are not understated, and the benefits of conservation measures are not overstated.

To address this risk, the assessment report takes a precautionary approach to identifying and analysing impacts and benefits. Two examples of this include:

- The assumption that all MNES values within the areas subject to development will be lost due to a lack of certainty around the additional biodiversity outcomes that will delivered in accordance with the BCS during precinct planning
- The habitat mapping for threatened species within unsurveyed areas of the Growth Areas generally overestimates the amount of habitat which means the impacts that are assessed are likely to be larger than what will ultimately occur on the ground.

The assumptions made in assessing potential impacts and benefits are:

- Outlined in Part 3 – Assessment Approach which describes the methods used in the assessment
- Set out in relation to each protected matter in the individual assessment chapters

The application of the precautionary principle to the assessment is evaluated in Part 5.

14.3 HOW CHANGES TO STATE AND COMMONWEALTH LEGISLATION, POLICIES, PLANS AND ADVICE IS TO BE ACCOUNTED FOR IN THE MANAGEMENT OF THE AREAS IMPACTED BY THE PLAN

Given the long timeframes of the Plan, changes to legislation, policies, plans, and advice are inevitable. These changes may lead to risks around:

- Implementation processes. For example, changes to State planning policies may affect the approaches to addressing indirect impacts
- Conservation priorities for threatened species and ecological communities. For example, changes to a Conservation Advice may provide new information about the key threats to a species and the recommended mitigation strategies
- Compliance. For example, changes to legislation may have implications for compliance under what would then be an approval under outdated legislation

The Plan addresses these risks through:

- Clearly establishing outcomes and commitments that will be delivered despite any changes to legislation, policies, plans and advice
- The use of specific commitments that have been developed to account for potential changes
- Its approach to MERI and adaptive management (discussed in Section 14.5 below) which will provide a way of responding to any changes to legislation, policies, plans and advice

14.4 CAPACITY TO ENSURE THE PLAN IS IMPLEMENTED

Effective implementation is particularly important for strategic assessments because of the size and complexity of the programs, the long timeframes over which they are implemented, the number of stakeholders and the diversity of their interests, the amount of money the programs cost, and the complexity of the legal frameworks they operate within.

Lessons learnt from other strategic assessments around Australia suggest that effective implementation requires:

- Clear and feasible outcomes that the Plan will deliver
- Clarity about the delivery framework and mechanisms to implement the Plan
- Appropriate flexibility within the Plan to ensure it remains relevant over time
- Clear governance arrangements, including certain funding
- Comprehensive processes to monitor and report on implementation, and adapt implementation as needed
- Simplification of Plan documentation
- Publication of progress against commitments and measures

The Plan has been designed to address these issues. A detailed evaluation of the ability of the Plan to be implemented is provided in Section 29.6 of Part 5.

14.5 ADAPTIVE MANAGEMENT UNDER THE PLAN

Adaptive management is a process for improving management practices through learning from the outcomes of previous management (DSEWPC, 2011). It is based on information derived from monitoring and can be applied anywhere uncertainty in management exists.

Adaptive management involves the following steps: monitoring, evaluation, reporting and improvement (referred to as a MERI framework). Each of these steps is applied iteratively over the life of a project to ensure that the project is effective in delivering its objectives over time.

Adaptive management is an essential part of the implementation framework for strategic assessments. It is important because:

- The scale and complexity of strategic assessments means that there may be uncertainty relating to some impacts during the assessment process that need to be addressed during implementation
- The timeframes for strategic assessments are long and implementing agreed outcomes will be subject to a range of uncertainties over the life of the Plan
- Factors relating to the environment are likely to change over the life of a strategic assessment and an adaptive approach to management will be important for achieving the Plan's outcomes
- Changes to State and Commonwealth legislation, policies, plans and advice will occur over the life of the Plan

Providing a process to address uncertainty and deal with changing circumstances during the life of the Plan is therefore critical.

The Plan's approach to adaptive management is provided in the MERI framework which is described in Chapter 7.5 of the Plan. The specific measures to implement the MERI framework including adaptive management are detailed in the Commitments and Measures document.

An evaluation of the adequacy of the Plan's approach to adaptive management is provided in Part 5 of the SAR.

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MAY 2023

DRAFT NWGGA STRATEGIC ASSESSMENT REPORT

PUBLIC EXHIBITION VERSION

PART 3: ASSESSMENT APPROACH

ATTACHMENT A - SUMMARY OF SITE VISITS TO THE GROWTH AREAS

PREPARED FOR THE CITY OF GREATER GEELONG

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A. Summary of site visits to the Growth Areas

The Consulting Team (being the consultants commissioned by the City to undertake the Strategic Assessment) have visited the Growth Areas on a number of occasions to help inform the assessment process. These visits have included:

- Initial site visits to the Growth Areas in November 2021
- Site observations of the NGGA to inform the Structured Decision Making (SDM) process in March 2022
- A visit to the NGGA/WGGA with DCCEEW in August 2022

Table 1 provides the date, attendees, purpose, and locations of these visits along with an overview of the key observations made by the Consulting Team.

Table 1: Summary of the three site visits to the Growth Areas

Date	Attendees	Purpose	Areas inspected	Key observation
30/11/2021	**The consulting team:** • Mitch Deaves • Steve Mueck **The City:** • Jessica Cook • Jayden Holmes	Initial site inspection led by the City to understand the context of the NWGGA	Several locations within the NWGGA were observed from a distance via publicly accessible vantage points (i.e., road reserves). Vantage point locations included: • WGGA: Avonlea Road, Evans Road, Geelong-Ballan Road, and Midland Highway • NGGA: Staceys Road, Elcho Road, Evans Road, Heales Road, Tower Hill Road	• Areas of native vegetation identified by EHP (EHP, 2021) are typically areas characterised by a small number of indigenous perennial grasses and a low diversity of native herbs. These marginal, degraded areas of remnant indigenous vegetation are subject to changes in condition depending on seasonal conditions where drought favours indigenous species and wet periods favour introduced pasture species • A number of areas previously identified as native vegetation in the WGGA were observed to have been under recent cultivation • The NGGA is currently being influenced by the invasion of Chilean Needle-grass (*Nassella neesiana*). This will likely disrupt the historical cycles of dominant ground cover species, which includes native perennial grasses. Chilean Needle-grass is a high threat perennial grass which once dominant, excludes all other species unless subject to targeted control. The apparent expansion in the dominance of Chilean Needle-grass has therefore permanently altered the landscape of parts of the NGGA (as local control measures are unlikely given the expense involved in removing this species) • Areas previously identified as native vegetation in the NGGA, while naturally waning during the current wet climatic cycle, appear to have been largely taken over by the invasion of Chilean Needle-grass. This situation is most likely more permanent than not, and any remnant native vegetation will be subject to ongoing deterioration as a result of this invasion • Native vegetation is unlikely to be present within most, if not all of the unassessed areas due to the intensity of land use within these areas
21/3/2022	**Biosis:** • Steve Mueck • Mitch Deaves • Peter Wlodarczyk **Newland:** • Mark Whinfield • Brett Lane (Nature Advisory)	Request to visit landholdings to inspect native vegetation extent and condition This site visit was used to inform the Structure decision making project	Newland landholdings, including: • 295-335 Elcho Road • 345-395 Elcho Road • 500 Elcho Road • 460 Evans Road • 350 Emmersons Road	Similar observations to the November 2021 site visit above

Date	Attendees	Purpose	Areas inspected	Key observation
3/8/2022	**Biosis:** • Steve Mueck • Mitch Deaves **The City:** • Jessica Hurse • Alex Schmidt **DCCEEW:** • Mick Welsh **Landholders:** • Nick Clements (Tract), representing 135 Staceys Road • Chris Wheaton (Newland) – 75 Staceys Road	Visit to the growth areas with DCCEEW	Properties visited include: • 135 Staceys Road • Cowies Creek • 775 Evans Road • 75 Staceys Road	• 135 Staceys Road – view of conservation land to observe some native vegetation and embedded rock • 775 Evans Road – SLL habitat – embedded rock viewed from roadside. Dominated by weeds • 75 Staceys Road (highest density of GSM records) – large areas of Chilean Needle-grass • 295 Elcho Road (example of Natural Temperate Grasslands of the Victorian Volcanic Plains) – this area was observed to be of low quality

References

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biosis

OPENLINES
Environmental consulting

MAY 2023

DRAFT NWGGA STRATEGIC ASSESSMENT REPORT

PUBLIC EXHIBITION VERSION

PART 4: IMPACT ASSESSMENT

CHAPTER 15 – INTRODUCTION

CHAPTER 16 – AVOIDANCE OF IMPACTS

CHAPTER 17 – MANAGING INDIRECT IMPACTS

CHAPTER 18 – RELEVANT PROTECTED MATTERS

PREPARED FOR THE CITY OF GREATER GEELONG

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PART 4: IMPACT ASSESSMENT

15 Introduction

This part of the Assessment Report provides the detailed assessments for the relevant protected matters. As defined in the Terms of Reference (ToR), the relevant protected matters are those matters that may be impacted directly, indirectly and/or cumulatively by actions proposed to be taken under the Plan.

The detailed assessments are presented in the following chapters:

- Chapter 19 – Listed threatened fauna species
- Chapter 20 – Listed threatened flora species
- Chapter 21 – Listed threatened ecological communities
- Chapter 22 – Ramsar wetlands
- Chapter 23 – Listed migratory species
- Chapter 24 – Species on the Finalised Priority Assessment List
- Chapter 25 – Cumulative impact assessment
- Chapter 26 – Social and economic impact assessment

These assessments address many of the requirements of the ToR; in particular, sections 3.2, 4.1, 4.3, 4.4, 4.6 and 4.9.

There are a number of supporting chapters leading into these assessments that provide important background and context. These include:

- Chapter 16 – Avoidance, which describes the avoidance process and decision making that underpins the Plan and led to the key avoidance outcomes for MNES
- Chapter 17 – Managing indirect impacts, which describes the relevant potential indirect impacts associated with development under the Plan and how these impacts will be mitigated and managed
- Chapter 18 – Relevant protected matters, which lists the relevant protected matters that were identified through the categorisation method described in Chapter 12 of Part 3

16 Avoidance of impacts

16.1 INTRODUCTION

The ToR requires the SAR to include analysis of how impacts on MNES will be avoided. The relevant ToR is outlined in the following text box:

> *1.1. The Report must assess the impacts of actions under the Plan on all relevant protected matters*
>
> *1.2. The Report must address how those impacts will be avoided, mitigated and offset (where necessary or appropriate) to ensure the long-term protection of protected matters.*
>
> *…*
>
> *4.4. The Report must include analysis of:*
>
> *a) how impacts on protected matters will be avoided…*

This Chapter provides an analysis of avoidance and includes:

- How avoidance is defined for the purposes of the strategic assessment
- The steps taken to avoid and minimise impacts
- The avoidance outcomes for MNES

Where applicable, detailed discussion of the avoidance processes for individual MNES are presented in the remaining chapters of Part 4 of the SAR.

16.2 HOW AVOIDANCE IS DEFINED FOR THE PURPOSES OF THE STRATEGIC ASSESSMENT

There may be a range of reasons why land is avoided and not impacted under the Plan, including because land:

- Has high biodiversity values and is avoided for biodiversity purposes
- Is not strategically located and is therefore not a priority for development
- Is not generally suitable for development for another reason such as topography or land use conflict

To simplify the analysis in this chapter, avoidance is defined as any land that will not be impacted directly under the Plan. This land may occur in the Growth Areas, Strategic Assessment Area, or Study Area. Where it is possible to do so, avoidance decisions that were influenced by biodiversity are identified.

This chapter does not attempt to analyse how the Plan avoids and mitigates potential indirect impacts. These issues are addressed in Chapter 17.

16.3 STEPS TO AVOID AND MINIMISE IMPACTS

This section provides a summary of:

- The steps which have occurred to date to avoid impacts to protected matters
- The future processes that will be implemented to avoid and minimise impacts to protected matters

16.3.1 THE STEPS TAKEN TO DATE TO AVOID IMPACTS TO PROTECTED MATTERS

Avoidance has occurred in multiple stages and at multiple scales to date, including:

- Strategic planning to locate the Growth Areas
- Initial avoidance through preparation of the Framework Plan
- Evaluation of the Framework Plan and consideration of further avoidance as part of the Strategic Assessment Process

The avoidance process started at a landscape scale and informed the location of the Growth Areas. The process was undertaken through a range of regional and State scale processes. Relevant documents associated with this process include the G21 Regional Growth Plan (Geelong Region Alliance, 2013) and Plan Melbourne 2017–2050 (Victoria State Government, 2017).

This avoidance process involved considering a wide range of factors across the broader region, including:

- The locations and characteristics of landscape features including protected matters and environmental values
- The locations of existing development and infrastructure
- The overall suitability of the site for delivering development objectives

Once the location of the Growth Areas was determined, high level planning was completed through preparation of the Framework Plan (The City of Greater Geelong, 2021). This process was based around urban development objectives and planning themes. Consideration of biodiversity values was one of the factors involved in planning decisions during this process. The Framework Plan includes a range of actions which will be implemented to avoid impacts to biodiversity in each of the Growth Areas.

Once the Framework Plan was prepared, further analysis was completed to refine avoidance outcomes as part of the strategic assessment process. As part of this process, detailed biodiversity investigations (including surveys) were completed for the strategic assessment within the NGGA and the WGGA (EHP, 2021a). The results of these investigations were analysed with regards to the indicative avoidance outcomes from the Framework Plan. This analysis found that:

- Further avoidance was required within the NGGA to minimise impacts to protected matters
- The indicative avoidance outcomes within the Framework Plan for WGGA were appropriate for protected matters, and no further avoidance was needed

A Structured Decision Making (SDM) (Gregory *et al.*, 2010) process was then applied to consider further avoidance within the NGGA. As part of this process, five different layouts were considered within the Growth Areas, and evaluated with regards to how well each layout performed against a range of environmental, social, and economic criteria. The best-performing layout increased the area of avoidance for a range of MNES compared to the Framework Plan.

16.3.2 FUTURE PROCESSES THAT WILL BE APPLIED TO AVOID AND MINIMISE IMPACTS TO PROTECTED MATTERS

A range of future processes will be applied to further avoid impacts to protected matters. These include:

- PSP processes for the precincts within the SAA
- Avoidance processes that will be applied to external infrastructure development outside of the Growth Areas

The PSP processes will provide an important opportunity to refine and confirm the boundaries of conservation areas, prepare Conservation Management Plans (CMPs) for conservation areas, and confirm the locations of any additional linear corridors for biodiversity linkages. Given the strategic process which has been undertaken for each of the Growth Areas, it is not expected that substantial further avoidance will occur as part of the PSP process.

The planning process for external infrastructure development outside of the Growth Areas will involve avoidance mechanisms to minimise impacts to protected matters. This will include site surveys to identify protected matters in potential development areas.

16.4 COMMITMENTS AND MEASURES FOR AVOIDANCE

The Plan has a range of commitments and measures for avoidance. A summary is provided here, while a detailed overview of commitments and measures for avoidance is in the BCS.

The Plan includes five commitments for avoidance, which relate to avoidance of species' habitat within the NGGA and the WGGA, the preparation and implementation of CMPs for avoided areas to protect environmental values, and the process for designing external infrastructure outside of the Growth Areas to avoid impacts to protected matters. These commitments are supported by a range of measures to deliver the commitments. Examples include measures to:

- Update the Framework Plan to show avoided areas as protected land and apply appropriate environmental zoning to avoided areas
- Acquire avoided land and vest the land in the City
- Fund the management of avoided areas
- Appropriately prepare CMPs in a manner which protects the protected matters located in each avoided area
- Undertake surveys for protected matters within external infrastructure footprints to enable avoidance of protected matters

16.5 AVOIDANCE OUTCOMES FOR MNES

This section presents the avoidance outcomes for MNES. It:

- Identifies the MNES that occur in the Strategic Assessment Area and Study Area that will be avoided entirely from being impacted directly
- Quantifies and analyses the avoidance outcomes for the MNES that will be subject to direct impacts
- Provides an overall conclusion about the avoidance outcomes

16.5.1 MNES THAT WILL BE AVOIDED ENTIRELY

There is a total of 29 Category 1 MNES that are assessed within this Strategic Assessment Report. Of these, 25 will not be subject to direct impacts. This is an outcome of the early strategic planning decisions in locating the Growth Areas.

Of the 25 Category 1 MNES which will not be subject to direct impacts:

- 5 have records and/or habitat within the Growth Areas and the wider Strategic Assessment Area and Study Area
- 11 have records and/or habitat within the Strategic Assessment Area outside of the Growth Areas, and the wider Study Area
- 8 have habitat and/or records in the wider Study Area only

Table 16-1 identifies the MNES that will be avoided entirely from being impacted directly by implementation of the Plan and indicates where each MNES is located.

It is noted that avoidance and protection of the Cowies Creek Conservation Area within WGGA will lead to the complete avoidance of direct impacts to the Growling Grass Frog (*Litoria raniformis*) and Adamson's Blown-grass (*Lachnagrostis adamsonii*).

The Moorabool River within the WGGA supports suitable habitat for the three threatened fish species. Avoidance and protection of the riparian corridor of this waterway will help to minimise potential impacts to these species.

Further, future avoidance processes associated with the design of infrastructure outside of the Growth Areas (outlined above) will minimise potential direct impacts to protected matters which are present within the wider Strategic Assessment Area.

Further information regarding the avoidance outcomes for each of the protected matters identified above is provided in Part 4, Chapters 19, 20, 21 and 23.

Table 16-1: MNES that will be avoided entirely from being impacted directly by implementation of the Plan

MNES	MNES PRESENT IN:							
	NGGA		WGGA		SAA		STUDY AREA	
	R^	H^	R	H	R	H	R	H
Threatened fauna								
Australasian Bittern (*Botaurus poiciloptilus*)	No	No	No	No	No	Yes	Yes	Yes
Australian Fairy Tern (*Sternula nereis nereis*)	No	No	No	No	No	Yes	Yes	Yes
Australian Grayling (*Prototroctes maraena*)	No	No	No	Yes	No	Yes	Yes	Yes
Australian Painted Snipe (*Rostratula australis*)	No	No	No	No	No	Yes	Yes	Yes
Curlew Sandpiper (*Calidris ferruginea*)	No	No	No	No	No	Yes	Yes	Yes
Eastern Curlew (*Numenius madagascariensis*)	No	No	No	No	No	Yes	Yes	Yes
Eastern Dwarf Galaxias (*Galaxiella pusilla*)	No	No	No	Yes	No	Yes	No	Yes
Great Knot (*Calidris tenuirostris*)	No	No	No	No	No	No	Yes	Yes
Greater Sand Plover (*Charadrius leschenaultii*)	No	No	No	No	No	Yes	Yes	Yes
Growling Grass Frog (*Litoria raniformis*)	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Lesser Sand Plover (*Charadrius mongolus*)	No	No	No	No	No	Yes	Yes	Yes
Orange-bellied Parrot (*Neophema chrysogaster*)	No	No	No	No	No	Yes	Yes	Yes
Red Knot (*Calidris canutus*)	No	No	No	No	No	Yes	Yes	Yes
Western Alaskan Bar-tailed Godwit (*Limosa lapponica baueri*)	No	No	No	No	No	Yes	Yes	Yes
Yarra Pygmy Perch (*Nannoperca obscura*)	No	No	No	Yes	No	Yes	Yes	Yes
Threatened flora								
Adamson's Blown-grass (*Lachnagrostis adamsonii*)	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Spiny Rice-flower (*Pimelea spinescens* subsp. *spinescens*)	No	No	No	No	Yes	Yes	Yes	Yes
Migratory species*								
Common Greenshank (*Tringa nebularia*)	No	No	No	No	No	No	Yes	Yes
Double-banded Plover (*Charadrius bicinctus*)	No	No	No	No	No	No	Yes	Yes
Latham's Snipe (*Gallinago hardwickii*)	No	No	No	No	Yes	No	Yes	Yes
Little Tern (*Sternula albifrons*)	No	No	No	No	No	No	Yes	Yes
Marsh Sandpiper (*Tringa stagnatilis*)	No	No	No	No	No	No	Yes	Yes
Red-necked Stint (*Calidris ruficollis*)	No	No	No	No	No	No	Yes	Yes
Sharp-tailed Sandpiper (*Calidris acuminata*)	No	No	No	No	No	No	Yes	Yes
Ramsar								
Port Phillip Bay (Western Shoreline) and Bellarine Peninsula Ramsar site	No		No		No		Yes	

* This list includes migratory species that are not listed as threatened. Any migratory species that are also threatened are identified under the "threatened species" section of the table

^ To save space, the following abbreviations have been used: R – Records, H – Habitat

16.5.2 AVOIDANCE OUTCOMES FOR MNES SUBJECT TO DIRECT IMPACTS

Three Category 1 MNES are subject to direct impacts under the Plan. These include:

- Golden Sun Moth (*Synemon plana*) (GSM)
- Striped Legless Lizard (*Delma impar*) (SLL)
- Natural Temperate Grassland of the Victorian Volcanic Plain (Natural Temperate Grassland)

The avoidance of habitat for the GSM and the SLL, and avoidance of areas of Natural Temperate Grassland, were key considerations during the SDM avoidance process for the NGGA as part of the strategic assessment process. The application of the SDM process resulted in the total avoidance area within the NGGA increasing by more than 26 ha. The total area of avoidance within the NGGA is now just over 108 ha.

The specific avoidance outcomes for each of the above protected matters is as follows:

- GSM: A total of 108.6 ha of mapped habitat has been avoided for this species. Avoidance focused on areas where high densities of GSM have been recorded and where the largest remnants of native vegetation have been mapped
- SLL: A total of 73.7 ha of mapped habitat has been avoided for this species. Avoidance focused on protecting the largest patch of confirmed habitat for the species, in addition to an area mapped as suitable habitat

While avoidance of Natural Temperate Grassland was a key consideration during the strategic assessment process, mapped patches of Natural Temperate Grassland were unable to be included in the avoided areas for a range of reasons, including topographical constraints, economic reasons, and challenges associated with retaining and conserving small pockets of the grassland within urban environments with substantial edge effects.

Further information regarding the avoidance outcomes for each of the protected matters identified above is provided in Part 4, Chapters 19 and 21.

16.5.3 CONCLUSION

A thorough avoidance process has been applied within the Strategic Assessment Area to minimise impacts to protected matters under the Plan. As a result, the vast majority of MNES within the Study Area will not be directly impacted under the Plan, with only three MNES subject to direct impacts. In relation to these, stringent avoidance processes have been applied to minimise potential impacts as far as is practicable.

Overall, it is considered that the avoidance process applied under the Plan is appropriate for protecting MNES while also enabling the necessary social and economic objectives to be addressed.

17 Managing indirect impacts

17.1 INTRODUCTION

This Chapter describes the mitigation measures that will be implemented under the Plan to avoid and minimise the indirect impacts of development. This information provides relevant context and background to support the detailed assessments for protected matters.

The information presented in this Chapter relates to the following ToR:

> *1.2. The Report must address how those impacts will be avoided, mitigated, and offset (where necessary or appropriate) to ensure the long-term protection of protected matters.*
>
> …
>
> *4.1. The Report must describe and assess the likely direct, indirect, and cumulative impacts of actions taken under the Plan on all relevant protected matters. This must include, but not necessarily be limited to, an assessment of impacts of clearing, disturbance and fragmentation*
>
> …
>
> *4.4. The Report must include analysis of:*
>
> *…*
>
> *b) the duration, extent, and likely severity of the impacts*
>
> *c) the mitigation measures that will be implemented and their likely effectiveness to reduce impacts on the protected matters…*
>
> …
>
> *4.6. The Report must consider the extent to which the impacts on relevant protected matters of actions proposed under the Plan would be consistent with the EPBC Act, including but not limited to:*
>
> *…*
>
> *b) how approving a class of actions to be taken in accordance with the Plan would not be inconsistent with recovery plans and threat abatement plans (section 146K(2) of the EPBC Act)*
>
> *c) how regard has been and will be given to relevant information in conservation advices (section 146K(3) of the EPBC Act), threat abatement plans and recovery plans*

The relevant potential impacts considered in this chapter have been identified and described in the assessment approach in Chapter 11 of Part 3 and include:

- Changes to water flows and quality
- Spread of infection and disease
- Spread of weeds
- Predation/ competition by pest/domestic fauna
- Altered fire regimes
- Disturbance from increased public access to natural areas
- Fauna mortality and barriers to movement
- Disturbance due to noise, dust or light
- Inadvertent impacts on adjacent habitat or vegetation

This chapter also describes the relevant Threat Abatement Plans (TAPs) to the Plan (also identified in Chapter 11 of Part 3), and assesses:

- Whether the Plan is not inconsistent with each TAP
- How regard has been given to information in each TAP

It is noted that detailed assessments of indirect impacts on specific protected matters is contained later within this Part, with threatened species assessed in Chapters 19 and 20, Threatened Ecological Communities assessed in Chapter 21,

Ramsar wetlands assessed in Chapter 22, migratory species assessed in Chapter 23 and species listed on the FPAL list in Chapter 24.

17.1.1 PURPOSE

The purpose of this chapter is to:

- Describe how development under the Plan has the potential to introduce or exacerbate each indirect impact. This analysis takes into account the context and existing threatening processes in the Strategic Assessment Area and wider Study Area. As part of this step, the nature, extent, and duration of each indirect impact type has been described. This involved:
  - Nature of impacts – qualitatively describing each indirect impact type, including cause and scope of the impact
  - Extent of impacts – identifying the general location and extent of indirect impacts
  - Duration – identifying whether the impacts are short-term or long-term
- Identify the types of protected matters and associated values likely to be affected by each indirect impact within and surrounding the Strategic Assessment Area
- Describe the standard mitigation measures and processes that will be implemented through the existing Victorian planning system and the Geelong Planning Scheme to mitigate the indirect impacts
- Describe the additional, specific mitigation measures provided for under the Plan to address particular vulnerabilities or risks to MNES from indirect impacts

This information has enabled an evaluation of the adequacy of mitigation in appropriately addressing risks from indirect impacts on MNES as part of the detailed assessments for relevant matters presented in Chapters 19-24.

17.2 ANALYSIS OF INDIRECT IMPACTS

17.2.1 CHANGES TO WATER FLOWS AND QUALITY

NATURE OF EXISTING THREAT IN REGION

There are several aquatic systems within the Study Area which are downstream of the Growth Areas, including Cowies Creek, Hovells Creek and the Moorabool River (which discharges into the Barwon River and then the Lake Connewarre Complex).

These systems provide some important ecological processes and functions. For instance, by supporting habitat for a number of threatened species or as tributaries into internationally significant wetland areas. However, all of these systems also have substantial existing degradation. In 2010, the state-wide Index of Stream Condition found that Hovells Creek, the Moorabool River and the Barwon River were in 'very poor' environmental condition (the lowest environmental condition category in the rating system) (Corangamite CMA, 2014). Contributors to the poor condition of these waterways include agricultural and urban development within the catchments. Cowies Creek is also subject to substantial agricultural and urban development within its catchment.

POTENTIAL IMPACT PATHWAYS ASSOCIATED WITH DEVELOPMENT UNDER THE PLAN AND IDENTIFICATION OF MATTERS OR AREAS OF CONCERN

The Plan has the potential to negatively impact upon aquatic environmental values through altering runoff volumes, timing, and water quality due to development. These impacts are likely to occur during both the short-term construction and long-term operational phases of development.

Cowies Creek, Hovells Creek, the Moorabool River, and the Barwon River all support important and sensitive environmental values protected under the EPBC Act. Cowies Creek is located downstream of both Growth Areas and supports habitat for the EPBC-listed Growling Grass Frog and for Adamson's Blown-grass. Hovells Creek drains into Limeburners Bay, which is part of the Port Phillip Bay (Western Shoreline) and Bellarine Peninsula Ramsar Site. The Moorabool River discharges into the Barwon River, which in turn discharges into the Lake Connewarre Complex, which is also part of the Ramsar site. The Ramsar site supports habitat for multiple threatened and migratory species protected under the EPBC Act.

EXISTING STANDARD MITIGATION MEASURES

The planning system has existing measures in place to address changes to water flows and quality.

The Geelong Planning Scheme includes requirements to:

- Ensure land use on floodplains minimises the risk of waterway contamination during flooding (Clause 13.03-1S)
- Prevent inappropriate development in areas prone to erosion (Clause 13.04-1S)
- Retain natural drainage corridors, minimise runoff volume from developed areas, filter sediment and waste from stormwater prior to discharge, ensure land use and development minimises nutrient contributions to runoff, and implement measures to minimise sediment discharge from construction sites (Clause 14.02-1S)
- Minimise impacts to water quality through ensuring that land uses which have potential to produce contaminated runoff are appropriately sited and managed (Clause 14.02-2S)
- Implement integrated water management to sustainably manage water supply and demand, water resources, wastewater, drainage, and stormwater (Clause 19.03-3S)

The Geelong Planning Scheme also includes a range of requirements to ensure stormwater management meets appropriate objectives and standards, including objectives for stormwater quality (for example, see Clause 53.18).

The Plan includes a commitment to continue to implement these standard mitigation measures to manage the indirect impacts of the development in accordance with the requirements of the Geelong Planning Scheme (Commitment 7).

The NWGGA Framework Plan also includes various mitigation-related actions to address water flows and quality, including implementation of riparian buffers, and the preparation of masterplans for Cowies Creek and Barwon and Moorabool rivers for integrated water management.

ADDITIONAL MEASURES TO ADDRESS INDIRECT IMPACTS TO MNES

The existing standard mitigation measures minimise potential indirect impacts associated with altered water flows and quality. However, these measures are general in nature, and it is not well established whether they will adequately address the particular ecological characteristics or requirements of the downstream MNES values associated with these catchments.

To address this, the Plan includes a specific Commitment (Commitment 9) to minimise the indirect impacts of the development on protected matters. The measures relevant to water flow and quality that will be undertaken to deliver on this Commitment include:

- Undertaking relevant technical studies to understand the key risks from development on protected matters associated with Hovells Creek and the Moorabool River. These studies will:
    - Address potential risks associated with changes to water quality and hydrology as a result of development within the Growth Areas
    - Identify appropriate measures, standards or targets to avoid and minimise adverse impacts on protected matters including, as relevant:
    - Water quality parameters
    - Water retention and flow management requirements
    - Limits on extraction or use
    - Habitat buffer requirements
    - Monitoring and reporting
- Preparing guidelines based on the results of the technical studies to guide the preparation of PSPs and decisions on planning permits and permit conditions to ensure risks to protected matters in relation to indirect and downstream impacts are adequately managed
- Undertaking a planning scheme amendment or other appropriate process to ensure the guidelines are considered during the preparation of PSPs and in decisions on planning permits and permit conditions

The Commitment (Commitment 9) will be implemented prior to the preparation of PSPs for the relevant precincts.

17.2.2 SPREAD OF INFECTION/DISEASE

NATURE OF EXISTING THREAT IN REGION

The Plan has the potential to increase the spread of infection and disease through development (Bradley and Altizer, 2007). These impacts are likely to occur during both the short-term construction and long-term operational phases of development.

It is possible that there is already a high prevalence of environmental diseases within the region, given existing development within the Geelong locality.

An assessment has been conducted to identify the Category 1 protected matters within the Geelong locality which are threatened by disease, and to identify the relevant diseases. This assessment has identified the following relevant diseases:

- Chytridiomycosis – affecting the Growling Grass Frog
- PBFD – affecting the Orange-bellied Parrot and Blue-winged Parrot
- Avian influenza virus – affecting the Red Knot and Great Knot
- Various aquatic pathogens, including parasites, viruses and fungi – affecting the Australian Grayling

These diseases are widespread across Australia, and it is possible that they are present within the Geelong region.

POTENTIAL IMPACT PATHWAYS ASSOCIATED WITH DEVELOPMENT UNDER THE PLAN AND IDENTIFICATION OF MATTERS OR AREAS OF CONCERN

At a local scale, the Plan has the potential to increase the spread of pathogens within the Strategic Assessment Area through increased movement of materials and people within developed areas, and through increased environmental degradation at development boundaries. The increased risk of disease transmission is likely to be long term, occurring during both the construction and operational stages of development. Areas of risk are those in proximity to the areas of development within the Growth Areas and in areas of infrastructure development outside of the Growth Areas. It is recognised that these areas are already developed and degraded, and subsequently elevated disease transmission is likely to be an existing threat. To minimise the risks of further increases to disease transmission, standard mitigation measures within the planning system will be applied (outlined below).

The Plan may have some potential to increase the risk of disease transmission at a landscape scale, through increased movement of people through the wider area, particularly relating to increased visitation of natural areas in the region. However, given that the Geelong locality already has high visitation rates within its natural areas (due to its existing urban population, and as a popular recreational destination), this threat is an existing landscape threat. It is unlikely that the Plan will substantially exacerbate this threat.

EXISTING STANDARD MITIGATION MEASURES

The planning system has existing general measures in place to address the spread of infection/disease from development. This includes a broad requirement for decision-making to account for the impacts of development on the spread of pathogens (Clause 12.01-1S) and a requirement for subdivision applications to describe how the site will be managed prior to and during construction to protect the site and surrounding area from environmental degradation (Clause 56.08). The preparation of Construction Environmental Management Plans prior to the commencement of construction is included in the City's template of standard conditions, which will be applied by the City as a permit condition where it is considered appropriate.

ADDITIONAL MEASURES TO ADDRESS INDIRECT IMPACTS TO MNES

These existing, standard measures are considered adequate in addressing the potential indirect impacts of development on protected matters in relation to the spread of pathogens.

17.2.3 SPREAD OF WEEDS

NATURE OF EXISTING THREAT IN REGION

Weeds are a substantial existing threat within the Strategic Assessment Area. Surveys conducted within the NWGGA found that vegetation on site is highly modified and dominated by non-indigenous grasses (i.e. pasture grasses) and weeds, and that areas of native vegetation are largely confined to riparian corridors. Nine species were identified within

the NWGGA that are declared noxious weeds under the Victorian *Catchment and Land Protection Act 1994*, including: *Nassella neesiana* (Chilean Needle-grass), *Juncus acutus* (Spiny Rush), *Lycium ferocissimum* (African Box-thorn), *Cirsium vulgare* (Spear Thistle), *Cynara cardunculus* (Artichoke Thistle), *Echium plantagineum* (Patterson's Curse), *Nassella trichotoma* (Serrated Tussock), *Rosa rubignosa* (Sweet Briar) and *Xanthium spinosum* (Bathurst Burr) (EHP, 2021a).

Weeds are also an existing threat within the wider Study Area. For instance, salt tolerant weeds within the Port Phillip Bay (Western Shoreline) and Bellarine Peninsula Ramsar site pose a threat to saltmarsh and waterbird habitat (DELWP, 2020).

The abundance of weeds in the region is due to high existing development pressures, including agricultural and urban development.

POTENTIAL IMPACT PATHWAYS ASSOCIATED WITH DEVELOPMENT UNDER THE PLAN AND IDENTIFICATION OF MATTERS OR AREAS OF CONCERN

Generally speaking, development often has the potential to increase the spread and proliferation of weeds. One mechanism by which development can result in the spread of weeds is through the increased movement of people and materials. This may lead to plant seeds, spores or material being transported from one site to another. Typically, weed proliferation due to development occurs when weed matter is transported from an area of high weed density to a site with a low density of weeds. However, the high levels of existing weeds within the Strategic Assessment Area and more broadly, mean that development under the Plan is unlikely to result in the introduction of novel weed species into otherwise weed-free areas.

Development may also encourage weed invasion by degrading environments adjacent to development in a manner which promotes weed proliferation (for example, through nutrient enrichment). However, land within the Strategic Assessment Area is already substantially modified (largely due to agricultural development) and already has landscape processes in place which encourage weed growth (for example, through agricultural fertiliser application). For this reason, the landscape is already considered to be disturbed. It is unlikely that development under the Plan will exacerbate the risk of weed invasion due to habitat disturbance.

Altogether, the characteristics of the Strategic Assessment Area, including its existing high levels of weed density and disturbance, are such that it is unlikely that the Plan would exacerbate the existing level of threat posed by weeds in the region.

EXISTING STANDARD MITIGATION MEASURES

The planning system has existing general measures in place to address the spread of weeds from development. This includes a broad requirement for decision-making to account for the impacts of development on the spread of weeds (Clause 12.01-1S) and a requirement for subdivision applications to describe how the site will be managed prior to and during construction to protect the site and surrounding area from environmental degradation (Clause 56.08). The preparation of Weed Management Plans prior to the commencement of construction is included in the City's template of standard conditions, which will be applied by the City as a permit condition where considered appropriate.

ADDITIONAL MEASURES TO ADDRESS INDIRECT IMPACTS TO MNES

These existing, standard measures are considered adequate in addressing the potential indirect impacts of development on protected matters in relation to the spread of weeds.

17.2.4 PREDATION/COMPETITION BY PEST/DOMESTIC FAUNA

NATURE OF EXISTING THREAT IN REGION

Pest animals are an existing threat within the region. There is evidence the NWGGA is occupied by rabbits, hares and foxes (EHP, 2021a). Additionally, foxes, cats, rabbits, deer are identified as invasive species of concern at the Port Phillip Bay (Western Shoreline) & Bellarine Peninsula Ramsar site (DELWP, 2020). Other invasive fauna, such as rats, pigs, and goats, are also likely to be present in the wider area.

There is substantial existing development within the Geelong region, including urban and agricultural development. This existing development is likely to be contributing to a high density of invasive pests in the region.

POTENTIAL IMPACT PATHWAYS ASSOCIATED WITH DEVELOPMENT UNDER THE PLAN AND IDENTIFICATION OF MATTERS OR AREAS OF CONCERN

The Plan will result in establishment of new urban areas within the Strategic Assessment Area. Urban environments are widely recognised to be associated with higher densities of invasive fauna. Although the exact mechanisms for this are not well understood, possible mechanisms include (Gaertner *et al.*, 2017):

- Alteration of environmental features within and adjacent to urban environments such that native species are not well adapted to the environment, which can result in native species being more easily outcompeted. It is noted that habitat within the Strategic Assessment Area is already substantially altered from its natural state due to existing agricultural and residential development and has a high density of invasive flora. Subsequently, this is an existing threat, although development under the Plan may further exacerbate this threat
- Increased movement of people, vehicles, and material, which facilitates dispersal via transport vectors. The Strategic Assessment Area already has regular movements associated with existing development in the area. This is considered an existing threat which the Plan has potential to exacerbate through increasing the population density within the Strategic Assessment Area
- Urban environments acting as foci for the entry of invasive species/introduction of new species in the environment. As there is substantial existing urban development within the wider Geelong locality, this is considered an existing landscape threat within the Geelong region. It is unlikely that development under the Plan would substantially exacerbate this threat
- Urban areas supporting higher densities of domestic fauna which pose a threat to native species (such as cats and dogs). While domestic fauna are an existing threat within the Strategic Assessment Area associated with existing development, it is recognised that the Plan is likely to exacerbate this threat within and in proximity to urban development within the Growth Areas

EXISTING STANDARD MITIGATION MEASURES

The planning system has existing standard mitigation measures in place to address the potential increase and spread of pest animals from development. This includes a broad requirement for decision-making to account for the impacts of development associated with pest animals (Clause 12.01-1S) and a requirement for subdivision applications to describe how the site will be managed prior to and during construction to protect the site and surrounding area from environmental degradation (Clause 56.08).

The NWGGA Framework Plan also includes several mitigation-related actions relevant to managing pest animals. These mitigation-related actions will be further considered and given effect within each precinct as appropriate through the preparation of PSPs, which will be prepared in consideration of the framework plan. These measures are considered adequate to address the potential increase and spread of pest animals from the development.

Further, the City of Greater Geelong has a Domestic Animal Management Plan in place. This plan identifies how council protects the environment and local wildlife from the negative impacts from dogs and cats. It includes a range of measures including dog control orders to protect wildlife and the environment (particularly in coastal areas), in addition to a cat curfew order (which requires that cats are confined from sunset to sunrise) (The City of Greater Geelong, 2022).

ADDITIONAL MEASURES TO ADDRESS INDIRECT IMPACTS TO MNES

These existing measures are considered adequate in addressing the potential indirect impacts of development on protected matters in relation to predation or competition by pest or domestic fauna.

17.2.5 ALTERED FIRE REGIMES

NATURE OF EXISTING THREAT IN REGION

Native ecosystems within the Strategic Assessment Area require periodic fire to maintain long term biodiversity. Absence of fire, or fires that are too frequent or intense, can have a negative impact on ecosystems through altering plant species assemblages (which affects habitat and foraging resources), or through fauna mortality.

Fire regimes in the Strategic Assessment Area, as well as across the wider Study Area, are already substantially modified due to existing development. Altered fire regimes are therefore considered an existing landscape threat.

POTENTIAL IMPACT PATHWAYS ASSOCIATED WITH DEVELOPMENT UNDER THE PLAN AND IDENTIFICATION OF MATTERS OR AREAS OF CONCERN

Altered fire regimes due to development under the Plan may be caused by:

- Increased fire frequency due to arson and accidental lighting of fires
- Increased fire frequency due to the application of fire by authorities to manage fire risk
- In other cases, a lack of fire due to challenges in burns in proximity to human habitation

The threat of altered fire regimes is a long-term threat, occurring during both construction and operational phases of the development.

The areas which are most likely to be impacted are those which are in proximity to areas of development within the Growth Areas, and areas of infrastructure development outside of the Growth Areas. It is recognised that these areas already experience altered fire regimes due to existing disturbance. Subsequently, altered fire regimes are considered an existing threat. Although the development of new urban areas adjacent to newly established conservation areas in the NGGA and WGGA presents a set of issues relating to fire regimes that will need to be managed to protect the relevant MNES values.

EXISTING STANDARD MITIGATION MEASURES

The planning system has existing standard mitigation measures in place to address the risk of altered fire regimes and increased fire risk from development. This includes a broad requirement to ensure development can implement bushfire protection measures without unacceptable impacts to biodiversity through appropriate planning (Clause 13.02-1S). The Plan includes a commitment to continue to implement these standard mitigation measures to manage the indirect impacts of the development in accordance with the requirements of the Geelong Planning Scheme (Commitment 7).

ADDITIONAL MEASURES TO ADDRESS INDIRECT IMPACTS TO MNES

The Plan includes a commitment to implement several specific mitigation measures to address the indirect impacts of the development on the NGGA Conservation Area and the Cowies Creek Conservation Area, including establishing a conservation interface between urban development and these areas. The Plan also includes a commitment to prepare and implement a Conservation Management Plan for these areas that will provide for appropriate fire management to protect biodiversity values. These commitments will contribute to the protection of biodiversity values from impacts associated with inappropriate fire regimes.

17.2.6 DISTURBANCE FROM INCREASED PUBLIC ACCESS TO NATURAL AREAS

NATURE OF EXISTING THREAT IN REGION

Many of the publicly available natural areas in the Geelong region experience high visitation rates. Geelong already supports a substantial urban population and is also a popular tourist and recreational destination. Many of the natural areas, including nature reserves and coastal areas, are already developed and managed to support high volumes of recreational access. Disturbance from public access to natural areas is therefore an existing threat in the region.

POTENTIAL IMPACT PATHWAYS ASSOCIATED WITH DEVELOPMENT UNDER THE PLAN AND IDENTIFICATION OF MATTERS OR AREAS OF CONCERN

Development under the Plan will increase human activity within the Strategic Assessment Area and the surrounding region, through increasing the overall population of the area. This will increase the threat of disturbance from public access to natural areas. Areas which are most at risk are those within or in proximity to the Strategic Assessment Area, and those which are highly accessible within the region and/or which constitute a main attraction (such as popular beaches).

The threat of increased disturbance due to development under the Plan is long term and is associated with population density. For this reason, the risk will be minimal in the early stages of Plan implementation, and then will gradually increase over the life of the Plan as more urban development is completed and progressively occupied.

The impacts to protected matters from this threat due to development under the Plan is unlikely to be substantial. This is because natural areas within the Study Area already experience high visitation rates, associated with the existing population of the region and high visitor numbers. In the context of the scale of the existing threat in the region, the overall impact of the Plan is expected to be minimal.

A range of existing management measures are in place in the planning system which will help to mitigate this threat.

EXISTING STANDARD MITIGATION MEASURES

There are a number of reserves within the wider Geelong locality which support records and/or habitat for multiple protected matters. These include Limeburners Lagoon Flora and Fauna Reserve, Lake Connewarre Wildlife Reserve, The Spit Wildlife Reserve, and Breamlea Flora and Fauna Reserve. Each of these reserves is managed by Parks Victoria to protect and enhance flora and fauna values while supporting appropriate community use. Refer to Table 17-1 for further information on the characteristics of each reserve and existing management measures in place.

In addition to these reserves, there is also a region at Moolap which is managed for conservation purposes under the Moolap Coastal Strategic Framework Plan. This site also supports habitat and records of multiple protected matters, including threatened and migratory birds. Refer to Table 17-1 for further information.

Further, there are existing management frameworks to manage the impacts of domestic dogs in coastal environments. State-appointed independent land management authorities are responsible for large areas of coastline around the Bellarine Peninsula. These authorities develop dog orders for these coastal areas. Geelong City Council is then responsible for patrolling and enforcing dog orders. Dog orders include seasonal dog orders to protect endangered wildlife and coastal nesting birds (The City of Greater Geelong, 2022).

Table 17-1: Sites within the Geelong region with existing management in place to minimise human disturbance

Site	Site location and description	Existing management
Limeburners Lagoon Flora and Fauna Reserve	This reserve is located within Limeburners Bay and is part of the Port Phillip Bay (Western Shoreline) and Bellarine Peninsula Ramsar site. It is part of a broad, sandy estuarine inlet, with shallow tidal water. The inlet supports shoreline, sandy spit and seagrass environments.	This reserve is managed in partnership by the City and Parks Victoria. The following are not permitted: dogs, cats, other pets, horses, bicycles, fires, firearms, and vehicles (excluding management vehicles). (Parks Victoria, 2022b)
Lake Connewarre Wildlife Reserve	This reserve is located within the Lake Connewarre Complex and is part of the Port Phillip Bay (Western Shoreline) and Bellarine Peninsula Ramsar site. It is a large, shallow estuarine lagoon, and contains a diverse range of wetlands and vegetation including mangroves and saltmarsh communities.	This reserve is managed by Parks Victoria. The reserve is large and has variable restrictions in different areas of the reserve. Dogs are permitted on a leash in some locations and are prohibited in other areas. The following are prohibited in some areas, yet permitted in other areas: horses, vehicles (excluding management vehicles), firearms, camping, and generators. Fires are prohibited and boating zones apply throughout the reserve. (Parks Victoria, 2022d, 2022b, 2022c, 2022e, 2022a)
The Spit Wildlife Reserve	This reserve is located within the Port Wilson area and is part of the Port Phillip Bay (Western Shoreline) and Bellarine Peninsula Ramsar site. It contains sand spits, a lagoon, mudflats and areas of saltmarsh.	This reserve is managed by Parks Victoria. Public access to this reserve is partially restricted. At publicly accessible sites, dogs and vehicles (excluding management vehicles) are prohibited. Boating zones also apply (Parks Victoria, 2022f). Public access to some areas of the reserve is restricted and require a permit from Melbourne Water as the site is adjacent to the Werribee Sewage Farm (Conservation Volunteers Australia, 2022).
Breamlea Flora and Fauna Reserve	This reserve is located in the south of the Study Area associated with Thompson Creek. It supports saltmarshes and coastal dune environments.	This reserve is managed by Parks Victoria (The Breamlea Association, 2016). Dogs are not permitted within the reserve (The Breamlea Association, 2016).

Site	Site location and description	Existing management
'Wetlands and Former Saltworks Precinct' within the Moolap Coastal Strategic Framework Plan	The Moolap Coastal Strategic Plan outlines the management objectives and strategies for the Moolap area. The area covered by the Strategic Plan includes the Moolap IBA, in addition to areas of land outside of the IBA. The majority of the Moolap IBA is located in the 'Wetlands and Former Saltworks Precinct' of the Strategic Plan. The area includes salt pans separated by bunds (from a former saltworks) which is used as a feeding location by many migratory birds. Seagrass meadows occur in the shallow bay area adjacent to the salt bunds.	The overarching goal for the Precinct is that the area be managed and coordinated to prioritise environmental outcomes and to respond to existing values and risks. With regards to disturbance management, the Strategic Plan contains a range of strategies, including: • Facilitating while managing public access to enable recreation and passive enjoyment of the area while conserving environmental values • Avoiding and managing risks of domestic animals entering conservation areas • Avoiding boating and marine infrastructure where it would impact ecological values (DELWP, 2019)

ADDITIONAL MEASURES TO ADDRESS INDIRECT IMPACTS TO MNES

These existing measures are considered adequate in addressing the potential indirect impacts of development on protected matters in relation to disturbance from increased public access to natural areas.

17.2.7 FAUNA MORTALITY AND BARRIERS TO MOVEMENT

NATURE OF EXISTING THREAT IN REGION

Roads and traffic can result in mortality through vehicle strikes. There are multiple existing roads within and adjacent to the Strategic Assessment Area. The busiest road is Geelong Ring Road, a dual carriageway road which occurs along the southern boundary of NGGA and eastern boundary of WGGA. Other roads include highways and main roads which link rural centres in the wider region, and local roads which provide access to existing agricultural enterprises and residences. Traffic also occurs off public roads on agricultural land within the Strategic Assessment Area. Overall, fauna mortality from vehicle strike is an existing threat within the Strategic Assessment Area.

Roads and other linear structures such as fences and railways may also pose a threat to fauna by affecting fauna movements, either through preventing fauna movements or through discouraging fauna use of habitat due to disturbance. As outlined above, the Strategic Assessment Area already contains multiple roads. Fences are a further existing threat associated with existing agricultural land uses of the area. Overall, linear infrastructure that affects fauna movement is considered an existing threat within the Strategic Assessment Area.

Structures may cause fauna mortality. Examples include mortality from bird collisions with windows, or animals drowning in backyard pools. The Strategic Assessment Area includes existing agricultural and residential structures at a variable but mostly low density. This is therefore an existing threat within the Strategic Assessment Area. This threat is also present with greater severity in the wider landscape, particularly associated with existing urban, commercial, and industrial areas of Geelong.

Mortality may also occur due to secondary poisoning associated with pest control. This is an existing threat within the Strategic Assessment Area, primarily associated with existing agricultural land uses.

POTENTIAL IMPACT PATHWAYS ASSOCIATED WITH DEVELOPMENT UNDER THE PLAN AND IDENTIFICATION OF MATTERS OR AREAS OF CONCERN

Development under the Plan may increase the risk of fauna mortality associated with vehicle strikes within the Strategic Assessment Area. While this is an existing threat within the Strategic Assessment Area, the Plan will result in an increase in traffic density within this area associated with population density increases. The threat of fauna mortality associated with vehicle strikes under the Plan is a long-term threat and will gradually increase over the life of the Plan as the Growth Areas are developed and occupied. The areas which are of most concern with regards to vehicle strike are those in proximity to the NGGA and Cowies Creek Conservation Areas that will be established under the Plan.

It is unlikely that the Plan would result in an increased threat of vehicle strikes within the wider Study Area. This is because there is already a high traffic density associated with the large existing population of Geelong, combined with the large numbers of visitors to the region.

The Plan has the potential to exacerbate impacts to fauna movement by linear infrastructure within the Strategic Assessment Area by increasing the level of disturbance associated with existing linear infrastructure (e.g. through increasing traffic density on existing roads).

Impacts to fauna movement from linear infrastructure will occur over the long term and will gradually increase under the Plan as development progresses. Key areas of impact are areas of infrastructure development outside of the Growth Areas. It is unlikely that the Plan will exacerbate this threat across the wider Study Area given the existing high population density of the region and the existing levels of infrastructure development.

It is unlikely that the Plan would substantially increase the threat of mortality posed by new structures. This is because there is already a high density of similar development within the wider landscape. Further, none of the protected matters potentially impacted by the Plan are known to be threatened by mortality associated with the types of structures which will be constructed under the Plan.

It is also unlikely that the Plan would exacerbate the existing threat of mortality from secondary poisoning due to pest control. Given that the Strategic Assessment Area contains predominantly agricultural land, the use of chemical pest control in this area is considered an existing threat.

EXISTING STANDARD MITIGATION MEASURES

The planning system has existing standard mitigation measures in place to address the risk of fauna mortality and barriers to movement from development. This includes a broad requirement that decision-making account for the impacts of development on fragmentation of habitat and assist in the establishment and protection of links between important areas of biodiversity (Clause 21.05-3).

The NWGGA Framework Plan also includes several mitigation-related actions relevant to addressing barriers to movement, including establishing the habitat corridors shown in Plan 9 and Plan 17 of the framework plan and establishing riparian reserves shown in Plan 7 of the framework plan. These mitigation-related actions will be further considered and given effect within each precinct as appropriate through the preparation of PSPs, which will be prepared in consideration of the framework plan.

ADDITIONAL MEASURES TO ADDRESS INDIRECT IMPACTS TO MNES

These existing measures are considered adequate in addressing the potential indirect impacts of development on protected matters in relation to fauna mortality and barriers to movement.

17.2.8 DISTURBANCE DUE TO NOISE, DUST, OR LIGHT

NATURE OF EXISTING THREAT IN REGION

Noise pollution is an existing yet variable threat across the Strategic Assessment Area. The Strategic Assessment Area mostly comprises agricultural land. Agricultural areas are generally quiet, although agricultural activities (such as operation of machinery or livestock management) have potential to produce sporadic noise.

Existing noise pollution is a greater threat in the south-east of the Strategic Assessment Area, associated with existing urban and residential development, and with major roads (such as Geelong Ring Road). In these areas, noise pollution is a more constant feature of the environment associated with current land uses. Noise pollution is also recognised as an existing threat in the wider region, primarily associated with existing urban, commercial and industrial development within Geelong.

Dust is an existing threat within the Strategic Assessment Area due to agricultural practices. Agricultural activities within the Strategic Assessment Area have the potential to produce dust pollution in multiple ways. Examples include:

- Reducing vegetation cover (via cropping or grazing)
- Soil disturbance (e.g. via ploughing or earthworks)
- Processing or moving agricultural produce (such as grain)

- Movement of vehicles on unsealed farm roads

Potential dust pollution within the Strategic Assessment is a variable threat, with the risk of dust increased during periods of drought.

There is some existing light pollution within the Strategic Assessment Area. Most of the Strategic Assessment Area comprises agricultural land, which generally has limited light production. Instead, light pollution is primarily associated with urban environments and busy roads in the south-east of the Strategic Assessment Area. In the wider Study Area, the city of Geelong produces substantial light pollution due to its wide areas of urban development.

Potential impact pathways associated with development under the Plan and identification of matters or areas of concern

Development under the Plan will result in increased noise pollution within the Strategic Assessment Area. The areas most at risk include areas adjacent to development within the Growth Areas, and infrastructure development outside the Growth Areas where infrastructure is noise generating (such as new roads). Increased noise pollution will be long term and will occur during both the construction and operational stages of development.

However, the consequence of increased noise pollution within the Strategic Assessment Area will not be substantial. Firstly, noise pollution is an existing threat within the Strategic Assessment Area, as well as in the wider Study Area. Development under the Plan will therefore not result in the introduction of a novel threat to the region. Further, none of the protected matters which occur within the Strategic Assessment Area have noise pollution identified as a known threat. The potential for increased noise pollution under the Plan to negatively impact protected matters is therefore minimal.

Development under the Plan will not increase the risk of dust pollution. Dust pollution is considered a substantial existing threat within the Strategic Assessment Area due to agricultural activities. The Plan may result in dust production during the construction phases of development, and it will be important that CEMPs appropriately mitigate this risk. Further, the operational phase of the Plan is likely to result in an overall decrease in dust production, as an increase in hard surfaces within the Growth Areas would substantially reduce the area of exposed soil from which dust could be produced.

The Plan will increase light pollution within the Strategic Assessment Area at a local scale. The impact of increased lighting under the Plan will be long term. None of the protected matters which occur within the Strategic Assessment Area have noise pollution identified as a known threat.

There are multiple protected matters that occur within the Study Area which have potential to be impacted by light pollution at a landscape scale. Specifically, movement patters of migratory species protected under the EPBC Act can be affected by artificial light sources during migration. However, at a landscape scale, light pollution is an existing threat within the Study Area, and it is unlikely that the Plan would exacerbate this threat.

Existing standard mitigation measures

The planning system has existing standard mitigation measures in place to address the potential impacts from noise, dust and light from development on fauna. This includes a requirement for subdivision applications to describe how the site will be managed prior to and during construction to protect the site and surrounding area from environmental degradation (Clause 56.08). The preparation of Construction Environmental Management Plans prior to the commencement of construction is included in the City's template of standard conditions, which will be applied by the City as a permit condition on development where appropriate. The Plan includes a commitment to continue to implement these standard mitigation measures to manage the indirect impacts of the development in accordance with the requirements of the Geelong Planning Scheme (Commitment 7).

Additional measures to address indirect impacts to MNES

These existing measures are considered adequate in addressing the potential indirect impacts of development on protected matters in relation to disturbance due to noise, dust or light.

17.2.9 INADVERTENT IMPACTS ON ADJACENT HABITAT OR VEGETATION

NATURE OF EXISTING THREAT IN REGION

The Strategic Assessment Area is currently subjected to regular disturbance. This is primarily associated with agricultural activities, but also includes disturbance associated with residential areas, and maintenance of infrastructure such as roads. This existing disturbance has led to the degradation of environmental values within the Strategic Assessment Area, including lowered native biodiversity and simplified vegetation structure.

POTENTIAL IMPACT PATHWAYS ASSOCIATED WITH DEVELOPMENT UNDER THE PLAN AND IDENTIFICATION OF MATTERS OR AREAS OF CONCERN

The Plan has the potential to cause inadvertent impacts to habitat or vegetation adjacent to development sites. This threat is primarily a short-term threat during the construction phase of the development, yet also may occur in the long term at smaller site scales during the operational phase of the development as infrastructure and dwellings are sporadically modified or upgraded. This threat is most relevant to the NGGA and Cowies Creek conservation areas that will be established under the Plan, as well as to areas adjacent to infrastructure development outside of the Growth Areas.

The consequence of these potential impacts is reduced by the existing degradation within the Strategic Assessment Area, caused by existing development and associated disturbance regimes. Therefore, it is unlikely that potential inadvertent impacts to adjacent habitat or vegetation caused by the Plan would substantially exacerbate the existing level of threat to protected matters.

EXISTING STANDARD MITIGATION MEASURES

The planning system has existing general measures in place to address inadvertent impacts on adjacent habitat or vegetation. This includes a requirement for subdivision applications to describe how the site will be managed prior to and during construction to protect the site and surrounding area from environmental degradation (Clause 56.08). The preparation of Construction Environmental Management Plans prior to the commencement of construction and a requirement to clearly mark all vegetation to be retained at the site are included in the City's template of standard conditions, which will be applied by the City as a permit condition where considered appropriate.

ADDITIONAL MEASURES TO ADDRESS INDIRECT IMPACTS TO MNES

These existing measures are considered adequate in addressing the potential indirect impacts of development on protected matters in relation to inadvertent impacts to adjacent habitat or vegetation.

17.3 ANALYSIS OF THREAT ABATEMENT PLANS

17.3.1 INTRODUCTION

Threat Abatement Plans (TAPs) have been developed under the EPBC Act to address listed Key Threatening Processes (KTPs) and include actions to reduce their impact on threatened species and TECs.

Under section 4.6(b) of the ToR for this strategic assessment and under section 146K(2) of the EPBC Act, the impact assessment should address whether the actions under the Plan are inconsistent with any approved Threat Abatement Plans (TAPs).

Under section 4.6(c) of the ToR, the impact assessment must also consider how regard has been and will be given to relevant information in the TAPs.

The KTPs and TAPs which are potentially relevant to the Plan are identified in Section 17.3.2. Analysis of each of the relevant TAPs is then presented in Section 17.3.3 through to Section 17.3.8.

17.3.2 IDENTIFICATION OF RELEVANT EPBC KEY THREATENING PROCESSES AND THREAT ABATEMENT PLANS

Each of the possible impacts related to implementation of the Plan has been considered with regards to KTPs identified under the EPBC Act. All KTPs potentially associated with impacts under the Plan are identified in Table 17-2. TAPs which are associated with the potentially relevant KTPs are identified in Table 17-3.

Table 17-2: Key Threatening Processes (KTPs) associated with potential impacts under the Plan

Impact type	Impact sub-category	Relevant KTP listed under the EPBC Act
Direct impacts	-	• Land clearance
Indirect impacts	Water flows and quality	-
	Spread of infection/disease	• Infection of amphibians with chytrid fungus resulting in chytridiomycosis • Novel biota and their impact on biodiversity
	Spread of weeds	• Loss and degradation of native plant and animal habitat by invasion of escaped garden plants • Novel biota and their impact on biodiversity
	Predation/ competition by pest/domestic fauna	• Competition and land degradation by rabbits • Competition and land degradation by unmanaged goats • Predation by feral cats • Predation by the European red fox • Predation, habitat degradation, competition, and disease transmission by feral pigs (*Sus scrofa*) • Novel biota and their impact on biodiversity
	Altered fire regimes	• Fire regimes that cause declines in biodiversity
	Disturbance from increased public access to natural areas	-
	Fauna mortality, displacement, and barriers to movement	-
	Fauna disturbance due to noise, dust, or light	-
	Inadvertent impacts on adjacent habitat or vegetation	-
Cumulative impacts	-	-

Table 17-3: Threat Abatement Plans associated with potentially relevant Key Threatening Processes

Key threatening process	Related Threat Abatement Plan
Competition and land degradation by rabbits	Threat abatement plan for competition and land degradation by rabbits (DoEE, 2016a)
Competition and land degradation by unmanaged goats	Threat abatement plan for competition and land degradation by unmanaged goats (DEWHA, 2008a)
Fire regimes that cause declines in biodiversity	There is no relevant TAP
Infection of amphibians with chytrid fungus resulting in chytridiomycosis	Threat abatement plan for infection of amphibians with chytrid fungus resulting in chytridiomycosis (DoEE, 2016b)
Land clearance	There is no relevant TAP
Loss and degradation of native plant and animal habitat by invasion of escaped garden plants	There is no relevant TAP

Key threatening process	Related Threat Abatement Plan
Novel biota and their impact on biodiversity	There is no relevant TAP
Predation by feral cats	Threat abatement plan for predation by feral cats (DoE, 2015)
Predation by European red fox	Threat abatement plan for predation by the European red fox (DEWHA, 2008b)
Predation, Habitat Degradation, Competition and Disease Transmission by Feral Pigs	Threat abatement plan for predation, habitat degradation, competition and disease transmission by feral pigs (DoEE, 2017)

17.3.3 THREAT ABATEMENT PLAN FOR COMPETITION AND LAND DEGRADATION BY RABBITS

The goal of this TAP is to minimise the impact of competition and land degradation by rabbits (*Oryctolagus cuniculus*) on biodiversity. Rabbits are abundant in Australia and cause damage to native flora and fauna, vegetation communities and crops. Rabbits can affect threatened species and TECs by:

- Grazing on threatened native vegetation and therefore preventing regeneration
- Competing with threatened fauna species for food and shelter
- Reversing the normal processes of plant succession
- Altering ecological communities and changing soil structure and nutrient cycling, leading to significant erosion
- Removal of critical habitat for arboreal mammals and birds, leading to increased predation
- Supporting elevated population densities of pest predators such as foxes and feral cats
- Promoting growth of introduced and unpalatable species such as weeds (DoEE, 2016a)

OBJECTIVES AND ACTIONS UNDER THE TAP

The TAP sets out four objectives to achieve the goal, they are:

- Strategically manage rabbits at the landscape scale and suppress rabbit populations to densities below threshold levels in identified priority areas
- Improve knowledge and understanding of the impact of rabbits and their interactions with other species and ecological processes
- Improve the effectiveness of rabbit control programs
- Increase engagement of the community of the environmental impacts of rabbits and the need for integrated control

A set of actions have been identified to achieve the objectives of the TAP. There are five actions to support the strategic management of rabbits at a landscape scale. These relate to identifying priority areas for rabbit control on a regional scale, coordinating efforts across all land tenures such as private land and urban areas, and developing regular monitoring and reporting mechanisms to track progress.

There are three actions to improve knowledge and understanding of the impact of rabbits. These relate to further investigating the interaction of rabbits with other species and threats to improve rabbit control measures.

There are eight actions to improve the effectiveness of rabbit control programs through further research.

There are four actions to increase communication with stakeholders around the impacts caused by rabbits. These relate to developing training programs for land managers, promoting and seeking engagement from all people in the community and promoting adoption of model codes of practice for rabbit control (DoEE, 2016a).

RELEVANCE OF THE TAP TO THE PLAN

There is no likelihood of national rabbit eradication, so rabbit control is an ongoing issue across Australia. Current rabbit control programs focus on long-term management and suppression of rabbit populations.

Rabbits are an existing threat within the Geelong locality, with evidence that the NWGGA is currently occupied by the species (EHP, 2021a).

Development under the Plan is unlikely to exacerbate the threat posed by rabbits.

CONSISTENCY WITH THE TAP

The Plan is not inconsistent with the TAP on the basis that the Plan will not prevent any of the actions of the TAP from being implemented.

HOW REGARD HAS BEEN GIVEN FOR INFORMATION WITHIN THE TAP

The Strategic Assessment Report has had regard for the TAP through reviewing and considering information within the TAP and ensuring that:

- The Plan is not inconsistent with the TAP
- The Plan will not exacerbate threats associated with this TAP

17.3.4 THREAT ABATEMENT PLAN FOR COMPETITION AND LAND DEGRADATION BY UNMANAGED GOATS

The goal of this is TAP is to minimise the impact of competition and land degradation by unmanaged goats (*Capra hircus*) on biodiversity. Unmanaged goats are free-living and not owned, identified, restrained or managed. Unmanaged goats can affect threatened species and TECs by:

- Grazing on threatened native vegetation and therefore preventing regeneration
- Overgrazing and causing soil erosion
- Competing with threatened fauna species for food and shelter
- Introducing weeds through seeds carried in their dung
- Polluting watercourses (DEWHA, 2008a)

OBJECTIVES AND ACTIONS UNDER THE TAP

The TAP sets out five objectives to achieve the goal, they are:

- Prevent unmanaged goats occupying new areas and eradicate them from high conservation-value 'islands'
- Promote the maintenance and recovery of native species and ecological communities that are affected by competition and land degradation by unmanaged goats
- Improve knowledge and understanding of unmanaged goat impacts and interactions with other species and ecological processes
- Improve the effectiveness, target specificity and humaneness of control options for unmanaged goats
- Increase awareness of all stakeholders of the objectives and actions of the TAP, and of the need to control unmanaged goats (DEWHA, 2008a)

A set of actions accompanies each objective to help achieve the goal of the TAP. There are four actions to prevent unmanaged goats occupying new areas. These relate to collating data on areas of high conservation value and developing and implementing management plans for these areas.

There are three actions to promote the maintenance and recovery of native species and ecological communities that are affected by this threat. These relate to identifying priority areas to control unmanaged goats and conducting and monitoring goat control.

There are four actions to improve knowledge and understanding of unmanaged goat impacts and interactions. These relate to developing methods for assessing and monitoring the impact of unmanaged goats and improving knowledge of interactions between unmanaged goats and other key species.

There are seven actions to improve the control options for unmanaged goats. These relate to investigating ways to improve control methods and programs including:

- Improving self-mustering trap systems
- Assessing goat toxins for undesirable side effects
- Testing exclusion fence designs

- Developing training programs to help land managers
- Promoting the adoption and adaptation of the model codes of practice

There are two actions to increase awareness of stakeholders of the objectives and actions of the TAP which relate to the promotion of the objectives and actions in the TAP.

RELEVANCE OF THE TAP TO THE PLAN

There is little information to suggest that unmanaged goats are currently a problem in the Strategic Assessment Area. However, it is possible that goats are present as they present a widespread threat within Australia.

There are no activities under the Plan which are likely to lead to the introduction of unmanaged goats in the area, or which would otherwise exacerbate the threat of unmanaged goats.

CONSISTENCY WITH THE TAP

The Plan is not inconsistent with the TAP on the basis that the Plan will not prevent any of the actions of the TAP from being implemented.

HOW REGARD HAS BEEN GIVEN FOR INFORMATION WITHIN THE TAP

The Strategic Assessment Report has had regard for the TAP through reviewing and considering information within the TAP and ensuring that:

- The Plan is not inconsistent with the TAP
- The Plan will not exacerbate threats associated with this TAP

17.3.5 THREAT ABATEMENT PLAN FOR INFECTION OF AMPHIBIANS WITH CHYTRID FUNGUS RESULTING IN CHYTRIDIOMYCOSIS

The goal of this TAP is to minimise the impacts of amphibian chytrid fungus (*Batrachochytrium dendrobatidis*) on affected native species and ecological communities.

Chytrid fungus causes chytridiomycosis in amphibians which is a highly infectious disease that can be found in all areas in Australia except the Northern Territory. The fungus invades the surface layers of the skin and disrupts its normal function which results in electrolyte depletion and osmotic imbalance. This can affect the nervous system of some animals and paralysis, and ultimately death, occurs. Susceptibility to the disease varies between populations but the reasons for this are unknown (DoEE, 2016b).

OBJECTIVES AND ACTIONS UNDER THE TAP

The TAP sets out four objectives to help achieve the goal, they are:

- Improve understanding of the extent and impact of infection by amphibian chytrid fungus and reduce its spread to uninfected areas and populations
- Identify and prioritise key threatened amphibian species, populations and geographical areas and improve their level of protection by implementing coordinated, cost-effective on-ground management strategies
- Facilitate collaborative applied research that can be used to inform and support improved management of amphibian chytrid fungus
- Build scientific capacity and promote communication among stakeholders

A set of actions have been identified to achieve the objectives of the TAP. There are four actions to improve the understanding of infection by chytrid fungus and reduce its spread which relate to monitoring at-risk species, mapping the distribution of chytridiomycosis (and chytrid fungus), including control measures in amphibian translocation strategies, and ensuring appropriate hygiene protocols are implemented in chytrid-free areas.

There are six actions to support the identification and prioritisation of key threatened species, populations and geographical areas and the implementation of management strategies, which relate to completing risk assessments for high-priority species, implementing biosecurity measures around high-priority areas, and coordinating conservation efforts.

There are seven actions to facilitate research to improve management of chytrid fungus which include obtaining knowledge on:

- Assisted colonisation strategies
- The mechanisms for resistance
- The severity of chytrid fungus
- The best treatment protocols

There are three actions to build scientific capacity and promote communication among stakeholders which relate to developing an effective communication strategy, supporting a central information storage site, and encouraging participation in the National Chytrid Working Group.

RELEVANCE OF THE TAP TO THE PLAN

There is a known population of Growling Grass Frog which occurs within Cowies Creek in and adjacent to WGGA. This population occurs in an area currently developed for agriculture, upstream from nearby urban development. It is noted that Cowies Creek has variable levels of salinity, with some areas considered saline (EHP, 2021a). It is possible that the salinity of Cowies Creek offers this population of the Growling Grass Frog some protection from chytrid fungus.

Overall, chytrid fungus is an existing landscape threat. Implementation of the Plan is not likely to exacerbate this threat. However, ongoing monitoring of the Growling Grass Frog population will be important to understand and mitigate any potential negative affects due to hydrological changes.

CONSISTENCY WITH THE TAP

The Plan is not inconsistent with the TAP on the basis that the Plan will not prevent any of the actions of the TAP from being implemented.

HOW REGARD HAS BEEN GIVEN FOR INFORMATION WITHIN THE TAP

The Strategic Assessment Report has had regard for the TAP through reviewing and considering information within the TAP and ensuring that:

- The Plan is not inconsistent with the TAP
- The Plan will not exacerbate threats associated with this TAP

17.3.6 THREAT ABATEMENT PLAN FOR PREDATION BY FERAL CATS

The goal of this TAP is to minimise predation of native species by feral cats (*Felis catus*).

Feral cats are found throughout all habitats in mainland Australia and Tasmania and on some offshore islands. They are known to have a devastating effect on native fauna, predominantly from predation but also through competition and disease transmission (DoE, 2015).

OBJECTIVES AND ACTIONS UNDER THE TAP

The TAP sets out four objectives to achieve the goal, they are:

- Effectively control feral cats in different landscapes
- Improve effectiveness of existing control options for feral cats
- Develop or maintain alternative strategies for threatened species recovery
- Increase public support for feral cat management and promote responsible cat ownership

A set of actions have been identified to help achieve the objectives of the TAP. There are nine actions to improve the control of feral cats in different landscapes which relate to further research and development of current and new feral cat control options, improving understanding of the interactions between feral cats and other predators, and development of Code of Practice and/or Standard Operating Procedures for new tools.

There are four actions to improve the effectiveness of existing feral cat control options which relate to understanding how best to encourage land managers to include cat management programs within their activities, providing

information regarding best practice methods and standard operating procedures, and implementing a consistent regulatory approach across all state and territory governments.

There are five actions to support the investigation of alternative strategies for threatened species recovery which include eradicating or controlling cats in priority areas, implementing, or improving biosecurity measures in cat-free areas, and creating fenced reserves to support the recovery of threatened species.

There are four actions to increase public support for cat management which relate to increasing awareness and understanding about:

- The threat to biodiversity posed by cats
- The need for responsible cat ownership
- The containment of cats where their roaming may impact priority areas

Relevance of the TAP to the Plan

Total eradication of feral cats is not currently feasible and cat control is an ongoing issue across Australia. Current control programs focus on long-term management and suppression of feral cat populations.

Existing land use within the Growth Areas and surrounding region includes residential areas and farming, which means cats are unlikely to pose a novel threat to native fauna in the area. However, proposed new urban development under the Plan means the threat is likely to be exacerbated. The main areas of concern relate to new urban development in proximity to the NGGA Conservation Area, and in proximity to Cowies Creek in WGGA.

The existing standard mitigation measures are considered adequate in addressing the potential indirect impacts of development on protected matters in relation to predation or competition by pest or domestic fauna.

Consistency with the TAP

The Plan is not inconsistent with the TAP on the basis that the Plan will not prevent any of the actions of the TAP from being implemented.

How regard has been given for information within the TAP

The Strategic Assessment Report has had regard for the TAP through reviewing and considering information within the TAP and ensuring that:

- The Plan is not inconsistent with the TAP
- The Plan will not exacerbate threats associated with this TAP

17.3.7 THREAT ABATEMENT PLAN FOR PREDATION BY EUROPEAN RED FOX

The goal of this TAP is to minimise the impact of the European red fox (*Vulpes Vulpes*) on biodiversity in Australia (DEWHA, 2008b).

The European red fox can be found all over the Australian mainland, apart from in the far North. Fox predation is a threat to many threatened fauna species, in particular terrestrial mammals and ground-nesting birds.

Objectives and actions under the TAP

The TAP sets out four objectives to achieve the goal, they are:

- Prevent foxes occupying new areas in Australia and eradicate foxes from high-conservation-value 'islands'
- Promote the maintenance and recovery of native species and ecological communities that are affected by fox predation
- Improve knowledge and understanding of fox impacts and interactions with other species and other ecological processes
- Improve the effectiveness, target specificity, integration, and humaneness of control options for foxes
- Increase awareness of all stakeholders of the objectives and actions of the TAP, and of the need to control and manage foxes

A set of actions have been identified to help achieve the objectives of the TAP. There are four actions to prevent foxes occupying new areas in Australia which relate to collating data on areas with high conservation values, developing and implementing management plans, and eradicating populations of foxes from lands adjacent to priority areas.

There are three actions to promote the recovery of native species and ecological communities that are affected by fox predation which relate to identifying priority areas for fox control and undertaking and monitoring fox control at these locations.

There are five actions to improve the knowledge and understanding of fox impacts which relate to developing methods for monitoring foxes, exploring the interactions between foxes, feral cats, wild dogs, and rabbits, and estimating the costs of impacts from foxes.

There are seven actions to improve the control options for foxes which relate to investigating existing and new control techniques, developing training programs for land managers, and promoting best practice standards.

There is one action to increase awareness of the need to control and manage foxes which relates to ensuring that the actions in the TAP are better communicated.

Relevance of the TAP to the Plan

Foxes are an existing threat within the Geelong locality, with evidence that the NWGGA is currently occupied by the species (EHP, 2021a).

Development under the Plan is unlikely to exacerbate the threat posed by foxes.

Consistency with the TAP

The Plan is not inconsistent with the TAP on the basis that the Plan will not prevent any of the actions of the TAP from being implemented.

How regard has been given for information within the TAP

The Strategic Assessment Report has had regard for the TAP through reviewing and considering information within the TAP and ensuring that:

- The Plan is not inconsistent with the TAP
- The Plan will not exacerbate threats associated with this TAP

17.3.8 THREAT ABATEMENT PLAN FOR PREDATION, HABITAT DEGRADATION, COMPETITION AND DISEASE TRANSMISSION BY FERAL PIGS (*SUS SCROFA*)

The goal of this TAP is to prevent further species and ecological communities from becoming threatened or extinct due to the impacts of feral pigs.

Feral pigs are widespread throughout Australia and can affect threatened species and ecological communities by:

- Consuming threatened fauna species
- Destroying threatened flora species
- Altering ecological parameters such as plant species composition and succession, nutrient and water cycles, and water quality
- Changing the composition of threatened plant communities
- Altering soil structure
- Increasing the spread of weeds
- Spreading animal diseases such as leptospirosis, brucellosis, and plant pathogens such as *Phytophthora cinnamomic* (DoEE, 2017)

OBJECTIVES AND ACTIONS UNDER THE TAP

The TAP sets out six objectives to achieve the goal, they are:

- Prioritise key species, ecological communities, ecosystems, and locations across Australia for strategic feral pig management
- Encourage the integration of feral pig management into land management activities at regional, state and territory, and national levels
- Encourage further scientific research into feral pig impacts on nationally threatened species and ecological communities, and feral pig ecology and control
- Record and monitor feral pig control programs, so their effectiveness can be evaluated
- Build capacity for feral pig management and raise feral pig awareness amongst landholders and land managers
- Improve public awareness about feral pigs and the environmental damage and problems they cause, and the need for the feral pig control

A set of actions have been identified to help achieve the objectives of the TAP. There are two actions to support strategic feral pig management which include identifying priority species, ecological communities, ecosystems, and locations for priority protection, and implementing control measures in these areas.

There is one action to support the integration of feral pig management into land management activities which relates to encouraging government departments and agencies, and regional groups, to integrate feral pig management into their land management activities.

There are four actions to encourage further scientific research into feral pig impacts which include undertaking more research into:

- Feral pig impacts
- Feral pig population dynamics and ecology
- Special and temporal use of landscapes by feral pigs
- The effectiveness of feral pig control methods

There are three actions to evaluate the effectiveness of feral pig control programs which relate to developing better monitoring techniques and encouraging centralised recording of feral pig control actions.

There are two actions to raise feral pig awareness amongst landholders and land managers which relate to increased delivery of training programs to build feral pig management skills and improve the understanding of special impediments to feral pig control.

There are two actions to improve public awareness about feral pigs which include developing a public education program about feral pigs and the environmental damage and problems they could cause.

RELEVANCE OF THE TAP TO THE PLAN

Feral pigs are widely established in Australia, and it is not currently possible to completely eradicate them (DoEE, 2017).

There is little information to suggest that feral pigs are currently a problem in the Strategic Assessment Area. However, it is possible that feral pigs are present as they present a widespread threat within Australia.

There are no activities under the Plan which are likely to lead to the introduction of feral pigs in the area, or which would otherwise exacerbate the threat of feral pigs.

CONSISTENCY WITH THE TAP

The Plan is not inconsistent with the TAP on the basis that the Plan will not prevent any of the actions of the TAP from being implemented.

HOW REGARD HAS BEEN GIVEN FOR INFORMATION WITHIN THE TAP

The Strategic Assessment Report has had regard for the TAP through reviewing and considering information within the TAP and ensuring that:

- The Plan is not inconsistent with the TAP
- The Plan will not exacerbate threats associated with this TAP

18 Relevant protected matters

18.1 INTRODUCTION

This Chapter lists the relevant protected matters for the assessment.

The 'relevant protected matters' are defined in the ToR as *"…each protected matter that may be impacted directly, indirectly and/or cumulatively by actions proposed to be taken under the Plan"*.

The methods used to identify these matters according to this definition are described in Chapter 12 of Part 3 of this report. As described in Chapter 12, identification of the relevant protected matters was undertaken using different methods for each of the following groups:

- Commonwealth threatened listed threatened species and species on the FPAL
- Commonwealth listed threatened ecological communities
- Commonwealth listed migratory species
- Wetlands of international importance (listed under the Ramsar Convention)
- Commonwealth land
- World heritage properties and national heritage properties

Matters that were considered relevant were assigned to 'Category 1' and assessed in detail in Part 4 of this report. Category 1 matters were those that were considered at risk of direct, indirect, or cumulative impacts due to implementation of the Plan.

Matters that were identified and examined but determined not to be relevant based on the definition of 'relevant protected matters' provided by the ToR were assigned to 'Category 2'. These matters are not at risk of direct, indirect, or cumulative impacts due to implementation of the Plan or are not reliant on or present within the Strategic Assessment Area. For these matters, no further assessment is required.

The detailed analysis and results of the categorisation process are presented in Attachment A.

18.2 CATEGORISATION RESULTS

18.2.1 THREATENED SPECIES AND ECOLOGICAL COMMUNITIES AND FPAL SPECIES

A total of 20 threatened species have been identified as Category 1 species requiring detailed assessment. These include:

- Flora:
  - *Lachnagrostis adamsonii* (Adamson's Blown-grass)
  - *Pimelea spinescens* subsp. *spinescens (*Spiny Rice-flower)
- Fauna:
  - *Botaurus poiciloptilus* (Australasian Bittern)
  - *Calidris canutus* (Red Knot)
  - *Calidris ferruginea* (Curlew Sandpiper)
  - *Calidris tenuirostris* (Great Knot)
  - *Charadrius leschenaultii* (Greater Sand Plover)
  - *Charadrius mongolus* (Lesser Sand Plover)
  - *Delma impar* (Striped Legless Lizard)
  - *Galaxiella toourtkoourt* (Eastern Dwarf Galaxias) (previously *Galaxiella pusilla*)
  - *Limosa lapponica baueri* (Western Alaskan Bar-tailed Godwit)
  - *Litoria raniformis* (Growling Grass Frog)
  - *Nannoperca obscura* (Yarra Pygmy Perch)
  - *Neophema chrysogaster* (Orange-bellied Parrot)

- *Neophema chrysostoma* (Blue-winged Parrot)
- *Numenius madagascariensis* (Eastern Curlew)
- *Prototroctes maraena* (Australian Grayling)
- *Rostratula australis* (Australian Painted Snipe)
- *Sternula nereis nereis* (Australian Fairy Tern)
- *Synemon plana* (Golden Sun Moth)

It is noted that further work is required to categorise the Victorian Grassland Earless Dragon (*Tympanocryptis pinguicolla*). Until recently, the species was considered likely to be extinct in Victoria. The species was excluded from targeted surveys of the Growth Areas as the species was presumed to be extinct in Victoria at the time (EHP, 2021b). The Study Area may provide habitat for the Grassland Earless Dragon. Targeted field investigations are now planned for the coming 2023/2024 summer within the likely distribution of the species. This work will inform the need for a detailed assessment of potential impacts. The outcomes of these surveys and any associated assessment will be presented in the final Strategic Assessment Report. Refer to Appendix A for further detail.

One TEC has been identified as a Category 1 TEC requiring detailed assessment. This TEC is Natural Temperate Grassland of the Victorian Volcanic Plain.

Refer to Attachment A for a detailed overview of results.

18.2.2 MIGRATORY SPECIES

A total of seven non-threatened species have been identified as Category 1 species requiring detailed assessment. All non-threatened migratory species requiring assessment are migratory birds. These include:

- *Calidris acuminata* (Sharp-tailed Sandpiper)
- *Calidris ruficollis* (Red-necked Stint)
- *Charadrius bicinctus* (Double-banded Plover)
- *Gallinago hardwickii* (Latham's Snipe)
- *Sternula albifrons* (Little Tern)
- *Tringa nebularia* (Common Greenshank)
- *Tringa stagnatilis* (Marsh Sandpiper)

Note that there are also six threatened migratory species which have been assigned to Category 1 as part of the threatened species categorisation process. These species are assessed within the threatened fauna chapter (Chapter 19). They include:

- *Calidris canutus* (Red Knot)
- *Calidris ferruginea* (Curlew Sandpiper)
- *Calidris tenuirostris* (Great Knot)
- *Charadrius leschenaultii* (Greater Sand Plover)
- *Charadrius mongolus* (Lesser Sand Plover)
- *Numenius madagascariensis* (Eastern Curlew)

Refer to Attachment A for a detailed overview of results.

18.2.3 RAMSAR WETLANDS

One Ramsar site, the Port Phillip Bay (Western Shoreline) and Bellarine Peninsula, was identified within the Study Area. Areas of this Ramsar site are located downstream of the Growth Areas and have the potential to be indirectly impacted by development under the Plan. The site has been assigned to Category 1 for detailed assessment.

18.2.4 COMMONWEALTH LAND

Four Commonwealth land sites were identified through the PMST report. They are:

- AIRTC Geelong. This site occurs more than 3 km to the south of the Strategic Assessment Area in a built up area of Geelong
- Avalon Airfield. This site occurs more than 6 km to the east of the Strategic Assessment Area
- Myers Street (opp. Geelong Hospital). This site occurs approximately 4 km to the south of the Strategic Assessment Area in a built up area of Geelong
- Point Wilson Explosives Area. This site occurs more than 13 km to the east of the Strategic Assessment Area

The existing landscape context of the sites and the distance to the Growth Areas means that impacts to Commonwealth land will not occur as a result of implementation of the Plan. All sites were assigned to Category 2.

18.2.5 WORLD HERITAGE PROPERTIES, NATIONAL HERITAGE PROPERTIES

No world heritage properties or national heritage places were identified through this search. No further assessment was undertaken of these matters.

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Environmental consulting

MAY 2023

DRAFT NWGGA STRATEGIC ASSESSMENT REPORT

PUBLIC EXHIBITION VERSION

PART 4: IMPACT ASSESSMENT

CHAPTER 19 – LISTED THREATENED FAUNA

CHAPTER 20 – LISTED THREATENED FLORA

CHAPTER 21 – LISTED THREATENED ECOLOGICAL COMMUNITIES

CHAPTER 22 – RAMSAR WETLANDS

CHAPTER 23 – MIGRATORY SPECIES

CHAPTER 24 – FINALISED PRIORITY ASSESSMENT LIST (FPAL)

CHAPTER 25 – CUMULATIVE IMPACT ASSESSMENT

CHAPTER 26 – SOCIO-ECONOMIC IMPACT ASSESSMENT

PREPARED FOR THE CITY OF GREATER GEELONG

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19 Listed threatened fauna

This chapter assesses the potential impacts of the Plan on fauna species listed as threatened under the EPBC Act.

The categorisation process for the assessment identified 18 threatened fauna species which may potentially be impacted by implementation of the Plan. Sections 19.1 to 19.5 assess the potential impacts of the Plan on these species.

Refer to Section 12.3 of Chapter 12 for the method used to identify relevant protected matters.

KNOWN TO OCCUR WITHIN THE GROWTH AREAS

Three threatened fauna species are known to occur within the Growth Areas and are assessed in this section. They are:

- Golden Sun Moth
- Growling Grass Frog
- Striped Legless Lizard

19.1 GOLDEN SUN MOTH (*SYNEMON PLANA*)

SPECIES BACKGROUND

This section sets out the basic information about the species. It provides an overview of the species' ecology, distribution, habitat, populations and threats. These provide context for the impact assessment. At the end of the section are links to key species' documents that provide additional background information.

EPBC ACT LISTING	Vulnerable
DESCRIPTION	Golden Sun Moth (GSM) (*Synemon plana*) is a medium-sized day-flying moth. The sexes are distinguished by wing colour. Males are dark brown with pale grey patterning and a hind wing that is dark bronze-brown with dark brown patches. Females are dark grey with pale grey patterning and a hind wing that is bright orange with black submarginal spots (DAWE, 2021a).
ECOLOGY	The life cycle of GSM comprises an underground stage (egg, larva and pupa) that can last up to 2 or 3 years, and an adult stage that lasts only a few days. Females lay their eggs at the base of grass tussocks. Once hatched, the larvae develop underground where they feed on the roots of the tussocks. Pupation occurs in Spring and the adults emerge during the breeding season, which is between mid-October to early January. Adults have no functional mouth parts and do not feed. They are most active during sunny, still, warm to hot days when males can be found patrolling habitat for females by flying about 1 m above the ground in rapid, short bursts during late morning and early afternoon. Males are capable of active and prolonged flight, though are unlikely to travel long distances (greater than 100 m) away from suitable habitat. Females are typically active later in the afternoon and are semi-flightless, flashing their bright wings in sedentary positions. After mating, females lay their eggs and then the adult moths die (DAWE, 2021a).
DISTRIBUTION AND HABITAT	GSM is found in grassland habitat in south-eastern Australia. Its distribution ranges from central NSW between Parkes and Bathurst, through the ACT, down to central and western Victoria and just across the border to eastern South Australia. The Extent of Occurrence and Area of Occupation are currently understood to be 145,322 km² and 1,596 km² respectively (DAWE, 2021a). Within Victoria, 11 Local Government Areas are recognised as important for the species (SWIFFT, 2022a). The species is known to occur within the City of Greater Geelong, however it is not listed as an important LGA. Habitat for GSM comprises generally flat or gently sloping areas exposed to full sun that contain (or have once contained) native grassland, open grassy woodlands and secondary grasslands that retain a component of larval food species. Previously, GSM was only thought to occur in

	grasslands dominated by species from the genus *Rytidosperma*, or Wallaby Grass. However, GSM is also known to occur in degraded areas that retain some native larval food species, or have been invaded by the introduced Needlegrass species such as Chilean Needle-grass *Nassella neesiana*, which is also a known food plant (DAWE, 2021a). Despite this, it is important to note that the natural habitat of GSM is native grasslands which include Wallaby-grass *Rytidosperma* and Spear-grass *Austrostipa* species ((SWIFFT, 2022a). The species Conservation Advice refers to important (or high quality) habitat areas as those comprising (DAWE, 2021a): *"…medium to large sites containing native grassland with an abundant component of larval food species (i.e., Rytidosperma spp. and/or Austrostipa spp.) with low weed cover, inter-tussock spaces, and land-use/management that is consistent with the ecological values of the site."* According to the Conservation Advice, large subpopulations, or smaller, well-connected subpopulations that occur within high quality habitat are likely to be important in the long-term maintenance of the species, including maintenance of genetic diversity and long-term evolutionary development. The definition of habitat critical to the survival of the species is yet to be resolved, but is currently defined broadly as (DAWE, 2021a): *"…all native grassland and open grassy woodland habitat occupied by the species across its range…* [as well as] *…sites occurring at or toward the limit of the species range, or sites that are a long distance from other known subpopulations".*
POPULATIONS	According to the Conservation Advice, GSM is known from 164 sites (DAWE, 2021a). Of these, 104 sites occur in Victoria. Sites separated by distances of greater than 200 m are likely to be geographically isolated. Genetic differentiation among subpopulations is correlated with geographic distance. The Victorian subpopulations are evolutionarily distinct from the NSW/ACT subpopulations, and represent evolutionarily significant units (DAWE, 2021a).

THREATS	The Conservation Advice (DAWE, 2021a) for the species has identified a number of threats, including:
	• Habitat loss, degradation, and fragmentation, including:
	  ○ Land clearing for urban development and agriculture
	  ○ Soil disturbance, due to laying of infrastructure, driving of vehicles and other machinery on wet soil, activities such as ploughing, cultivation and ripping, and due to rabbit burrows
	  ○ Inappropriate removal of biomass from grasslands, including lack of biomass removal, or intense grazing and/or mowing
	  ○ Application of chemicals such as herbicides, pesticides, or fertilisers
	  ○ Planting and / or regeneration of shrubs / trees
	• Invasive species, including:
	  ○ Weed invasion
	  ○ Habitat degradation by rabbits
	• Installation of artificial structures which increases predation by native and introduced birds
	• Inappropriate fire regimes

RELEVANT PLANS AND POLICIES	Conservation Advice for *Synemon plana* (Golden Sun Moth) (DAWE, 2021a) Threat abatement plan for competition and land degradation by rabbits (DoEE, 2016a)
SPECIES-SPECIFIC GUIDELINES	There are no current Significant Impact Guidelines or other species-specific policy statements for the GSM. However, significant impact guidelines have been prepared for the species when it was listed as Critically Endangered - Significant impact guidelines for the critically endangered golden sun moth (Synemon plana): Nationally threatened species and ecological communities EPBC Act policy statement 3.12 (DEWHA, 2009e)
SPRAT LINK	http://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=25234

APPROACH TO BASELINE DATA

This section provides a summary of the baseline information used in the assessment. It sets out:

- *An overview of the habitat mapping for the species within and outside the Growth Areas*
- *An overview of the population mapping for the species*

Please refer to Chapter 13 for further details about the approach to threatened species baseline data, including a description of the different types and sources of data, as well as some discussion on the interpretation and suitability of the data for use in the impact assessment.

HABITAT MAPPING	**WITHIN THE SURVEYED AREAS OF THE GROWTH AREAS**

	Habitat mapping for the impact assessment within the surveyed areas of the Growth Areas used the following data sources:
	• EHP survey results (EHP, 2021)
	• Landholder survey results (Nature Advisory, 2021)
	The following categories of habitat were created using this data:
	• Higher potential native habitat, comprising areas that contain both:
	  ○ EHP-mapped GSM habitat
	  ○ Areas mapped as native vegetation as part of landholder surveys
	• Moderate potential native habitat, comprising areas that contain both:
	  ○ EHP-mapped GSM habitat
	  ○ EHP-mapped native vegetation within areas not subject to landholder surveys
	• Lower potential native habitat, comprising areas that contain both
	  ○ EHP-mapped GSM habitat
	  ○ Areas identified as non-native vegetation as part of landholder surveys
	• Non-native habitat, comprising areas that contain both:
	  ○ EHP-mapped GSM habitat
	  ○ Areas of non-native vegetation according to both EHP surveys and landholder surveys

	WITHIN THE UNSURVEYED AREAS OF THE GROWTH AREAS
	A combination of DELWP's GSM HIM (DELWP, 2017d) and DELWP's EVC mapping for EVC 132 (Plains Grassland) (DELWP, 2005) was used to provide an indication of potential habitat extent within the unsurveyed areas of the Growth Areas
	OUTSIDE THE GROWTH AREAS
	Habitat mapping across the broader Strategic Assessment Area and Study Area was based on the GSM HIM prepared by DELWP (DELWP, 2017d)
POPULATION MAPPING	**RECORD SELECTION**
	Species records were compiled from the VBA and surveys undertaken by EHP. The VBA records were filtered to remove records prior to 1990 for the purpose of the impact assessment
	RECORD DOWNLOAD DATE
	VBA records for GSM used in this assessment were downloaded in June 2022
	POPULATION DEFINITION
	The population of GSM identified within the NWGGA is considered one population given the connectivity of habitat and continuity of survey records

OCCURRENCE IN THE STUDY AREA

This section describes the occurrence of the species in the Study Area. It includes reference to maps of records and habitat which can be viewed as separate files. The map provides critical context for the assessment and should be viewed in conjunction with the text presented in this assessment. This section also provides a qualitative description of where records and habitat occur.

See Map 19-1 for a map of records and habitat across the Study Area. See Map 19-2 for a map for records and habitat within the Strategic Assessment Area, and Map 19-3 for a map of habitat within the Strategic Assessment Area.

19.1.1 SPECIES RECORDS

Occurrence within the Growth Areas

Targeted surveys were undertaken for GSM within the Growth Areas between November 2019 and December 2020 (EHP, 2021). A population of GSM comprised of over 2,000 individuals was confirmed to occur within the NGGA (see Map 19-2). These records are considered to represent a single population based on the continuity of records and associated habitat across the NGGA.

GSM was not recorded within the WGGA (EHP, 2021).

Occurrence within the Strategic Assessment Area and broader Study Area

There are two VBA records of GSM within the Strategic Assessment Area. These records occur between the north-east Strategic Assessment Area boundary and NGGA boundary.

There are 392 VBA records of GSM across the broader Study Area. The most recent of these was recorded in 2019. Records across the Study Area occur mostly in four areas, including near Avalon, north of Little River, near Lethbridge, and in an area approximately 2 km north of the Strategic Assessment Area.

Given the level of homogeneity across the landscape in terms of current land use and historical native grassland extent, the species is likely to be more widespread in the Study Area than indicated by records. The current number and distribution of historical records is more likely to reflect the level of targeted survey effort rather than the actual occurrence of the species for the following reasons:

- The distribution of records does not reflect a clear pattern of habitat availability for the species in this region
- The species is less likely to be opportunistically sighted given the restricted window of emergence and detectability
- Records are generally clustered according to date in discrete locations across the landscape, which is likely to represent particular survey events

On this basis, the abundance and density of records within the NGGA is considered to be reflective of survey effort, rather than the importance of the site for the species relative to the broader landscape.

19.1.2 POTENTIAL HABITAT

Habitat within the surveyed areas of the Growth Areas

Targeted surveys within the Growth Areas have informed baseline habitat mapping for GSM. Potential habitat for the species occurs within the NGGA, while the WGGA is unlikely to support the species.

The species Conservation Advice notes that all occupied habitat is considered important to the recovery of the species. However, it places the greatest emphasis on the importance of native habitat compared to non-native habitat and identifies high quality habitat as "*medium to large sites containing native grassland with an abundant component of larval food species (i.e., Rytidosperma spp. and/or Austrostipa spp.) with low weed cover, inter-tussock spaces, and land-use/management that is consistent with the ecological values of the site*" (DAWE, 2021a).

The EHP surveys found the Growth Areas to be dominated by non-indigenous grasses and weeds (i.e., pasture grasses), which reflects the region's long history of agricultural use. Much of the indigenous vegetation and terrestrial fauna habitat remaining within the Growth Areas was found confined to riparian corridors in the WGGA (i.e., Moorabool River, Cowies Creek), or agricultural areas not subjected to historical cropping. Native vegetation, where present, was highly modified, generally lacking structure and exhibiting a low diversity of native species.

Subsequent site visits as part of the Strategic Assessment process, as well as the results of landholder surveys, have confirmed these findings and shown an increased prevalence of weeds since the time of the EHP surveys in 2019 and 2020. This indicates a declining trend in the condition of native vegetation (Peter Wlodarczyk pers comms.).

Much of habitat within the NGGA is unlikely to represent an important or high quality area necessary for the long-term maintenance of the species (as described in the Conservation Advice (DAWE, 2021a)), due to the level of weeds, land modification, and rate of decline. To distinguish between native vs non-native habitat for the assessment of impacts to GSM and to reflect this declining trend in condition, habitat within the surveyed areas of the Growth Areas has been mapped according to the following categories:

- Higher potential native habitat, which identifies the habitat areas with the greatest likelihood of supporting native vegetation based on the result of EHP surveys and the more recent landholder surveys
- Moderate potential native habitat, which identifies the habitat areas that have the potential to still support native vegetation identified through the EHP surveys, but recognising the declining trend in condition observed elsewhere in the Growth Areas and lack of more recent surveys for these areas
- Lower potential native habitat, which identifies the habitat areas which have likely declined since the time of EHP surveys and are no longer expected to support native vegetation, based on the results of more recent landholder surveys
- Non-native habitat, which identifies areas of GSM habitat which do not support native vegetation

Table 19-1 provides the area of each habitat category mapped within the surveyed areas of the NGGA.

Table 19-1: Golden Sun Moth habitat occurring within surveyed areas of the NGGA

Habitat category	Area of habitat within the surveyed areas of the NGGA (ha)	Percentage of total habitat within the surveyed areas of the NGGA
Higher potential native habitat	26.1	3.9 %
Moderate potential native habitat	66.6	9.8 %
Lower potential native habitat	38.3	5.7 %
Non-native habitat	545.3	80.6 %
Total	**676.3**	-

Habitat within the unsurveyed areas of the Growth Areas

There is potential for GSM to occur within the unsurveyed areas of the Growth Areas. However, these areas generally comprise many small, rural residential landholdings which are fragmented by windrows/landscaping and have a much higher proportion of land use for dwellings and driveways compared to the broader Growth Areas. The environment within these unsurveyed areas tends to be more modified or degraded as a result.

This rural residential land use minimises the likelihood that the properties support significant areas of suitable, high quality or native habitat for the GSM or an abundance of the species. However, in the absence of targeted surveys and recognising the potential for some areas of GSM habitat to occur, an estimate of potential habitat has been determined for the unsurveyed areas using the following method:

- It has been assumed that the entirety of the two unsurveyed blocks of land along the western boundary of the NGGA support potential GSM habitat based on their location adjacent to mapped surveyed habitat and the apparent continuity of land use. These two blocks contribute around 42 ha of potential habitat
- The remaining areas of unsurveyed land comprise the rural residential blocks, which are expected to support a reduced or more fragmented distribution of potential habitat which reflects the different land use compared with the surveyed areas of the NGGA. Potential GSM has been modelled across these areas using a combination of DELWP's GSM HIM (DELWP, 2017d) and DELWP's EVC mapping for EVC 132 (Plains Grassland) (DELWP, 2005). This modelling approach identified a further 48 ha of potential habitat

Altogether, this mapping method identified around 90 ha of potential habitat within the unsurveyed areas of the Growth Areas.

This method is considered to be suitably precautionary for the purposes of the assessment. This method is intended to identify an area of potential GSM habitat within the unsurveyed land that over-predicts extent, as supported by observations of the properties as part of recent site visits during the strategic assessment.

HABITAT WITHIN THE STRATEGIC ASSESSMENT AREA AND BROADER STUDY AREA

DELWP's HIM for GSM was used to indicate potential habitat within the Strategic Assessment Area and broader Study Area.

Table 19-2 provides the area of GSM habitat mapped within these areas.

Table 19-2: GSM habitat occurring across the broader Study Area

Area	Area of modelled habitat (ha)
Strategic Assessment Area*	23.6
Study Area#	19,538.2
Total modelled habitat	19,561.7

* This includes the modelled habitat in the Strategic Assessment Area excluding habitat mapped in the Growth Areas

This includes the modelled habitat in the Study Area excluding the habitat mapped in the Strategic Assessment Area

AVOIDANCE OF IMPACTS

This section provides an overview of the area of potential habitat that was avoided for the species through the design of development within the Growth Areas. Avoidance of impacts to biodiversity was a critical part of the process to develop the Plan. A detailed explanation of the avoidance process and terminology is provided in Chapter 16.

Avoidance within the NGGA was determined through a structured decision making process as part of the strategic assessment to identify the optimal layout of development and conservation land in the Growth Area (see Section 16.3 of Chapter 16). A key input to evaluate the biodiversity outcomes of the preferred NGGA layout was the avoidance and protection of GSM habitat.

The outcome from this process was the avoidance of a total of 108.6 ha of GSM habitat. This avoidance focussed on habitat areas in the north of the NGGA where high densities of GSM were recorded and where the largest remnants of native vegetation have been mapped, including around 60% of the areas with high/moderate potential for supporting native habitat. The avoided areas of GSM habitat include:

- 55.1 ha of moderate potential native habitat
- 0.6 ha of lower potential native habitat
- 52.9 ha of non-native habitat

The avoided land will be protected and managed as an offset within the NGGA Conservation Area to maintain and enhance the habitat values for GSM (see Section 19.1.6).

The structured decision making process that led to the avoidance of GSM habitat to be protected within the NGGA Conservation Area had to appropriately balance the relevant social, economic and environmental issues. Further avoidance of GSM habitat was not achievable or appropriate for the following key reasons:

- There were significant concerns that further avoidance of land would not deliver real conservation outcomes due to the extent of weeds and level of degradation across much of the NGGA. There was uncertainty around the efficacy of management and restoration work in additional areas due to the level of modification and extent of weeds. Efforts to address these issues would likely be prohibitively expensive and may be ineffective, noting that some areas were degraded to the point that re-establishment of native grasses may not be feasible within a 10 year timeframe (Peter Wlodarczyk, pers comms.)
- From an economic perspective, the cost of acquiring additional land for conservation and management and the associated reduction in net developable area would likely make development across the Growth Area unviable

There is also some potential for GSM to occur within the external infrastructure footprints within the Strategic Assessment Area, outside of the Growth Areas. The Commitments and Measures under the Plan require:

- Targeted surveys within areas that may support GSM along these corridors prior to development and
- Demonstrated avoidance of any confirmed areas of habitat for GSM, to the full extent possible

DIRECT IMPACTS

This section provides an analysis of any direct impacts. Direct impacts are assessed in relation to known populations, loss of potential habitat, or fragmentation of habitat.

19.1.3 IMPACTS TO KNOWN POPULATIONS AND POTENTIAL HABITAT

Development under the Plan will reduce the size and extent of the GSM population that has been recorded within the NGGA. There will be direct loss of 658 ha of mapped habitat across the southern sections of the NGGA. The majority (87%) of habitat to be cleared comprises non-native habitat. Around 41% of surveyed habitat with high/moderate potential for supporting native habitat will be cleared.

Altogether, direct impacts to GSM include:

- The following areas within the surveyed areas of the Growth Areas:
  - 26.1 ha of higher potential native habitat
  - 11.5 ha of moderate potential native habitat
  - 37.7 ha of lower potential native habitat
  - 492.4 ha of non-native habitat
- 90 ha of potential habitat within the unsurveyed areas of the Growth Areas

This extent of habitat clearing is not expected to lead to the loss of the entire population. Areas of GSM habitat that are not subject to direct impacts will be retained, protected and managed within the Conservation Area that will be established in the NGGA. This habitat is known to support a component of the GSM population, with a high abundance of individuals recorded during the most recent targeted surveys in 2020. The current extent of mapped habitat retained within the avoided land is 108.6 ha. This is notably larger than many sites currently known to support subpopulations across its range, which are confined to small grassland remnants of fewer than 5 ha (DAWE, 2021a). Ongoing management of this land will remove the key threats currently operating on the population in the NGGA, aiming to halt or reverse declines in habitat condition and improve the longer-term viability of the population.

19.1.4 FRAGMENTATION OF HABITAT

GSM habitat within the NGGA is already bounded by urban growth and more intensive land uses to the south and east. The existing interface of habitat in the avoided area with rural lands to the north will be unchanged.

POTENTIAL INDIRECT IMPACTS AND MITIGATION

This section identifies the relevant potential indirect impacts to the species that may occur as a result of development under the Plan. Indirect impacts were identified as being relevant to the species if:

- *The indirect impact is identified as a threat in a relevant profile, conservation advice, or recovery plan, and*
- *The Plan has the potential to introduce or exacerbate the threat*

It discusses each relevant potential indirect impact in detail and outlines how the Plan addresses it.

Please refer to Chapter 17 for a detailed discussion and analysis of indirect impacts and mitigation measures included in the Plan. It is critical to read Chapter 17 in order to understand the conclusions reached in this section.

19.1.5 RELEVANT POTENTIAL INDIRECT IMPACTS

The Conservation Advice for GSM identifies a range of threats to the species (DAWE, 2021a). The following threats to GSM are potentially relevant to implementation of the Plan and are discussed further below:

- Spread of weeds
- Inappropriate fire regimes

The species is most vulnerable to indirect impacts associated with these threats at the following locations:

- Within the Conservation Area that will be established in the NGGA
- In areas of potential habitat that might occur adjacent to the Growth Areas or within the immediate vicinity

There are a number of additional threats to the species identified in the Conservation Advice. However, potential indirect impacts to the species associated with these threats are considered unlikely as a result of development under the Plan. Refer to Section 17.2 of Chapter 17 for a detailed assessment of potential indirect impacts associated with implementation of the Plan.

Climate change is also identified as a threat to the species. The potential impacts of climate change and relevant mitigation measures under the Plan are outlined in Section 29.5 of Chapter 29.

SPREAD OF WEEDS

The spread of weeds is a threat to GSM's native habitat. Introduced pasture grasses and clovers readily out-compete native Spear-grasses and Wallaby-grasses which are present in native GSM habitat. The invasion of weeds impacts the species by reducing the availability of larval host plants, and changing the structure of grasslands which may result in the loss of habitat (DAWE, 2021a). Although the species does inhabit non-native grasslands, habitat with a high component of weeds is considered to be of lower quality. Non-native habitat offers reduced larval food plants and is at higher risk of loss from habitat modification (DAWE, 2021a).

Although the invasion of weeds is considered to be a significant threat to GSM (DAWE, 2021a), the Plan is unlikely to exacerbate this threat. Weed invasion is a significant existing issue in the Growth Areas, as reported by EHP, landholder surveys and more recent site observations. Development activities are unlikely to influence the spread of weeds in a way that notably impacts GSM.

It is also noted that standard weed management protocols will be a relevant requirement of development through the existing planning system.

Further, the areas of GSM habitat that are retained and protected in the NGGA Conservation Area will be subject to management to improve the condition of native grassland. A conservation interface will be established between urban development and the Conservation Area to mitigate potential edge effects, including weeds. This measure will be delivered through Commitment 8, which requires a list of actions to be implemented as part of development to mitigate the indirect impacts of development on the NGGA Conservation Area.

Refer to Section 17.2.3 of Chapter 17 for a detailed assessment of potential indirect impacts associated with the spread of weeds under the Plan.

INAPPROPRIATE FIRE REGIMES

There is limited information available regarding the impact of fire on GSM. It is possible that fires may benefit the species through reducing the presence of species (both native, such as Kangaroo Grass, and introduced species) which compete with GSM food plants and through reducing overall grassland biomass and vegetation density at the site (DAWE, 2021a).

It is also possible that fires may negatively impact on the species either through mortality of eggs, pupae and/or adults, and/or through short-term food shortages following fires. It is possible that the species' post-fire persistence at a given location is dependent upon its capacity for recolonisation from other surrounding areas, and that fires may pose a risk of localised extinctions at small sites (DAWE, 2021a).

The Plan is considered unlikely to notably change or contribute to this threat in the Growth Areas or more broadly given the existing level of development in the Greater Geelong region. The planning system has existing standard mitigation

measures in place to address the risk of altered fire regimes and increased fire risk from development. This includes a broad requirement to ensure development can implement bushfire protection measures without unacceptable impacts to biodiversity through appropriate planning.

In addition, the conservation interface established between urban development and the Conservation Area, as well as the ongoing management within the Conservation Area itself, will provide for appropriate fire management to protect GSM habitat values.

Refer to Section 17.2.5 of Chapter 17 for a detailed assessment of potential indirect impacts associated with inappropriate fire regimes under the Plan.

OFFSETS TO COMPENSATE FOR RESIDUAL ADVERSE IMPACTS

This section identifies any offsets needed to address residual adverse impacts to listed threatened species.

19.1.6 OFFSETS TO ADDRESS POTENTIAL IMPACTS ASSOCIATED WITH DEVELOPMENT WITHIN THE GROWTH AREAS

There will be residual adverse impacts to GSM as a result of clearing of known and potential habitat within the developable areas of the NGGA. The majority of these impacts are to non-native habitat areas.

To compensate for these impacts, the Plan will deliver an offsets package for GSM comprising two key elements:

- Protection and ongoing management of 108 ha of GSM habitat within the Conservation Area in the NGGA. There is an apparent declining trend in GSM habitat quality and viability within the NGGA. Management of the NGGA Conservation Area will improve the overall outcome for GSM in this area. Management will aim to reduce threats and restore habitat values within the Conservation Area of the NGGA to such an extent that the viability of the population improves, and the area is regarded as important to the conservation of the species in the region
- Protection and ongoing management of 477 ha of GSM habitat outside of the Growth Areas. These external offsets will provide for the protection of native habitat areas known to support GSM within Victoria. These offsets will be strategically located and will identify, protect and manage higher quality areas of GSM habitat which are important to the long-term maintenance and recovery of the species into the future

This offset package for GSM compensates for the loss of mostly non-native habitat with the protection and management of native habitat areas.

The scale of development under the Plan and assessment through a single Part 10 process under the EPBC Act enables a more strategic approach to offsets compared to those that can be delivered through site-by-site, or Part 9 approval processes. While the ecological benefits of offsets are influenced by a range of factors, there are two key strategic components to the offsets that will be delivered under the Plan which are expected to provide for an improved biodiversity outcome for MNES compared with conventional offsets. These are:

- Advanced offset delivery: 50% of the offsets for GSM will be delivered within the first five years of Plan implementation, with the balance secured to keep pace with impacts to GSM habitat
- Spatially planned offsets: Offsets will meet at least one of the following strategic landscape criteria:
  - Protection of GSM habitat areas that would be considered large for the species
  - Located within a key biodiversity corridor and improves connectivity across the landscape
  - Connection of the offset site to an existing conservation reserve

Studies have shown that strategic approaches to offsets such as this, can lead to outcomes that are in the order of 20-40% better than non-strategic offsets (Gordon *et al.*, 2011; Gordon and Peterson, 2019)

19.1.7 OFFSETS TO ADDRESS POTENTIAL IMPACTS ASSOCIATED WITH EXTERNAL INFRASTRUCTURE

Any unavoidable clearing of confirmed areas of GSM habitat within the external infrastructure footprints will be offset in accordance with the EPBC Act Environmental Offsets Policy and associated Offsets Assessment Guide (Commonwealth of Australia, 2012). Given the existing level of development and land use in these areas, and the need to

demonstrate avoidance to the full extent possible under the Plan, the potential level of clearing and associated need for offsets is expected to be minimal.

LIKELY EFFECTS OF IMPLEMENTATION OF THE PLAN ON THE LONG-TERM VIABILITY OF THE SPECIES

This section considers the likely effects of implementation of the Plan on the long-term viability of the species. The assessment of viability has regard for the guidance in the Conservation Advice and draws on the impact analysis presented above.

Where applicable, this section also discusses the consistency of the Plan with any Recovery Plans and relevant Threat Abatement Plans. The general consistency of the Plan with Threat Abatement Plans is discussed in detail in Section 17.3 of Chapter 17.

19.1.8 IMPLICATIONS FOR THE SPECIES LONG-TERM VIABILITY AND SUMMARY OF OUTCOMES

A review of the Conservation Advice (DAWE, 2021a) and other key documents have helped to identify the key issues that have the potential to negatively influence the long-term viability of GSM. The issues relevant to implementation of the Plan include loss of habitat and potential indirect impacts associated with weeds and inappropriate fire regimes.

The impact assessment presented here has analysed each of these issues and concluded that:

- Direct impacts to GSM habitat associated with development within the NGGA will lead to residual adverse impacts that will need to be compensated for. The use of offsets to address the residual loss is considered appropriate in the context of:
  - A strong avoidance process which specifically sought to improve the avoidance of GSM values, while balancing social and economic considerations
  - The level of degradation and modification observed across the Growth Areas which reduces the overall conservation benefit of retaining additional areas of GSM habitat
  - The potential indirect impacts associated with the spread of weeds and inappropriate fire regimes are unlikely to be exacerbated under the Plan in a way which has any notable effect on GSM

To summarise the key elements of the assessment for GSM:

- It is unlikely the NGGA would qualify as an important or high quality area as defined by the Conservation Advice (DAWE, 2021a). This conclusion reflects the modified state of the land and extent of weeds which are contributing to a declining trend in values
- The commitments under the Plan relating to the avoidance and offsetting of impacts to GSM habitat are expected to maintain a viable population for the species in both the local area and more broadly through the protection and management of strategic offsets. This will be delivered through:
  - The management and restoration of habitat values within the Conservation Area of the NGGA to the point where habitat condition, and therefore the viability of the population, improves and the area is regarded as important to the conservation of the species in the region. In the absence of urban development within the NGGA, condition of the grassland habitat is likely to continue to decline and the probability of the NGGA GSM population persisting over the long-term is uncertain
  - The delivery of strategic offsets external to the Growth Areas, which will identify, protect and manage higher quality areas of GSM habitat that are likely to be important to maintain the long-term presence of the species across its range into the future

19.1.9 CONSISTENCY WITH RECOVERY PLAN

There is no adopted or made Recovery Plan for this species.

19.1.10 KEY THREATENING PROCESSES AND CONSISTENCY WITH THREAT ABATEMENT PLANS

Relevant Key Threatening Processes (KTPs) and any of their associated Threat Abatement Plans (TAPs) have been identified in Table 19-3 where they relate to:

- The potential direct impacts of the Plan, or
- The relevant indirect impacts

Table 19-3: Relevant Key Threatening Processes and associated Threat Abatement Plans for the Golden Sun Moth

Key threatening process	Threat abatement plan
Competition and land degradation by rabbits	Threat abatement plan for competition and land degradation by rabbits (DoEE, 2016a)
Fire regimes that cause declines in biodiversity	There is no relevant TAP
Land clearance	There is no relevant TAP
Loss and degradation of native plant and animal habitat by invasion of escaped garden plants	There is no relevant TAP
Novel biota and their impact on biodiversity	There is no relevant TAP

19.2 GROWLING GRASS FROG (*LITORIA RANIFORMIS*)

SPECIES BACKGROUND

This section sets out the basic information about the species. It provides an overview of the species' ecology, distribution, habitat, populations and threats. These provide context for the impact assessment. At the end of the section are links to key species' documents that provide additional background information.

EPBC ACT LISTING	Vulnerable
DESCRIPTION	Growling Grass Frog (GGF) (*Litoria raniformis*) is a large frog that varies in colour from dull olive to bright emerald-green on its back, with large irregular golden-bronze blotches. The skin on the back and sides has numerous warty projections (Clemann and Gillespie, 2012). Females are usually larger (60-104 mm) than males (55-65mm) (DCCEEW, 2022).
ECOLOGY	This summary of the ecology of GGF relates to the occurrence of the species within the Strategic Assessment Area and surrounds. The species is mostly aquatic and occurs in a variety of both permanent and ephemeral wetlands. It breeds in water and can produce clutches of thousands of eggs (Heard, Scroggie and Clemann, 2010). Tadpoles hatch after 2 – 4 days (DCCEEW, 2022) and can either grow quickly and metamorphose after only 2 to 3 months, or (more rarely) over-winter and emerge the following spring (Heard, Scroggie and Clemann, 2010; Clemann and Gillespie, 2012). Post-metamorphosis growth is rapid and both sexes can reach sexual maturity within 4 months of metamorphosis (Heard, Scroggie and Clemann, 2010). Breeding typically occurs within spring and summer and does not appear to be reliant upon flooding triggers (Clemann and Gillespie, 2012). The species can be active during both the day and night. Activity peaks in spring and summer and decreases as temperatures decline. Reduced activity (or torpor) occurs in the colder parts of the year (Heard, Scroggie and Clemann, 2010). GGF is a generalist carnivore and feeds on a variety of small invertebrates and vertebrates. It is known to feed on tadpoles and other frogs (including members of its own species) (DEWHA, 2009d). The species is highly mobile. For example, they have been recorded moving up to 1 km within 24 hours (Clemann and Gillespie, 2012). Adult frogs move across areas of open ground to forage and access breeding sites (DEWHA, 2009c). Research by (Heard, Scroggie et al., 2010) within the Melbourne region (to the east of the Strategic Assessment Area) emphasised the importance of landscape scale connectivity for the species. They noted that GGF displays classical metapopulation dynamics. This means that: • The species occurs in metapopulations made up of discrete populations connected by migration • Discrete populations change over time and can go extinct and be recolonised from connected populations It is considered likely that this is also the case for GGF across most of Victoria including the Strategic Assessment Area (DEWHA, 2009d).
DISTRIBUTION AND HABITAT	***DISTRIBUTION*** GGF is endemic to south-eastern Australia. It was previously one of the most common frogs in that region but has suffered substantial declines in abundance and range (Clemann and Gillespie, 2012). There appear to be two distinct biogeographical groups of the species. One occurs in the north and west of its range in NSW, and parts of Victoria and South Australia bordering the Murray River. The second group (which includes the Strategic Assessment Area) occurs in moister environments in much of Victoria, south-eastern NSW, far south-eastern South Australia, and Tasmania (DEWHA, 2009d; Clemann and Gillespie, 2012). In Victoria (at the time of writing the Recovery Plan) the species (Clemann and Gillespie, 2012): • Had declined substantially in the northern and north-eastern plains

- Remained locally common at some wetlands in the north-west and south-west
- Was mostly persisting in scattered locations in lowland regions, particularly in coastal areas and along major watercourses

HABITAT

GGF occurs in vegetation within, or at the edges of permanent water including slow-flowing streams, swamps, lagoons and lakes. The species also occurs in artificial waterbodies in disturbed areas, including farm dams, irrigation channels, and disused quarries. It favours sites with a large proportion of emergent, submerged and floating vegetation, and still or slow-flowing water (DEWHA, 2009d; Clemann and Gillespie, 2012).

During winter torpor, GGF may be located under thick vegetation, rocks, logs and other ground debris. In many areas, torpor occurs in vegetation close to water. In more southern areas where the species is associated with permanent waterbodies and long periods of metamorphosis, frogs can also overwinter at considerable distances from waterbodies (Heard, Scroggie and Clemann, 2010; Clemann and Gillespie, 2012).

There is evidence that particular features of waterbodies influence their suitability for breeding habitat for the species. The presence of diverse aquatic vegetation communities likely represents substrates for egg deposition, and tadpole foraging and shelter sites. Permanent wetlands are more likely to be occupied by the species and provide important core breeding habitat, but seasonally flooded ephemeral wetlands can also provide high-quality breeding habitat. Wetlands which are free from predatory fish (particularly introduced fish) are of higher quality as tadpoles are susceptible to predation. Other habitat components include bank-side rocks, open pasture and bare ground, which may also be used during the day for basking activities (DEWHA, 2009d).

The species mostly occurs in freshwater. It generally does not persist in waterbodies where salinities exceed 7.0 mS/cm for long periods, and numbers decline as salinities approach these levels (Clemann and Gillespie, 2012). However, research has shown that some amount of salinity is important, as it protects the species from susceptibility to chytrid fungus. Environments with moderately saline water may therefore be important for protecting populations from disease threats (DELWP, 2017b).

The Recovery Plan (Clemann and Gillespie, 2012) does not specifically define habitat critical to the survival for GGF. However, it notes that it is important to:

> *"…consider habitat critical for survival of* [GGF] *at both a local and a landscape scale, and also consider non-breeding refugia and habitat along dispersal / recolonisation routes."*

(Heard, Scroggie et al., 2010) in their research on metapopulation dynamics provide insight about habitat critical to the survival through the identification of the drivers of site level population extinction and recolonisation. They found that:

- Discrete populations are less likely to go extinct where the following habitat characteristics are present:
  - Larger, permanent waterbodies
  - Increased aquatic vegetation cover
  - Increased landscape scale connectivity
- The probability of recolonisation of a discrete population increases with increasing landscape scale connectivity

These findings are reflected in both the:

- *Growling Grass Frog Habitat Design Standards for the Melbourne Strategic Assessment* (DELWP, 2017b) which provide guidance on protecting and creating the various types of habitat required to support metapopulations of GGF over the long term
- *Growling Grass Frog Crossing Design Standards for the Melbourne Strategic Assessment* (DELWP, 2017a) which aim to ensure that crossings for new and widened roads, railway lines and other infrastructure through conservation areas are designed to ensure that GGF will be able to easily move through, so that metapopulation dynamics can be maintained

Given the proximity of the MSA to the Geelong Strategic Assessment Area and the likely similarities in key ecological requirements for the species in both locations, both of these guidelines are considered to be a useful resource for this project.

POPULATIONS	As outlined above, there appear to be two distinct biogeographical groups of the species. However, there is limited information available about either the: • Estimated total population size of each group, or • Number of discrete populations or metapopulations within each group The GGF Significant Impact Guidelines (DEWHA, 2009d) define what an 'important' population is for the species. The guidelines state: *"…any viable population is considered to be an important population for the persistence and recovery of the growling grass frog."* *"…a viable population is one which is not isolated from other populations or water bodies, such that it has the opportunity to interact with other nearby populations or has the ability to establish new populations when water bodies fill and become available."* *"In addition, a population of growling grass frogs could be considered an important population if it is near the limit of the species range (for example small, isolated populations in South Australia), is well-studied or has a history of monitoring, and hence provides opportunity for greater understanding of the species through the collection of long-term data."*

THREATS	The GGF Significant Impact Guidelines (DEWHA, 2009d) identify the threats most relevant to decision making under the EPBC Act. They are:
	• Habitat loss, degradation and modification caused by:
	  ○ Draining, infilling or changes to flooding patterns of permanent and non-permanent water bodies, or their adjoining watercourses and surrounding vegetation
	  ○ Alteration of wetland hydrology, diversity and structure
	  ○ Removal of aquatic vegetation
	  ○ Clearing of terrestrial vegetation, fallen logs and ground debris surrounding water bodies
	  ○ Deterioration of water quality and any introduction of pollutants and biocides
	  ○ Introduction of domestic stock or feral animals (for example rabbits, goats and pigs) causing damage to banks or terrestrial habitat
	• Fragmentation and isolation of populations caused by construction of barriers that limit frog movements between waterbodies (for example buildings, fences, roads, industrial estates etc)
	• Introduced predators and disease caused by the introduction of:
	  ○ Exotic fish species
	  ○ Feral predators such as foxes and cats
	  ○ The chytrid fungus
	These threats are consistent with those identified in the GGF Recovery Plan (Clemann and Gillespie, 2012). Although the Recovery Plan also identifies exposure of frogs to harmful levels of ultraviolet-B radiation (due to anthropogenic depletion of the ozone layer) as an additional threat.
	The widespread declines and localised extinctions experienced by the species, and the uncertainty surrounding the causes of these declines, suggests that no extant population should be considered secure. Loss of populations due to habitat destruction or disease incursion have been known to occur very rapidly (Clemann and Gillespie, 2012).

RELEVANT PLANS AND POLICIES	National Recovery Plan for the Southern Bell Frog *Litoria raniformis* (Clemann and Gillespie, 2012) Threat abatement plan for infection of amphibians with chytrid fungus resulting in chytridiomycosis (2016) (DoEE, 2016b) Threat abatement plan for predation by the European red fox (DEWHA, 2008d) Threat abatement plan for predation by feral cats (DoE, 2015)
SPECIES-SPECIFIC GUIDELINES	***COMMONWEALTH*** EPBC Act Policy Statement 3.14: Significant impact guidelines for the vulnerable growling grass frog (*Litoria raniformis*) (DEWHA, 2009c)

	Background Paper to EPBC Act Policy Statement 3.14: Significant impact guidelines for the vulnerable growling grass frog (*Litoria raniformis*) (DEWHA, 2009d) Survey Guidelines for Australia's Threatened Frogs. EPBC Act survey guidelines 6.3 (DEWHA, 2010) ***STATE*** Growling Grass Frog Masterplan for Melbourne's Growth Corridors Melbourne Strategic Assessment (DELWP, 2017c) Growling Grass Frog Habitat Design Standards Melbourne Strategic Assessment (DELWP, 2017b) Growling Grass Frog Crossing Design Standards Melbourne Strategic Assessment (DELWP, 2017a)
SPRAT LINK	http://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=1828

APPROACH TO BASELINE DATA

This section provides a summary of the baseline information used in the assessment. It sets out:

- *An overview of the habitat mapping for the species within and outside the Growth Areas*
- *An overview of the population mapping for the species*

Please refer to Chapter 13 for further details about the approach to threatened species baseline data, including a description of the different types and sources of data, as well as some discussion on the interpretation and suitability of the data for use in the impact assessment.

HABITAT MAPPING	**WITHIN THE SURVEYED AREAS OF THE GROWTH AREAS**
	Habitat mapping for GGF within the surveyed areas of the growth areas is based on EHP survey results (EHP, 2021). The species was recorded within Cowies Creek during targeted surveys, and the native vegetation along Cowies Creek has been mapped as habitat for the species.
	WITHIN THE UNSURVEYED AREAS OF THE GROWTH AREAS
	There is no potential habitat for GGF in the unsurveyed areas of the growth areas.
	OUTSIDE THE GROWTH AREAS
	Habitat mapping across the broader Strategic Assessment Area and Study Area was based on the GGF HIM prepared by DELWP (DELWP, 2017d).
POPULATION MAPPING	**RECORD SELECTION**
	Species records were compiled from the VBA, surveys undertaken by EHP, and a report by Beacon Ecological (Beacon Ecological, 2010). The VBA records were filtered to remove records prior to 1990 for the purpose of the impact assessment.
	RECORD DOWNLOAD DATE
	VBA records for GGF used in this assessment were downloaded in June 2022.
	POPULATION DEFINITION
	For the purposes of this Strategic Assessment Report, the following definitions are applied to GGF: • Population: a group of GGF present at a discrete wetland site • Metapopulation: multiple populations connected by migration (DELWP, 2017b)

OCCURRENCE IN THE STUDY AREA

This section describes the occurrence of the species in the Study Area. It includes reference to maps of records and habitat which can be viewed as separate files. The maps provide critical context for the assessment and should be viewed in conjunction with the text presented in this assessment.

GGF occurs within Cowies Creek in the Strategic Assessment Area (including within the WGGA) and in a variety of other locations throughout the broader Study Area. There is no suitable habitat for the species in the NGGA and it is not present in that growth area.

See Map 19-4 for a map of GGF records and habitat in the Cowies Creek corridor, and Map 19-5 for records and modelled habitat across the broader Study Area.

19.2.1 OCCURRENCE WITHIN THE STRATEGIC ASSESSMENT AREA

OCCURRENCE IN THE COWIES CREEK CORRIDOR

Cowies Creek supports an important metapopulation of GGF both within and downstream of the WGGA. See below for discussion.

Cowies Creek within the WGGA

Cowies Creek within the WGGA runs along the northern border of the Creamery Road Precinct. The northern boundary of the precinct is near a railway line and the creek occurs close to the line on a number of occasions.

EHP (EHP, 2021) carried out targeted surveys for the species along Cowies Creek in the WGGA on two occasions (6 December 2019 and 12 January 2020). They recorded approximately 50 individuals across four sites. EHP considered that the area supported an important population (particularly because it contained a range of key habitat attributes) and that Cowies Creek was an important habitat corridor through the growth area.

AECOM (AECOM, 2021) described the habitat within Cowies Creek in the WGGA. The following description is drawn from that report:

- The creek includes the following aquatic habitat features:
  - A number of open, still or slow flowing pools that support GGF breeding habitat features including fringing emergent and floating vegetation (see Figure 19-1). The four sites where EHP recorded the species were open pools, and there are a number of other pools along the creek that support similar features
  - Sections that are densely vegetated with reeds (see Figure 19-2). These areas are not considered optimal for breeding but are likely to provide dispersal and overwintering habitat
  - Some sections that are showing signs of erosion
- Terrestrial habitat around the creek is comprised of a number of agricultural properties that are all heavily modified due to cropping and grazing (see Figure 19-3 and Figure 19-4). There are no offline wetlands, and it appears that there are little to no rocks or logs which would provide overwintering habitat.

Creamery Road Precinct also includes a small tributary of Cowies Creek (running south-west from the north-east corner of the precinct). AECOM (2021) was of the view that the tributary is likely to be dry most of the time, but thought that it may provide a suitable location for wetland creation and the protection of additional overwintering, foraging habitat.

Figure 19-1: Open pool along Cowies Creek (taken from (AECOM, 2021)

Figure 19-2: Section of Cowies Creek dominated by reeds and spiny rush (taken from (AECOM, 2021)

Figure 19-3: Cropped area adjacent to Cowies Creek (taken from (AECOM, 2021)

Figure 19-4: Steep rocky slope with scattered native grasses (taken from (AECOM, 2021)

Cowies Creek downstream of the WGGA

GGF has also been recorded downstream of the WGGA within Cowies Creek on a number of occasions. These records appear to have some level of connectivity with the frogs in the WGGA and are likely to form part of a larger, connected metapopulation.

The species was first recorded downstream of the WGGA as part of surveys (Beacon Ecological, 2009) commissioned by the City in 2009 for a proposed water storage dam within the Cowies Creek Reserve. Beacon Ecological initially recorded two to three individuals of the species within the creek corridor (noting that surveys were undertaken in winter when the frog is least active). The project was referred under the EPBC Act (EPBC 2009/5001) and was determined to be a non-controlled action if undertaken in a particular manner.

As part of a requirement of the EPBC referral decision, Beacon Ecological carried out further GGF surveys in December 2009 and January 2010 (Beacon Ecological, 2010). They recorded the species at eight different sites, including more than 40 individuals at one site. The majority of the records were found between the Geelong Ring Road (close to the WGGA) and the Corio Leisure Centre on Anakie Road. The species was recorded at one site downstream of Anakie Road.

The species was also recorded more recently in 2020 further downstream of Anakie Road towards Thompson Road. A total of 3 frogs were recorded. These records suggest that the species is persisting in the creek corridor.

The habitat downstream of the WGGA is mostly instream habitat. However, there are two to three offline wetlands within this part of the corridor that appear to have records of the species.

Cowies Creek upstream of the WGGA

There are no records of the species upstream from the WGGA and that area appears to have much more limited GGF habitat values due to historic land use. It is considered less likely that the species is present in this location on a permanent basis.

Cowies Creek metapopulation

The number and location of GGF records within Cowies Creek suggests that the corridor supports an important, connected metapopulation of the species. Records stretch for more than 3.5 km along the creek and suitable habitat extends beyond this distance.

The available information suggests that the Cowies Creek metapopulation is comprised of a range of discrete, breeding populations of GGF that are connected along the creek corridor. Despite previous development in the area the species is persisting and metapopulation dynamics appear to still be operating.

AECOM (2021) identified the existing threats to the Cowies Creek metapopulation. They include:

- Habitat degradation: the majority of terrestrial habitat along the creek has been substantially modified due to agricultural practices and nearby development. There is limited suitable overwintering habitat in many parts of the corridor. In addition, some parts of the creek are affected by weeds and/or erosion
- Existing development and encroachment: nearby development places a range of pressures on habitat within the corridor including artificial lighting, access by people, and potential issues associated with pollution
- Pests and disease: AECOM thought that it was likely that chytrid fungus is already present within Cowies Creek. They also suggested that the metapopulation would be under pressure from cats, foxes and the mosquito fish
- Metapopulation dynamics: given the limited availability of offline habitat within the Cowies Creek corridor, the metapopulation may be sensitive to any adverse impacts to the instream habitats

OCCURRENCE IN OTHER PARTS OF THE STRATEGIC ASSESSMENT AREA

Beyond Cowies Creek, GGF has not been recorded within the Strategic Assessment Area.

It is worth noting that within the WGGA, EHP (EHP, 2021) stated that there is a low-moderate likelihood of an extant population occurring along the Moorabool River. However, they carried out surveys on three occasions (13 December 2019, 26 and 28 February 2020) in that location and did not identify any frogs. The survey effort was designed to provide

a 99% chance of detecting the species (if it was present) based on the survey protocols set out in (Heard, Scroggie et al., 2010).

19.2.2 OCCURRENCE WITHIN THE BROADER STUDY AREA

There are at least five records of GGF within the Moorabool River near Fyansford, close to the confluence with the Barwon River. These records are hydrologically connected to the Growth Areas, occurring approximately 9 km downstream. There are currently barriers within the Moorabool River which would likely prevent movement of frogs upstream towards the WGGA. However, if these barriers are removed and there is restoration along the river corridor as part of future development, these records may form a source population which would allow upstream stretches of suitable habitat to be occupied.

Records also occur in the Lake Connewarre complex, with a number of associated records occurring upstream in the Barwon River. While relatively distant, some of these records are hydrologically connected to the growth areas.

Within the broader Study Area there are more than 1,100 records of GGF. These are heavily concentrated in the Werribee/Avalon area of the Port Philip Bay and Bellarine Peninsula Ramsar Site, with some associated records occurring to the north and north-west of that location. These records are not hydrologically connected to the growth areas.

IMPACT ANALYSIS

This section analyses the potential impacts to the species. It:

- *Presents the proposed Cowies Creek Conservation Area within the WGGA and discusses what it is aiming to achieve for GGF*
- *Analyses the potential indirect impacts to GGF from development within the WGGA*

19.2.3 COWIES CREEK CONSERVATION AREA

The Plan includes an outcome to ensure that populations of threatened species persist in the strategic assessment area. This includes GGF within Cowies Creek. One of the key commitments to protect the species in this location is the establishment of the Cowies Creek Conservation Area which will ensure that there will be no direct impacts to the species. See Map 19-6 for an indicative layout.

This section sets out the aims of the conservation area, how it will be implemented in relation to GGF, and what success looks like for the GGF within the conservation area.

AIMS OF THE CONSERVATION AREA

The Cowies Creek Conservation Area will be established in the WGGA in order to:

- Protect and regenerate biodiversity values along the creek corridor. This supports one of the Framework Plan's (The City of Greater Geelong, 2021b) urban development objectives which identifies Cowies Creek as a priority for that purpose
- Protect cultural heritage values. There are a range of sites of cultural heritage significance in the creek corridor and the conservation area will provide a level of protection for these. This supports the same urban development objective in the Framework Plan as the one that relates to biodiversity
- Provide for some social infrastructure within the precinct that is sympathetic to the protection of biodiversity and heritage values. Social infrastructure may include walking trails and some open space facilities

In relation to GGF, the conservation area will support the persistence of the species within the WGGA and aims to maintain the metapopulation dynamics with the broader Cowies Creek metapopulation downstream. It will do this by:

- Protecting high quality instream habitat
- Helping to improve the condition of lower quality instream habitat
- Protecting terrestrial habitat in buffer areas adjacent to the creek
- Regenerating areas of terrestrial habitat that are degraded through historical land uses
- Potentially providing for the creation of off-stream habitat

HOW THE CONSERVATION AREA WILL BE IMPLEMENTED IN RELATION TO GGF

This section discusses how the Cowies Creek Conservation Area will be implemented in relation to GGF. It does not talk to other issues relating to the conservation area such as the protection and management of cultural heritage values which are dealt with through other regulatory processes.

The key guiding documents for designing and managing the conservation area in relation to GGF are:

- The Commonwealth's Environmental Management Plan Guidelines (DoE, 2014) which will provide the over-arching framework for the conservation area
- Two design standards for GGF which are best practice for the species:
  - GGF Habitat Design Standards (DELWP, 2017b)
  - GGF Crossing Design Standards (DELWP, 2017a)

Layout of the conservation area

The layout of the conservation area will be finalised through the precinct structure planning process for the Creamery Road precinct. This will involve only minor changes to the indicative boundary, and there is a measure relating to Commitment 5 that ensures "the conservation area includes all areas of habitat that may be needed to support the continued persistence of the Growling Grass Frog within the WGGA, including areas of habitat that may be used for breeding, foraging and movement".

One of the key considerations in finalising the layout will include maintaining an appropriate corridor width to protect terrestrial habitat and buffer the instream habitat. It is noted that the GGF Significant Impact Guidelines (DEWHA, 2009d):

- Identify permanent removal or degradation of habitat within 200 m of a water body as a likely significant impact to the species
- Recommend that buffer zones of at least 200 m around water bodies and dedicated terrestrial habitat corridors of at least 100 m be retained

The topography of Cowies Creek and current land use within the Creamery Road Precinct is not conducive to a buffer distance of 200 m. There is a significant break of slope at approximately 100 m from the creek line which is likely to represent the edge of the potential terrestrial habitat for the species. Beyond the break of slope there are significant areas of cropping and a lack of suitable habitat. This suggests that a layout that is based on the break of slope as the edge of the conservation area would be appropriate. This would maintain an average corridor width of approximately 100 m from the stream and given the current use of Cowies Creek by the species is considered appropriate for the long term protection of the population in the WGGA.

The decision on the layout would also give consideration to the ephemeral stream that runs into Cowies Creek in the precinct, and the potential for that area to provide additional habitat for the species.

Conservation Management Plan

The Plan commits to the development and implementation of a Conservation Management Plan for the conservation area. The Conservation Management Plan will be prepared to give effect to the aims of the conservation area (discussed above) and in accordance with the GGF Habitat Design and Crossing Standards (DELWP, 2017b, 2017a). It will include the following for GGF:

- The boundary of the conservation area
- Native vegetation to be retained as identified in the NVPP
- GGF records and habitat
- Any locations suitable for public access points, walking paths/trails, and passive recreation
- Any locations suitable for water management assets and associated infrastructure
- Management actions and arrangements to protect GGF and its habitat, including management methods, standards and techniques, roles and responsibilities, timing for implementation, funding, monitoring, and reporting

Given the currently degraded state of habitat in the creek corridor (particularly the terrestrial areas), there are significant opportunities to improve the condition of habitat for GGF within the conservation area. Rehabilitation and regeneration of habitat will be a priority of the Conservation Management Plan.

A key component of the Conservation Management Plan will be the sensitive design of any social infrastructure (e.g., walking paths) or water infrastructure to ensure that impacts to GGF are avoided. Any crossings of Cowies Creek will be designed in accordance with the GGF Crossing Standards (DELWP, 2017a).

Ongoing monitoring of the species within the conservation area will be important to ensure that performance of the Conservation Management Plan is understood, and to ensure that management is responsive and adapts to any changing circumstances.

WHAT DOES SUCCESS LOOK LIKE FOR THE GGF IN THE COWIES CREEK CONSERVATION AREA?

The Cowies Creek Conservation Area will be a success for GGF if:

- The population persists and remains viable over the long term
- Habitat is retained and its condition improves over time
- Metapopulation dynamics are retained with downstream populations of the species

19.2.4 POTENTIAL INDIRECT IMPACTS

This section analyses the relevant potential indirect impacts to GGF that may occur as a result of development under the Plan. Indirect impacts were identified as being relevant to the species if:

- *The indirect impact is identified as a threat in the recovery plan or significant impact guidelines for GGF, and*
- *The Plan has the potential to introduce or exacerbate the threat*

Please note that Chapter 17 provides a detailed discussion and analysis of the indirect impacts that may occur as a result of implementing the Plan and the associated mitigation measures. It is critical to read Chapter 17 in order to understand the conclusions reached in this section.

The relevant potential indirect impacts to GGF are:

- Habitat degradation and/or modification caused by:
  - Changed hydrological regimes
  - Deterioration of water quality and any introduction of pollutants and biocides
- Fragmentation and isolation of populations
- Introduction of cats

There are a number of additional threats to the species identified in the Recovery Plan and GGF Significant Guidelines. However, potential indirect impacts to the species associated with these threats are considered unlikely as a result of development under the Plan. Refer to Section 17.2 of Chapter 17 for a detailed assessment of potential indirect impacts associated with the implementation of the Plan.

Climate change is also identified as a threat to the species. The potential impacts of climate change and relevant mitigation measures under the Plan are outlined in Section 29.5 of Chapter 29.

HABITAT DEGRADATION/MODIFICATION: CHANGED HYDROLOGICAL REGIMES

Changed hydrological regimes have the potential to impact GGF by altering the nature of habitat for the species and making it unsuitable. This can relate to both water quantity and the rate that it flows.

In Cowies Creek, all of the aquatic habitat in the WGGA occurs as still or slow flowing instream pools, and the majority of habitat downstream of the growth area is also instream. The lack of off-stream habitat makes the Cowies Creek metapopulation particularly sensitive to hydrological changes as any significant alteration to flows has the potential to affect the instream areas.

Development under the Plan has the potential to alter hydrological regimes through the creation of hard surfaces and the need to manage stormwater that is generated from developed areas. Cowies Creek is hydrologically connected to development within the Creamery Road Precinct within the WGGA and parts of the NGGA (see Map 3-9).

The Plan proposes to manage stormwater through the preparation of Integrated Water Management strategies for each precinct. These strategies are prepared as part of the precinct planning process and set out how water is managed. Key components of these strategies in relation to GGF include:

- Consideration of downstream biodiversity values
- Management of water quantity and flow rates
- Management of water quality (discussed further below)
- Location of water infrastructure and water outflows

Concept designs have been completed for the Creamery Road Precinct for the management of stormwater (Alluvium, 2022). Further work is required to finalise these plans. However, the concept designs:

- Provide an indication of the number and location of water management assets (see Map 19-7, taken from (Alluvium, 2022)
- Establish that water quantity will be managed to protect downstream environmental values. This typically involves ensuring that stormwater runoff rates are no greater than the pre-development 1 in 100 year peak flow rates. It should be noted that while the rates are not expected to be higher than pre-development rates, the overall quantity of water entering Cowies Creek is expected to increase due to the creation of hard surfaces and the reductions in infiltration. This would mean that water flows more regularly into the creek

A similar process will be used for development in the part of the NGGA that is hydrologically connected to Cowies Creek. Although it is noted that these areas are further removed from GGF habitat and the potential impacts to habitat for the species are likely to be more diffuse.

The implementation of Integrated Water Strategies that are designed with the aim of protecting habitat for GGF is considered an appropriate mitigation approach in relation to hydrological regimes. However, given the overall quantity of water flowing into Cowies Creek will increase there is some outstanding risk that instream habitat will be negatively affected. It will be critical as part of implementing the Conservation Management Plan for the Cowies Creek Conservation Area that monitoring considers any potential impacts to habitat quality, and if necessary, contingency measures are applied to better manage water flows.

HABITAT DEGRADATION/MODIFICATION: DETERIORATION OF WATER QUALITY

Amphibians are particularly susceptible to the impacts of pollutants due to their semi-permeable skin, and GGF is likely to be susceptible to the impacts of pollutants in waterways. There are known instances of mortality of the species associated with herbicide use, however, there is limited information available regarding the impacts of other forms of pollutants. While the overall impact of pollutants on the species is unknown, it is thought that this could represent a considerable threat to the species (Clemann & Gillespie, 2012).

Development under the Plan has the potential to reduce water quality through:

- Sediment and other materials entering Cowies Creek during the construction phase of development
- The introduction of pollutants into stormwater

All relevant development under the Plan will require sediment and erosion control plans to ensure sediment is appropriately managed during construction. These will be implemented through the standard development application processes and are considered appropriate for mitigating the risk to GGF.

Stormwater quality entering Cowies Creek will be managed through the Integrated Water Management strategies prepared for each precinct. The concept designs for the Creamery Road Precinct (Alluvium, 2022) set out that water quality needs to meet the Urban Stormwater Best Practice Environmental Management (BPEM) Guidelines (CSIRO, 1999) pollution reduction targets. These targets are:

- 70% removal of the Total Gross Pollutant load
- 80% removal of Total Suspended Solids (TSS)

- 45% removal of Total Nitrogen (TN)
- 45% removal of Total Phosphorus (TP)

As per the management of water quantity, the implementation of Integrated Water Strategies that are designed with the aim of protecting habitat for GGF is considered an appropriate mitigation approach in relation to water quality. However, monitoring of water quality as part of implementing the Conservation Management Plan for the Cowies Creek Conservation Area will be important, and if needed, contingency measures to better manage water quality will need to be applied.

FRAGMENTATION AND ISOLATION OF POPULATIONS

Fragmentation and isolation of GGF populations is a critical threat to the species. As outlined previously, GGF is dependent on metapopulation dynamics and in particular connected landscapes to allow those dynamics to operate.

Development under the Plan has the potential to fragment the Cowies Creek metapopulation if the measures to manage hydrological changes and/or water quality are not successful. This places additional emphasis on the need to manage those issues appropriately and maintain a functioning metapopulation of GGF along Cowies Creek.

INTRODUCTION OF CATS

While there is no information available about the impacts of cat predation upon GGF, cats are known to be effective predators of amphibians. It is therefore considered that predation by cats could pose a threat to the species, particularly to populations which are already suppressed by other threatening processes (Clemann & Gillespie, 2012).

This potential impact is most relevant to the Cowies Creek Conservation Area, where an increase in nearby housing has the potential to increase the prevalence of domestic and feral cats interacting with the GGF population.

However, cats are likely to already be prevalent in the strategic assessment area due to the level of existing development. This includes locations to the north of Cowies Creek in the WGGA, and downstream areas of Cowies Creek.

Management of the Cowies Creek Conservation Area in accordance with a Conservation Management Plan will address any key threats operating on the GGF population. Should cat predation become an increased issue that adversely affects the population, this will be identified through monitoring and suitable cat management arrangements will be put in place. These processes are expected to adequately address the potential indirect impacts associated with any increase in the prevalence of cats.

OFFSETS TO COMPENSATE FOR RESIDUAL ADVERSE IMPACTS

This section identifies any offsets needed to address residual adverse impacts to listed threatened species.

Residual adverse impacts to GGF are not expected based on the implementation of the Cowies Creek Conservation Area and the proposed mitigation measures set out in the Plan and BCS to address indirect impacts. On this basis, offsets are not required for the species. However, there remain some residual risks to the species persisting in the long term in the presence of additional urban development.

The Plan commits to regular monitoring of the Cowies Creek metapopulation both within the WGGA and on City managed land downstream. In the case that declines in the population are observed, the priority will be undertaking further actions to protect and restore the population in Cowies Creek. The BCS sets out the following process if declines are observed:

- If necessary, the City will instigate further information gathering to try and determine the causes of the declines
- Restorative actions will be determined based on the causes of any declines. These may include measures such as:
  - Changes to how water quantity and/or quality are managed
  - Management actions in the corridor to restore habitat
  - Creation of new habitat features (e.g., off-stream ponds)
- Monitoring intensity will be increased to determine if the restorative actions are working

LIKELY EFFECTS OF IMPLEMENTATION OF THE PLAN ON THE LONG-TERM VIABILITY OF THE SPECIES

This section considers the likely effects of implementation of the Plan on the long-term viability of the species. The assessment of viability has regard for the guidance in the Recovery Plan and draws on the impact analysis presented above.

This section also discusses the consistency of the Plan with the Recovery Plan and relevant Threat Abatement Plans. The general consistency of the Plan with Threat Abatement Plans is discussed in detail in Section 17.3 of Chapter 17.

19.2.5 IMPLICATIONS FOR THE SPECIES LONG-TERM VIABILITY AND SUMMARY OF OUTCOMES

An important population of GGF occurs within Cowies Creek within and downstream of the WGGA.

Development under the Plan will not impact the species directly. The assessment presented here analysed the potential for the species to be impacted indirectly as a result of potential changes in hydrology, water quality, fragmentation, and the introduction of cats. It was concluded that the range of commitments in the Plan and measures in the BCS are expected to adequately protect the species from these potential impacts. In particular, the establishment and management of the Cowies Creek Conservation Area will be important for ensuring GGF persists in the strategic assessment area.

In this way, development under the Plan is unlikely to adversely influence the long-term viability of GGF.

19.2.6 CONSISTENCY WITH THE RECOVERY PLAN

In accordance with Section 146K of the EPBC Act, this section considers whether the implementation of the Plan is not inconsistent with the species' Recovery Plan. It considers two questions:

- Does the Plan prevent achievement of the objectives of the Recovery Plan?
- Does the Plan prevent implementation of the Recovery Plan actions?

These questions are discussed below.

DOES THE PLAN PREVENT ACHIEVEMENT OF THE OBJECTIVES OF THE RECOVERY PLAN?

The overall long-term objective of the Recovery Plan is to achieve a down-listing of GGF from Vulnerable to a lower threat category based on the IUCN 2001 Red List categories and criteria. This overall objective is associated with a series of specific objectives (Clemann & Gillespie, 2012):

1. Secure extant populations of [GGF], particularly those occurring in known breeding habitats, and improve their viability through increases in size and / or area of occurrence
2. Determine distribution, biology and ecology of the [GGF], and identify causes of the decline of the species across its geographic range
3. Address known or predicted threatening processes, and implement appropriate management practices where possible to ensure that land use activities do not threaten the survival of the [GGF]
4. Increase community awareness of and support for [GGF] conservation

Development under the Plan will not prevent the achievement of any of the objectives of the Recovery Plan. In addition, the commitments in the Plan will support the specific objectives (particularly Objective 1) by:

- Improving the protection of the species within Cowies Creek
- Aiming to improve the condition of habitat within Cowies Creek in the WGGA

DOES THE PLAN PREVENT IMPLEMENTATION OF THE RECOVERY PLAN ACTIONS?

The Recovery Plan identifies a set of actions in order to deliver on the objectives. Each action is associated with performance criteria (Clemann & Gillespie, 2012). The Plan will not prevent the implementation of any of these actions, nor will it prevent the achievement of any of the performance criteria.

19.2.7 KEY THREATENING PROCESSES AND CONSISTENCY WITH THREAT ABATEMENT PLANS

Relevant Key Threatening Processes (KTPs) and any of their associated Threat Abatement Plans (TAPs) have been identified in Table 19-4 where they relate to:

- The potential direct impacts of the Plan, or
- The relevant indirect impacts

Table 19-4: Relevant Key Threatening Processes and associated Threat Abatement Plans for GGF

Key threatening processes	Threat abatement plan
Land clearance	There is no relevant TAP
Infection of amphibians with chytrid fungus resulting in chytridiomycosis	Threat abatement plan for infection of amphibians with chytrid fungus resulting in chytridiomycosis (DoEE, 2016b)
Novel biota and their impact on biodiversity	There is no relevant TAP
Predation by feral cats	Threat abatement plan for predation by feral cats (DoE, 2015c)
Predation by the European red fox	Threat abatement plan for predation by the European red fox (DEWHA, 2008d)

19.3 STRIPED LEGLESS LIZARD (*DELMA IMPAR*)

SPECIES BACKGROUND

This section sets out the basic information about the species. It provides an overview of the species' ecology, distribution, habitat, populations and threats. These provide context for the impact assessment. At the end of the section are links to key species' documents that provide additional background information.

EPBC ACT LISTING	Vulnerable Note that the Striped Legless Lizard is currently on the Finalised Priority Assessment List (FPAL) and is proposed to have its listing upgraded to Endangered (DAWE, 2021b). A decision is due by 30 April 2024 (DAWE, 2021b).
DESCRIPTION	Striped Legless Lizard (SLL) (*Delma impar*) is a small reptile in the Pygopodidae family. The SLL lacks forelimbs and has reduced vestigial hind limbs. It has considerable variation in colour and pattern, with a pale grey-brown dorsal, cream ventral, and dark brown or blackish dorsolateral with stripes along the length of the tail and body (TSSC, 2016a). The species can reach a total length of 300 mm (DSEWPC, 2011).
ECOLOGY	SLL is a long-lived species with estimates of lifespan beginning at 10 years, though individuals may live significantly longer. Age of first reproduction is thought to be 2-3 years for males, and 3-4 years for females (TSSC, 2016a). The species feeds on spiders, crickets, grasshoppers, *Lepidopteran* larvae and cockroaches (TSSC, 2016a). It predominantly uses active searching foraging methods, though may also use ambush methods. Foraging methods alter according to prey type (DCCEEW, 2022). Females are capable of breeding every year and lay two eggs in a soil cavity or under a rock. Nests are communal and contain up to 36 eggs. Repeated use of communal nests has been recorded. Eggs are laid in December – January and hatch in January – February (TSSC, 2016a) after an incubation period of around 50 days (Parks Victoria, 2022h). SLL is active during the day from late spring to early autumn, with a peak in activity in November and December (DSEWPC, 2011). The species shelters in grass tussocks, thick ground cover, soil cracks, under rocks, spider burrows, and under debris such as timber. The species enters a state of reduced activity (or torpor) during the winter months, overwintering in soil cracks, under bed rocks, and in tussock bases (DCCEEW, 2022).
DISTRIBUTION AND HABITAT	***DISTRIBUTION*** SLL was formerly distributed throughout temperate lowland grasslands in the ACT, the south-western slopes and southern tablelands of NSW, central and southern Victoria, and the south-eastern corner of SA. The species distribution has declined, with many known sites no longer supporting populations. The range of the species within Victoria appears to have contracted to the southern part of the state (DCCEEW, 2022). The Strategic Assessment Area is towards the southern extent of the species known range. ***HABITAT*** The species is a grassland specialist and is only found in areas of native grassland and nearby grassy woodland and exotic pasture (TSSC, 2016a). Occupied sites have a grassy groundcover, with a mixture of native and exotic perennial and annual species of tussock-forming grasses. The species was thought to only occur in native grasslands dominated by Spear Grass (*Stipa* bigeniculata) and Kangaroo Grass (*Themeda triandra*). However, the species is now known to occur in some areas dominated by introduced species including *Phalaris aquatica*, Serrated Tussock (*Nasella trichotoma*) and *Hypocharis radicata*, and at sites with a history of grazing and pasture improvement (DCCEEW, 2022). There is a higher probability of encountering the species in grasslands with a high structural complexity. Managed grazing regimes, which avoid high intensity grazing, are important to promote the formation of complex grass structures (Howland *et al.*, 2016).

	The minimum patch size threshold for medium to long-term habitat and population viability is ≥ 0.5 hectares, which supports predominantly tussock-forming grass species (native or non-native) (DSEWPC, 2011).
	The species Conservation Advice (TSSC, 2016a) identifies habitat critical to the survival of the species as sites that:
	• Support:
	  ○ Breeding habitat, generally indicated by the presence of 2 or more adult individuals or juveniles, and includes complex grass structures, surface rocks or invertebrate burrows
	  ○ Foraging habitat, generally indicated by the presence of good floristic diversity, minimal disturbance and connectivity with other nearby habitat
	  ○ Refuge habitat, generally indicated the by the presence of surface rocks, arthropod burrows or suitable cracks in the soil where lizards can escape disturbance such as trampling by livestock or fire
	• Include areas for long-term protection from development, such as sites currently being managed for conservation purposes
	• Have connectivity value and contribute to the evolutionary potential of the species, such as large areas of habitat within undeveloped areas and connected to breeding areas, or habitat areas that have been free from adverse practices such as ploughing, cropping, cultivation, fertiliser use or heavy grazing
	Where uncertainty exists regarding habitat critical to survival (for instance, small, fragmented, highly modified or exotic habitats in urban areas between 0.1 and 10 ha), the critical importance of a site is likely to depend on one or more of the following characteristics:
	• Occurs at the edge of the known and likely modelled distribution
	• Represents a newly discovered range extension
	• Has not been subject to adverse practices (ploughing, cropping, cultivation, fertiliser use, intense farming) in the last 10 years, or,
	• Contains a high density of lizards found through site surveys

POPULATIONS	There are four distinct genetic lineages of SLL: South Australia & Victorian Wimmera; south-western Victoria (including Melbourne and Geelong); eastern Victoria; and a lineage covering the ACT and Monaro Plains in NSW. These lineages have a high level of genetic divergence and should be considered as separate Evolutionarily Significant Units (TSSC, 2016a). The total number of individuals of the species is unknown, but likely to be in excess of 1,000 individuals. Understanding of fine scale population structure is difficult given the cryptic nature of the species, and the fragmented and disturbed nature of the species habitat (DCCEEW, 2022). Individuals have been recorded moving up to 20 m in a day, and 50 m over several weeks (DCCEEW, 2022). Evidence suggests that the species does not disperse over long distances, as populations have been recorded to be genetically differentiated at distances of less than 400 m (TSSC, 2016a). Due to habitat fragmentation, populations are probably small and isolated (DCCEEW, 2022). All populations of SLL are considered important for the species recovery (TSSC, 2016a).

THREATS	The Conservation Advice for the species (TSSC, 2016a) identifies the following threats:
	• Loss, modification, degradation and fragmentation of habitat from:
	  ○ Urban development
	  ○ High intensity grazing by livestock and kangaroos
	  ○ Ploughing and pasture improvement
	  ○ Rock collection or destruction
	• Invasive species, including:
	  ○ The spread of exotic grasses
	  ○ Predation by cats and foxes
	• Inappropriate fire regimes

RELEVANT PLANS AND POLICIES	Conservation Advice *Delma impar* Striped Legless Lizard (TSSC, 2016a) National Recovery Plan for the Striped Legless Lizard (Delma impar) (Smith and Robertson, 1999) Threat abatement plan for competition and land degradation by rabbits (DoEE, 2016a) Threat abatement plan for predation by feral cats (DoE, 2015c) Threat abatement plan for predation by the European red fox (DEWHA, 2008d)
SPECIES-SPECIFIC GUIDELINES	Referral guidelines for the striped legless lizard, *Delma impar* (DSEWPC, 2011) Survey guidelines for Australia's threatened reptiles. EPBC Act survey guidelines 6.6 (DSEWPaC, 2011b)
SPRAT LINK	http://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=1649

APPROACH TO BASELINE DATA

This section provides a summary of the baseline information used in the assessment. It sets out:

- *An overview of the habitat mapping for the species within and outside the Growth Areas*
- *An overview of the population mapping for the species*

Please refer to Chapter 13 for further details about the threatened species baseline data, including the various approaches to habitat and population mapping.

HABITAT MAPPING	**WITHIN THE SURVEYED AREAS OF THE GROWTH AREAS**
	Mapping is based on the results of targeted surveys undertaken by EHP (2021). The following categories of mapped habitat have been used in the assessment: • Confirmed habitat, comprising areas of contiguous habitat where the species was recorded • Suitable habitat, comprising contiguous areas where the species has not been recorded but which support predominantly native grassland with cracking soils and surface rock
	WITH THE UNSURVEYED AREAS OF THE GROWTH AREAS
	A combination of DELWP's SLL HIM (DELWP, 2017d) and DELWP's EVC mapping for EVC 132 (Plains Grassland) (DELWP, 2005) was used to provide an indication of potential habitat extent within the unsurveyed areas of the Growth Areas
	OUTSIDE THE GROWTH AREAS
	Habitat mapping across the broader Strategic Assessment Area and Study Area was based on the SLL HIM prepared by DELWP (DELWP, 2017d)
POPULATION MAPPING	**RECORD SELECTION**
	Species records were compiled from the VBA and surveys undertaken by EHP. The VBA records were filtered to remove records prior to 1990 for the purpose of the impact assessment
	RECORD DOWNLOAD DATE
	VBA records for SLL used in this assessment were downloaded in June 2022
	POPULATION DEFINITION
	A discrete population has been defined where SLL has been recorded within mapped patches of habitat separated by less that 400 m. This criteria is based on the information in the Conservation Advice (TSSC, 2016a) and understanding of the small home range and limited dispersal ability of the species.

OCCURRENCE IN THE STUDY AREA

This section describes the occurrence of the species in the Study Area. It includes reference to maps of records and habitat which can be viewed as separate files. The map provides critical context for the assessment and should be viewed in conjunction with the text presented in this assessment. This section also provides a qualitative description of where records and habitat occur.

See Map 19-8 for a map of records and habitat across the Study Area and Map 19-9 for a map of records and habitat across the Strategic Assessment Area.

19.3.1 OCCURRENCE WITHIN GROWTH AREAS

SLL WITHIN THE SURVEYED AREAS OF THE GROWTH AREAS

EHP (2021) undertook targeted surveys for SLL within the two Growth Areas between 28 September and 30 November 2020. The surveys were undertaken in accordance with the *EPBC Act Referral Guidelines for the Vulnerable Striped Legless Lizard, Delma impar* (DSEWPC, 2011) with a total of 77 tile grids checked eight times, comprising a total of 616 tile checks in total (EHP, 2021).

Forty-five individuals were recorded within the NGGA under ten different tile grids. Sites where the species was recorded generally represent the most suitable areas of habitat for SLL within the NGGA. These areas supported a high cover of surface rock, cracking soils and tussock-forming grasses providing inter-tussock space. Altogether, 103.8 ha of confirmed habitat and 76.3 ha of suitable habitat has been mapped across the surveyed areas of the NGGA.

For the purposes of this assessment, the individuals recorded within the NGGA are considered to represent four discrete populations as follows:

- In the north-western corner of the NGGA within a consolidated patch of 47.2 ha of confirmed habitat where 11 individuals were recorded. This is the largest confirmed patch of habitat within the NGGA, supporting multiple remnants of native grassland. Adjacent to this is a 76.3 ha area of suitable habitat containing a consolidated patch of native grassland. This suitable habitat is separated from the confirmed habitat by less than 30 m, and so would be considered within dispersal distance for the lizard. This whole area is likely to be considered critical to the survival of the species based on the definition outlined in the Conservation Advice (TSSC, 2016a)
- In the west of the NGGA within a consolidated patch of 31.6 ha of confirmed habitat where 13 individuals were recorded. This is the second largest confirmed patch of habitat. This area is disconnected from other areas of confirmed or suitable habitat within the NGGA by over 1 km and does not support any mapped native grassland. This area is considered to provide a more marginal representation of habitat critical to the survival of the species
- In the centre of the NGGA within an area of 19.1 ha of confirmed habitat where 20 individuals were recorded. It appears that the habitat supporting this population is likely to have been substantially degraded since the time of surveys as a result of rock removal and ploughing and the persistence of this population is uncertain. This area is disconnected from other areas of confirmed or suitable habitat within the NGGA areas by over 1 km
- In the east of the NGGA within a thin patch of 5.9 ha of confirmed habitat where 1 individual was recorded. This area of confirmed habitat is small, isolated from other patches of confirmed or suitable habitat, has a very high edge to area ratio and a small number of lizards detected. All of these factors are likely to be impacting on the viability of this population and it is less likely that this area would be considered critical to the survival of the species

The numbers of individuals recorded using the tile survey method do not provide an indication of population size, or even of relative lizard density. The method is designed to determine presence/absence, where the detection of an individual at a site infers that a population is present. As identified in the Conservation Advice (TSSC, 2016a), all populations of SLL are important to the recovery of the species.

SLL was not recorded within the WGGA. EHP (2021) found that the removal of native vegetation, high levels of grazing, pasture improvement and cultivation across the WGGA has contributed to the decline of high quality habitat for the species. They concluded that it is highly unlikely that a population of SLL is present within the WGGA.

SLL WITHIN THE UNSURVEYED AREAS OF THE GROWTH AREAS

There is potential for SLL to occur within the unsurveyed areas of the NGGA.

DELWP's HIM for SLL provides a broad predictor of presence of the species across the landscape (DELWP, 2017d). When combined with DELWP's EVC mapping for EVC 132 (Plains Grassland) (DELWP, 2005), the two datasets

identified an equivalent area to the extent confirmed within the surveyed areas of the Growth Areas as Confirmed habitat and Suitable habitat.

Given the types of ecological values within the unsurveyed areas are likely to be broadly consistent with those already confirmed within the surveyed areas of the Growth Areas (EHP, 2021) the use of these combined datasets was considered appropriate to provide an indication of potential habitat extent within the unsurveyed areas for the purposes of the assessment. However, some accounting was made to reflect the more fragmented nature of the small, rural residential landholdings and the higher proportion of land use for dwellings and driveways compared to the broader Growth Areas. The following method was applied:

- It has been assumed that the two unsurveyed blocks of land along the western boundary of the NGGA support an equivalent area of SLL habitat to the surveyed land based on their location adjacent to or within proximity of known habitat and the apparent continuity of land use as broader agricultural land. The combination of DELWP's HIM for SLL and EVC 132 mapping was therefore used to estimate the extent of potential habitat within these two unsurveyed blocks. These two blocks contribute around 6.6 ha of potential habitat
- The remaining areas of unsurveyed land comprise the rural residential blocks, which are expected to support a reduced or more fragmented distribution of potential habitat which reflects the different land use compared with the surveyed areas of the NGGA. For these areas, potential habitat extent was estimated to be around 75% of that observed within the surveyed areas. This area was calculated as 75% of the extent modelled using DELWP's HIM for SLL and EVC 132 mapping across the rural residential blocks. This approach identified a further 40.3 ha of potential habitat

Altogether, this mapping method identified around 47 ha of potential habitat within the unsurveyed areas of the Growth Areas.

This method is considered to be suitably precautionary for the purposes of the assessment. This method is intended to identify an area of potential SLL habitat within the unsurveyed land that over-predicts extent, as supported by over-the-fence observations of the properties as part of recent site visits during the strategic assessment.

19.3.2 OCCURRENCE WITHIN THE BROADER STUDY AREA

Historical records of SLL within the Strategic Assessment Area and broader Study Area are limited. There is one record on the boundary of the Strategic Assessment Area to the east of the NGGA. However, this record is from 1992 within a rural residential area and there is some uncertainty around what is likely to remain of any suitable habitat.

There is only one additional record, towards the north-eastern boundary of the Study Area from 1990.

The very few historical records in the region is likely to reflect a lack of targeted survey effort rather than the absence of the species or available habitat. DELWP's HIM for SLL provides a broad predictor of presence of the species across the landscape (DELWP, 2017d). It provides useful context for the assessment, identifying approximately 7,897.8 ha of habitat within the Strategic Assessment Areas and broader Study Area.

AVOIDANCE OF IMPACTS WITHIN GROWTH AREAS

This section provides an overview of the area of potential habitat that was avoided for the species through the design of development within the Growth Areas. Avoidance of impacts to biodiversity was a critical part of the process to develop the Plan. A detailed explanation of the avoidance process and terminology is provided in Chapter 16.

Avoidance within the NGGA was determined through a structured decision making process as part of the strategic assessment to identify the optimal layout of development and conservation land in the Growth Area (see Section 16.3 of Chapter 16). A key input to evaluate the biodiversity outcomes of the preferred NGGA layout was the avoidance and protection of SLL habitat.

The outcome from this process was the avoidance of a total of 73.7 ha of SLL habitat. This avoidance focused on habitat areas in the north of the NGGA, protecting the largest patch of confirmed habitat and a portion of the area mapped as suitable habitat. The avoided areas of SLL habitat include:

- 47.2 ha of confirmed habitat
- 26.5 ha of suitable habitat

The avoided land will be protected and managed as a Conservation Area to enhance the habitat values for SLL.

This avoidance process had to appropriately balance the social, economic and environmental issues relevant to the Growth Areas. Further avoidance of SLL habitat was not achievable or appropriate for the following key reasons:

- There were significant concerns that further avoidance of land would not deliver real conservation outcomes for the species within the following areas of confirmed habitat:
  - In the centre of the NGGA where 20 individuals were recorded. While this represents a relatively high density of lizards, there is evidence to suggest that rock removal and ploughing within this area as part of ongoing agricultural activities has degraded the habitat values since the time of survey
  - The thin length of habitat in the east of the NGGA where 1 individual was recorded. The viability of this population is uncertain due to its level of fragmentation, high edge to area ratio within a degrading environment and small number of lizards detected
- Any avoided areas would need to be managed in order to provide a benefit to the species. The extent of weeds and level of degradation across much of the NGGA meant there was uncertainty around the efficacy of management and restoration work in additional areas due to the level of modification and extent of weeds. Efforts to address these issues would likely be prohibitively expensive and may be ineffective, with Peter Wlodarczyk (pers comms.) noting that some areas were degraded to the point that re-establishment of native grasses may not be feasible within a 10 year timeframe
- From an economic perspective, the cost of acquiring additional land for conservation and management and the associated reduction in net developable area would likely make development across the Growth Area unviable

There is also some potential for SLL to occur within the external infrastructure footprints within the Strategic Assessment Area, outside of the Growth Areas. The Commitments and Measures under the Plan require:

- Targeted surveys within areas that may support SLL along these corridors prior to development and
- Demonstrated avoidance of any confirmed areas of SLL habitat, to the full extent possible

DIRECT IMPACTS

This section provides an analysis of any direct impacts. Direct impacts are assessed in relation to known populations, loss of potential habitat, or fragmentation of habitat.

19.3.3 LOSS OF KNOWN POPULATIONS AND POTENTIAL HABITAT

Development under the Plan will lead to direct impacts to SLL within the NGGA. Direct impacts will include:

- The loss of three isolated populations of SLL, including:
  - One population in the west of the NGGA where a total of 13 individuals were recorded
  - One population towards the centre of the NGGA where a total of 20 individuals were recorded, noting that that the current status of this population is uncertain due to degradation of habitat values on the site since the time of surveys
  - One population in the east of the NGGA where a single individual was recorded
- Clearing of 56.6 ha of confirmed habitat and 49.8 ha of suitable habitat within the surveyed areas
- Clearing of an additional 47 ha of potential habitat mapped using desktop data for the unsurveyed areas of the NGGA

This level of clearing was unavoidable and will lead to residual adverse impacts that will need to be addressed through an appropriate package of offsets for SLL.

Importantly, the area of confirmed and suitable habitat within the north of the NGGA supports a known population of SLL. This habitat will be protected, managed and enhanced to provide for the long-term persistence of the local population and will aim to support population recovery through improvement of connectivity and colonisation of suitable habitat areas where the species has not yet been recorded.

19.3.4 FRAGMENTATION OF HABITAT

Development within the Growth Areas will reduce the extent of habitat available for SLL. However, it is not expected to contribute to or exacerbate fragmentation of habitat for the species or lead to the isolation of any areas of known habitat. SLL habitat within the NGGA is already bounded by urban growth and more intensive land uses to the south and east. The existing interface of habitat in the avoided area with rural lands to the north will be unchanged.

POTENTIAL INDIRECT IMPACTS AND MITIGATION

This section identifies the relevant potential indirect impacts to the species that may occur as a result of development under the Plan. Indirect impacts were identified as being relevant to the species if:

- *The indirect impact is identified as a threat in a relevant profile, conservation advice, or recovery plan, and*
- *The Plan has the potential to introduce or exacerbate the threat*

It discusses each relevant potential indirect impact in detail and outlines how the Plan addresses it.

Please refer to Chapter 17 for a detailed discussion and analysis of indirect impacts and mitigation measures included in the Plan. It is critical to read Chapter 17 in order to understand the conclusions reached in this section.

19.3.5 RELEVANT POTENTIAL INDIRECT IMPACTS

The Conservation Advice for SLL identifies a range of threats to the species (DAWE, 2021a). The following threats to SLL are potentially relevant to implementation of the Plan and are discussed further below:

- Habitat degradation from rock collection or destruction
- Spread of weeds
- Predation by cats
- Inappropriate fire regimes

The species is most vulnerable to indirect impacts associated with these threats at the following locations:

- Within the Conservation Area that will be established in the NGGA
- In areas of potential habitat that might occur adjacent to the Growth Areas or within the immediate vicinity

There are a number of additional threats to the species identified in the Conservation Advice, such as high intensity grazing by livestock and kangaroos, ploughing and pasture development, and predation by foxes. However, these are not considered relevant to implementation of the Plan as the Plan is unlikely to change or exacerbate the risk across the Study Area. Refer to Section 17.2 of Chapter 17 for a detailed assessment of potential indirect impacts associated with the implementation of the Plan.

HABITAT DEGRADATION FROM ROCK COLLECTION OR DESTRUCTION

Surface or embedded rocks are an important habitat feature for SLL. The species may shelter beneath rocks when inactive, seek refuge beneath rocks during times of disturbance and lay their egg under rocks. Rock collection or destruction pose a threat to the species by substantially degrading the species' habitat (TSSC, 2016a).

This potential impact is most relevant to the Conservation Area within the NGGA, where an increased human population may lead to an increase in rock collection; for instance, by residents for their gardens. However, this area will be actively managed and monitored, with interpretive signage erected to help inform residents of the biodiversity values of the site and the importance of embedded rock to SLL.

The Conservation Area is currently used for agriculture which involves a significant risk of rock removal or destruction to enable activities such as slashing or ploughing. Converting this area to management for conservation substantially reduces the overall risk to the species in this area from this potential impact.

SPREAD OF WEEDS

The spread of weeds is a threat to SLL's native habitat. Weeds outcompete natural grasses and degrade habitat by changing the floristic diversity and structural complexity of grasslands.

Although the invasion of weeds is considered to be a current threat to SLL (TSSC, 2016a), the Plan is unlikely to exacerbate this threat. Weed invasion is a significant existing issue in the Growth Areas, as reported by EHP, landholder surveys and more recent site observations. Development activities are unlikely to influence the spread of weeds in a way that notably impacts the species.

It is also noted that standard weed management protocols will be a relevant requirement of development through the existing planning system.

Further, the areas of SLL habitat that are retained and protected in the NGGA Conservation Area will be subject to management to improve the condition of the native grassland. A conservation interface will be established between urban development and the Conservation Area to mitigate potential edge effects, including weeds. This measure will be delivered through Commitment 8, which requires a list of actions to be implemented as part of development to mitigate the indirect impacts of development on the NGGA Conservation Area.

Refer to Section 17.2.3 of Chapter 17 for a detailed assessment of potential indirect impacts associated with the spread of weeds under the Plan.

PREDATION BY CATS

Cats are suspected of preying upon SLL, as there is substantial evidence of cat predation on other reptiles in Australia. This is particularly a threat in urban areas which adjoin high density lizard populations (TSSC, 2016a).

This potential impact is most relevant to the NGGA Conservation Area, where an increase in nearby housing has the potential to increase the prevalence of domestic and feral cats interacting with the SLL population.

However, cats are likely to already be prevalent in the strategic assessment area due to the level of existing development to the east of the NGGA.

Management of the NGGA Conservation Area in accordance with a Conservation Management Plan will address any key threats operating on the SLL population. Should cat predation become an increased issue that adversely affects the population, this will be identified through monitoring and suitable cat management arrangements will be put in place. These processes are expected to adequately address the potential indirect impacts associated with any increase in the prevalence of cats.

INAPPROPRIATE FIRE REGIMES

Inappropriate fire regimes pose a threat to the species, either through direct mortality, or through high frequency fires reducing vegetation cover and complexity, which in turn reduces prey availability and may increase the risk of predation. Lack of fire may also threaten the species through a reduction in inter-tussock spaces and loss of tussock-forming species such as Kangaroo Grass (TSSC, 2016a).

The Plan is considered unlikely to notably change or contribute to this threat in the Growth Areas or more broadly given the existing level of development in the Greater Geelong region. The planning system has existing standard mitigation measures in place to address the risk of altered fire regimes and increased fire risk from development. This includes a broad requirement to ensure development can implement bushfire protection measures without unacceptable impacts to biodiversity through appropriate planning.

In addition, the conservation interface established between urban development and the Conservation Area, as well as the ongoing management within the Conservation Area itself, will provide for appropriate fire management to protect SLL values.

Refer to Section 17.2.5 of Chapter 17 for a detailed assessment of potential indirect impacts associated with inappropriate fire regimes under the Plan.

OFFSETS TO COMPENSATE FOR RESIDUAL ADVERSE IMPACTS

This section identifies any offsets needed to address residual adverse impacts to listed threatened species

19.3.6 OFFSETS TO ADDRESS POTENTIAL IMPACTS ASSOCIATED WITH DEVELOPMENT WITHIN THE GROWTH AREAS

There will be residual adverse impacts to SLL as a result of habitat clearing within the NGGA. This clearing will lead to the potential loss of three isolated populations of the species.

To compensate for these impacts, the Plan will deliver an offsets package for SLL comprising two key elements:

- Protection and ongoing management of 74 ha of SLL habitat within the NGGA Conservation Area. Specifically for SLL, the conservation area:
  - Focuses on the largest habitat area for Striped Legless Lizard in the NGGA
  - Provides the best opportunities for protecting and managing viable areas of biodiversity in the long term due its suitable shape, area, and condition of the vegetation. This includes enhancing SLL habitat

  The NGGA Area will be a success if:
  - The populations of Striped Legless Lizard persists and remain viable over the long term
  - Habitat for Striped Legless Lizard is retained and condition improves over time
- Protection and ongoing management of 301 ha of SLL habitat outside of the Growth Areas. These external offsets will provide for the protection of native habitat areas known to support SLL within Victoria. These offsets will be strategically located and will identify, protect and manage higher quality areas of SLL habitat which are important to the long-term maintenance and recovery of the species into the future.

The scale of development under the Plan and assessment through a single Part 10 process under the EPBC Act enables a more strategic approach to offsets compared to those that can be delivered through site-by-site, or Part 9 approval processes. While the ecological benefits of offsets are influenced by a range of factors, there are two key strategic components to the offsets that will be delivered under the Plan which are expected to provide for an improved biodiversity outcome for MNES compared with conventional offsets. These are:

- Advanced offset delivery: 70% of the offsets for SLL will be delivered within the first five years of Plan implementation, with the balance secured to keep pace with impacts to SLL habitat
- Spatially planned offsets: Offsets will meet at least one of the following strategic landscape criteria:
  - Protection of SLL habitat areas that would be considered large for the species
  - Located within a key biodiversity corridor and improves connectivity across the landscape
  - Connection of the offset site to an existing conservation reserve

As outlined previously, strategic approaches to offsets such as this, can lead to outcomes that are in the order of 20-40% better than non-strategic offsets (Gordon *et al.*, 2011; Gordon and Peterson, 2019).

19.3.7 OFFSETS TO ADDRESS POTENTIAL IMPACTS ASSOCIATED WITH EXTERNAL INFRASTRUCTURE

Any unavoidable clearing of confirmed areas of SLL within the external infrastructure footprints will be offset in accordance with the EPBC Act Environmental Offsets Policy and associated Offsets Assessment Guide (Commonwealth of Australia, 2012). Given the existing level of development and land use in these areas, and the need to demonstrate avoidance to the full extent possible under the Plan, the potential level of clearing and associated need for offsets is expected to be minimal.

LIKELY EFFECTS OF IMPLEMENTATION OF THE PLAN ON THE LONG-TERM VIABILITY OF THE SPECIES

This section considers the likely effects of implementation of the Plan on the long-term viability of the species. The assessment of viability has regard for the guidance in the Conservation Advice and the Recovery Plan and draws on the impact analysis presented above.

Where applicable, this section also discusses the consistency of the Plan with any Recovery Plans and relevant Threat Abatement Plans. The general consistency of the Plan with Threat Abatement Plans is discussed in detail in Section 17.3 of Chapter 17.

19.3.8 IMPLICATIONS FOR LONG-TERM VIABILITY AND SUMMARY OF OUTCOMES

Forty-five individuals of SLL have been recorded within the NGGA. These lizards were recorded within four isolated areas of habitat across the growth area, including one in the north, one in the west, one towards the centre, and one in the east. Each of these areas is thought to support a discrete population of SLL, given the distance between suitable habitat areas and the limited dispersal ability of the species. All four populations are likely to be important to the recovery of the species.

No individual SLLs were recorded within the WGGA, reflecting a lack of suitable habitat in the area.

Planning for the layout of the NGGA involved a detailed avoidance process which specifically sought to retain SLL values, while balancing social and economic considerations. This process led to the retention of a 108.6 ha area in the north of the NGGA, which contains the largest area of confirmed habitat for SLL as well as an adjacent area of suitable habitat that has the grassland characteristics that are likely to support the species. This area will be protected, managed and enhanced as part of a Conservation Area to provide for the long-term persistence of the local population. Management will aim to support population recovery by improving connectivity to enable the species to colonise areas of habitat in the Conservation Area where SLL have not yet been recorded.

Development under the Plan will lead to the loss of the remaining three populations and associated habitat that has been recorded in the NGGA. The habitat condition and viability of these areas is more marginal compared with the area to be retained and protected in the north. However, each of these populations are considered important for the purposes of this assessment and their loss will lead to a residual adverse impact on the species.

These residual impacts will be addressed through the following offsets package:

- Protection and ongoing management of 74 ha of SLL habitat within the NGGA Conservation Area
- Protection and ongoing management of 301 ha of SLL habitat outside of the Growth Areas

These offsets will be delivered strategically, with a significant proportion secured early and in advance of impacts to the species' habitat. This package will make an important and positive contribution to the long-term viability of the species and is considered to appropriately compensate for the residual impacts of development.

19.3.9 CONSISTENCY WITH RECOVERY PLAN

In accordance with Section 146K of the EPBC Act, this section considers whether the implementation of the Plan is not inconsistent with the species' Recovery Plan. It considers two questions:

- Does the Plan prevent achievement of the objectives of the Recovery Plan?
- Does the Plan prevent implementation of the Recovery Plan actions?

These questions are discussed below.

DOES THE PLAN PREVENT ACHIEVEMENT OF THE OBJECTIVES OF THE RECOVERY PLAN?

The primary recovery criterion of the Recovery Plan is that viable populations or clusters of populations of *D. impar* are represented and maintained in reserves or appropriately managed sites across the known distribution of the species. This overall criterion is associated with a series of specific objectives (Smith and Robertson, 1999):

1. Establish and maintain national forums for the discussion and organisation of the conservation of *D. impar* across its natural distribution
2. Determine the distribution of potential *D. impar* habitat
3. Determine the current distribution and abundance of *D. impar* in Victoria, New South Wales, the Australian Capital Territory and South Australia
4. Establish a series of reserves and other managed areas such that viable populations are maintained across the known distribution of the species
5. Determine the habitat use and ecological requirements of *D. impar*
6. Identify the nature and extent of the threatening processes affecting *D. impar*
7. Undertake a program of research and monitoring to provide a basis for adaptive management of *D. impar*
8. Increase community awareness and involve the community in aspects of the recovery program

9. Assess the need for salvage and translocation, determine their feasibilities, develop protocols and undertake a trial translocation if appropriate
10. Ensure that captive population(s) are used to support education and research elements of the Recovery Plan

The outcome under the Plan for SLL will not prevent the achievement of any of the objectives of the Recovery Plan.

DOES THE PLAN PREVENT IMPLEMENTATION OF THE RECOVERY PLAN ACTIONS?

The Recovery Plan identifies a set of actions in order to deliver on the objectives. Each action is associated with performance criteria (Smith and Robertson, 1999). The Plan will not prevent the implementation of any of these actions, nor will it prevent the achievement of any of the performance criteria.

19.3.10 KEY THREATENING PROCESSES AND CONSISTENCY WITH THREAT ABATEMENT PLANS

Relevant Key Threatening Processes (KTPs) and any of their associated Threat Abatement Plans (TAPs) have been identified in Table 19-5 where they relate to:

- The potential direct impacts of the Plan, or
- The relevant indirect impacts

Table 19-5: Relevant Key Threatening Processes and associated Threat Abatement Plans for the Striped Legless Lizard

Key threatening process	Threat abatement plan
Competition and land degradation by rabbits	There is no relevant TAP
Land clearance	There is no relevant TAP
Loss and degradation of native plant and animal habitat by invasion of escaped garden plants	There is no relevant TAP
Novel biota and their impact on biodiversity	There is no relevant TAP
Predation by feral cats	Threat abatement plan for predation by feral cats (DoE, 2015c)
Predation by European red fox	Threat abatement plan for predation by the European red fox (DEWHA, 2008d)

POTENTIAL TO OCCUR WITHIN THE GROWTH AREAS

One threatened fauna species, the Blue-winged Parrot, has the potential to occur within the Growth Areas. The presence of potential habitat for this species has not been confirmed by site surveys, as the species was listed as threatened in March 2023.

19.4 BLUE-WINGED PARROT (*NEOPHEMA CHRYSOSTOMA*)

SPECIES BACKGROUND

This section sets out the basic information about the species. It provides an overview of the species' ecology, distribution, habitat, populations, and threats. These provide context for the impact assessment. At the end of the section are links to key species' documents that provide additional background information.

EPBC ACT LISTING	Vulnerable
DESCRIPTION	Blue-winged Parrot is a small parrot up to 24 cm in length and less than 50 g in weight. The species has an olive-green head and upper body, which grades to light green on the fore-neck. It has yellow underparts, and a large dark blue patch on the wings (DCCEEW, 2023).
ECOLOGY	The breeding season occurs during spring and summer. The species is a partial migrant and most Blue-winged Parrots migrate to Tasmania to breed. The majority of the population will migrate back to the mainland leaving part of the population behind in Tasmania. Breeding also occurs on the mainland, in coastal south-eastern South Australia, and in southern Victoria. Overall, the movements of the species are poorly understood (DCCEEW, 2023). Breeding occurs in monogamous pairs. Nests are created in the hollows of live or dead trees or stumps. Four to six eggs are laid and incubated by females. Nestlings are fed by both parents (DCCEEW, 2023). Blue-winged Parrots forage for seeds of native and introduced grasses, herbs and shrubs in pairs or small parties near or on the ground (DCCEEW, 2023).
DISTRIBUTION AND HABITAT	The species occurs across south-eastern Australia and Tasmania. During the breeding season the species occurs in Tasmania, coastal south-eastern South Australia, and in southern Victoria. During the non-breeding season, the species has been recorded in northern Victoria, eastern South Australia, south-western Queensland, and Western NSW. The species may also reach eastern Victoria and south-eastern NSW, especially during the southern migration (DCCEEW, 2023). Habitat for Blue-winged Parrot includes coastal, sub-coastal, inland areas, and semi-arid zones. The species is often found near wetlands in semi-arid or coastal areas. It appears to favour habitat comprised of grassy woodlands or grasslands. It has also been observed in disturbed or developed environments including paddocks, airfields and golf courses (DCCEEW, 2023). Habitat used by the species during the breeding season typically comprises woodlands and eucalypt forests. Breeding habitat in Victoria is typically heathy forests and woodlands, or wetter forests following logging or fire. Habitat used in the non-breeding season varies though may include saltmarshes and agricultural land in Tasmania, and rough pasture and saltmarsh on the mainland. The species may travel up to 100 km to feed in semi-arid chenopod shrubland and sparse grassland during winter (DCCEEW, 2023). The species Conservation Advice identifies habitat critical to the survival of the species to include areas of (DCCEEW, 2023): • *Foraging and staging habitats found from coastal, sub-coastal and inland areas, right through to semi-arid zones including: grasslands, grassy woodlands and semi-arid chenopod shrubland with native and introduced grasses, herbs and shrubs* • *Wetlands both near the coast and in semi-arid zones used for foraging and staging* • *Eucalypt forests and woodlands within the breeding range in Tasmania, coastal southeastern South Australia and southern Victoria* • *Live and dead trees and stumps with suitable hollows within the breeding range*

	Further, "*any known or likely habitat should be considered as habitat critical to the survival of the species*" and "*areas that are not currently occupied by the species due to recent disturbance (e.g., fire, grazing or human activity), but should become suitable again in the future, should also be considered habitat critical to the survival of the species*" (DCCEEW, 2023).
POPULATIONS	It is estimated that there are 10,000 mature individuals in the wild. The population is thought to have declined by 30 – 50 per cent in the past three generations. The Victorian and Tasmanian breeding subpopulations are considered to be separate although they may mix (DCCEEW, 2023).
THREATS	The Conservation Advice for the species has identified the following threats (DCCEEW, 2023): • Habitat loss, degradation, and fragmentation – caused by clearing for agriculture, livestock grazing, and invasive weeds • Increased likelihood of extreme weather events associated with climate change • Inappropriate fire regimes • Predation by cats • Predation by foxes on the mainland • Predation by introduced sugar gliders in Tasmania • Competition for tree hollows • Psittacine Beak and Feather Disease
RELEVANT PLANS AND POLICIES	Conservation Advice for *Neophema chrysostoma* (Blue-winged Parrot)(DCCEEW, 2023) Threat abatement plan for predation by feral cats (DoE, 2015c) Threat abatement plan for predation by the European red fox (DEWHA, 2008d)
SPECIES-SPECIFIC GUIDELINES	There are no species specific guidelines for this species.
SPRAT LINK	http://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=726

APPROACH TO BASELINE DATA

This section provides a summary of the baseline information used in the assessment. Please refer to Chapter 13 for further details about the threatened species baseline data, including the various approaches to habitat and population mapping.

POPULATION MAPPING	**RECORD SELECTION**
	Species records were downloaded from the VBA. The VBA records were filtered to remove records prior to 1990 for the purpose of the impact assessment
	RECORD DOWNLOAD DATE
	VBA records for Blue-winged Parrot used in this assessment were downloaded in May 2023
	METHOD FOR IDENTIFYING POPULATIONS
	The records of Blue-Winged Parrot within the Study Area are considered to be one population

OCCURRENCE IN THE STUDY AREA

This section describes the occurrence of the species in the Study Area based a qualitative description of VBA records and potentially suitable habitat.

See Map 19-24 for a map of records across the Study Area.

19.4.1 RECORDS AND POTENTIALLY SUITABLE HABITAT IN THE STUDY AREA

The species has not been recorded in the Strategic Assessment Area. There are 373 VBA records of Blue-winged Parrot within the Study Area. Records occur in higher densities near the wetlands and coastal areas associated with the Port Phillip Bay (Western Shoreline) and Bellarine Peninsula Ramsar site. Fewer records are also scattered across inland parts

of the Study Area, including in rural pastures, residential areas, woodland remnants and roadside vegetation. The distribution of records across the Study Area reflects the range of habitat types associated with the species. The density of records in wetlands and coastal areas reflects the relative importance of habitat within the Study Area.

Specific habitat mapping or modelling showing the extent of potential habitat for the species across the Study Area has not been developed as part of the Strategic Assessment. Instead:

- The distribution of VBA records across the Study Area provides an adequate indication of the type and range of habitats used by the species
- The density of records reflects the relative importance of these habitat types, with the more coastal areas preferred habitat with which the birds appear to show greater fidelity

Potentially suitable habitat within the Growth Areas and the Strategic Assessment Areas is likely limited to foraging areas of native and introduced grassland, although the species may utilise more disturbed areas such as rural residential and agricultural land. Although these areas correspond with some aspects of the habitat description in the Conservation Advice, the Strategic Assessment Area is unlikely to provide important habitat for the species given the:

- Absence of records within the Strategic Assessment Area
- Homogeneity of the landscape and broad availability of similar habitat values across the Victorian Volcanic Plains
- Absence of suitable habitat for breeding, roosting or dispersal within the Strategic Assessment Area
- Ecology of the species. It is highly mobile and may travel up to 100 km inland for foraging habitat (DCCEEW, 2023)
- Species does not have restricted foraging habitat and demonstrates a level of versatility in the types of environments used for foraging

ANALYSIS OF POTENTIAL IMPACTS AND OUTCOMES FOR THE SPECIES

This section provides an overview of the potential direct and indirect impacts of the Plan on the species, and a discussion of the outcomes of the Plan that are relevant to the species.

19.4.2 AVOIDANCE OF POTENTIAL DIRECT IMPACTS TO RECORDS AND SUITABLE HABITAT

There will be no direct impacts to areas associated with known records of Blue-winged Parrot under the Plan. However, there may be direct impacts to areas of potential foraging habitat associated with grasslands in the Growth Areas.

The avoided areas within the NGGA are likely to provide benefits to the species (see Chapter 16). The NGGA Conservation Area supports 55.1 ha of native grassland and areas of non-native grassland which may be suitable for the species. These areas will be protected and managed under the Plan.

19.4.3 RELEVANT POTENTIAL INDIRECT IMPACTS

The Conservation Advice for Blue-winged Parrot identifies a range of threats to the species (DCCEEW, 2023). Development under the Plan is unlikely to either introduce or substantially exacerbate any of these threats on the species within the region. This conclusion is based on the:

- Broad distribution of records across the Study Area which indicates that the species uses a variety of habitats, is highly mobile and preferentially uses habitats outside the Strategic Assessment Area which are unlikely to be affected by development
- Landscape context of the existing records in the Study Area including a number of records which are surrounded by or within existing urban development and agricultural land, and therefore already exposed to a range of current threats
- Mitigation measures which are a requirement of the existing planning system and will address and minimise the standard indirect impacts associated with urban development

Refer to Section 17.2 of Chapter 17 for a detailed assessment of potential indirect impacts associated with implementation of the Plan more generally.

19.4.4 OFFSETS PROVIDED UNDER THE PLAN

The Plan is unlikely to lead to residual adverse impacts on the Blue-winged Parrot which would require species-specific offsets. However, it is noted that the Plan will deliver a package of offsets which may provide direct benefits for the species. The Blue-winged Parrot is known to use grassy woodland or grassland habitats (DCCEEW, 2023). Offsets delivered under the Plan will include areas of potential habitat within the range of the Blue-winged Parrot associated with the following:

- 45 ha of Natural Temperate Grassland
- 585 ha of known habitat for the Golden Sun Moth
- 375 ha of known habitat for the Striped Legless Lizard

19.4.5 SUMMARY OF POTENTIAL IMPACTS AND OUTCOMES FOR THE SPECIES

Overall, the Plan is unlikely to lead to residual adverse impacts for Blue-winged Parrot. The impact assessment presented here concludes that:

- Development under the Plan will not directly impact areas which are known to be used by the Blue-Winged Parrot
- Loss of potential foraging habitat within the Growth Areas is unlikely to affect the species given the reduced relative importance of the potential habitat compared with preferred coastal areas, the broad availability of similar habitat values across the landscape and the dispersal capacity of the species
- Potential indirect impacts to the species are unlikely and any residual indirect impacts will be managed by mitigation measures under the Plan
- The Plan may provide benefits to the species through the protection of grassland habitat including:
    - The avoidance of 108.6 ha of native and introduced grassland in the NGGA Conservation Area
    - The offsetting of strategic areas of native grassland within the range of the species through other commonwealth offset commitments

19.4.6 CONSISTENCY WITH RECOVERY PLAN

There is no adopted or made Recovery Plan for this species.

19.4.7 KEY THREATENING PROCESSES AND CONSISTENCY WITH THREAT ABATEMENT PLANS

Relevant Key Threatening Processes (KTPs) and any of their associated Threat Abatement Plans (TAPs) have been identified in Table 19-6 where they relate to:

- The potential direct impacts of the Plan, or
- The relevant indirect impacts

Table 19-6: Relevant Key Threatening Processes and associated Threat Abatement Plans for the Blue-winged Parrot

Key threatening process	Threat abatement plan
Fire regimes that cause declines in biodiversity	There is no relevant TAP
Land clearance	There is no relevant TAP
Loss of climatic habitat caused by anthropogenic emissions of greenhouse gases	There is no relevant TAP
Novel biota and their impact on biodiversity	There is no relevant TAP
Predation by feral cats	Threat abatement plan for predation by feral cats (DoE, 2015c)
Predation by the European red fox	Threat abatement plan for predation by the European red fox (DEWHA, 2008d)
Psittacine Circoviral (beak and feather) Disease affecting endangered psittacine species	There is no relevant TAP

OCCUR OUTSIDE THE GROWTH AREAS

19.5 COMBINED SPECIES ASSESSMENT

19.5.1 INTRODUCTION

This section contains a combined impact assessment for eleven bird species and three fish species.

The eleven bird species:

- Occur in similar locations, generally use similar habitats in the Study Area, and generally have similar ecological traits with regards to habitat use and threatening processes
- Will not be subject to direct impacts:
  - All species have no records within the Growth Areas or the Strategic Assessment Area
  - All species have no mapped habitat in the Growth Areas, and minimal mapped habitat in the wider Strategic Assessment Area
- Will only have potential for indirect impacts under the Plan. Due to ecological similarities between the species, there is substantial overlap in potential impact pathways for each species

The three fish species:

- Use similar habitats in the Study Area and subsequently:
  - Have similar ecological traits with regards to habitat use and threatening processes
  - Occur in similar locations within the Study Area
- Have potential indirect impacts under the Plan. Due to ecological similarities between the species, there is substantial overlap in potential impact pathways for each species

This section is designed to improve clarity and reduce repetition in presenting the assessment results for each of these species. It includes:

- A brief description of where each species occurs within the Study Area
- How the Plan has potential to indirectly impact each species (noting that direct impacts will not occur)
- The mitigation measures under the Plan to mitigate these impacts
- An assessment of whether offsets are required to address residual impacts
- An assessment of approval requirements for migratory species with regards to the Plan
- An overall evaluation of the adequacy of the Plan with regards to these species

It is also recognised that seven of the eleven bird species are listed as migratory species under the EPBC Act. T

More detailed information on each of the species considered here is located in Attachment A and Attachment B. Information in these Attachments includes:

- Species background, including the species' ecology, distribution, habitat, populations, and threats
- A detailed description of the species' occurrence in the Study Area
- Identification and description of each of the relevant potential indirect impacts to each species due to development under the Plan
- An assessment of consistency of the Plan with the species' Recovery Plan
- Identification of relevant Key Threatening Processes and Threat Abatement Plans for each species

The package of information for each species addresses the requirements of the terms of reference.

19.5.2 HABITAT CONTEXT

This section provides a summary of the locations of the Study Area that are downstream of the Growth Areas. These locations variously provide habitat for the bird and fish species assessed here.

There are four catchments which are hydrologically linked to the Growth Areas (see Map 3-9). These are the Moorabool River catchment, Hovells Creek catchment, Cowies Creek catchment, and the Wharf Road and St Georges drainage system. Refer to Section 3.3.10 of Chapter 3 for a more detailed description of each of these waterways.

The Moorabool River catchment occurs in the south-west of the Strategic Assessment Area. Approximately 39 per cent of the WGGA, and a small proportion of the NGGA (~2 per cent), drains into the Moorabool River (The City of Greater Geelong, 2016). The Moorabool River then flows southward, joining the Barwon River at Fyansford. The Barwon River then continues to flow south into the Lake Connewarre Complex which is part of the Port Phillip Bay and Bellarine Peninsula Ramsar site. This is a large wetland complex which includes multiple wetlands, including Lake Connewarre, Reedy Lake, Hospital Swamp, and Murtnaghurt Lagoon. The wetland is an estuarine system which supports a diverse range of aquatic vegetation communities and provides important feeding and breeding grounds for a wide range of native fish, wetland birds, migratory birds, and threatened species (Corangamite CMA, 2014). The Lake Connewarre Complex then drains southwards into the ocean at Barwon Heads.

The Hovells Creek catchment occurs in the north-east of the Strategic Assessment Area. Approximately 52 per cent of the NGGA will drain to the Hovells Creek Catchment (The City of Greater Geelong, 2016). Downstream of the NGGA, Hovells Creek flows southward into Limeburners Bay, which then discharges into Corio Bay. Limeburners Bay is part of the Port Phillip Bay and Bellarine Peninsula Ramsar site. It supports a range of aquatic vegetation communities and provides key habitat for birds and amphibians (including migratory and threatened species), in addition to a range of recreational values (Corangamite CMA, 2014).

The Cowies Creek catchment occurs in the central part of the Strategic Assessment Area. Approximately 25 per cent of the NGGA and 61 per cent of the WGGA drains to Cowies Creek (The City of Greater Geelong, 2016). Cowies Creek contains freshwater wetlands that occur in ephemeral online pools and drains eastward into Corio Bay.

The Wharf Road and St Georges drainage system is located in the east of the Strategic Assessment Area. Approximately 21 per cent of the NGGA drains into Corio Bay via this system (The City of Greater Geelong, 2016). Drainage lines in this system are comprised of lined open drains. Subsequently, this system is heavily modified and is not considered to support wetland, estuarine or riparian habitat.

19.5.3 SPECIES ADDRESSED IN THE COMBINED ASSESSMENT

The species considered in this combined assessment, their occurrence in the Study Area, and the relevant indirect impacts are shown in:

- Table 19-7 for birds
- Table 19-8 for fish

Indirect impacts were identified as being relevant to the species if:

- The indirect impact is identified as a threat in a relevant profile, Conservation Advice, or Recovery Plan, and
- The Plan has the potential to introduce or exacerbate the threat in areas which support records and/or mapped habitat for the species

Refer to Attachment A and Attachment B for further detail regarding the identification of indirect impacts.

Table 19-7: The occurrence in the Study Area and relevant indirect impacts under the Plan for each of the bird species considered in the combined assessment

Common name	Scientific name	EPBC listing^	Occurrence in the Study Area	Map	Relevant indirect impacts
Australasian Bittern	*Botaurus poiciloptilus*	E	Records and habitat of the Australasian Bittern occurs along the northern shoreline of Port Phillip Bay, from Limeburners Bay in the west through to the Study Area boundary in the east. Records and habitat also occur at the Lake Connewarre Complex. A small number of records and area of habitat occurs in the Moolap locality at Point Henry. Smaller areas of mapped habitat occur in riparian environments along the Barwon River, the Moorabool River, Hovells Creek, and Thompson Creek. There are a small number of records at Hovells Creek, and no records in other riparian areas. Isolated records occur in Brisbane Ranges National Park in the north-west of the Study Area, and at the north-east boundary of the Study Area.	Map 19-10	Changes to water flows and quality
Australian Fairy Tern	*Sternula nereis nereis*	V	Mapped habitat and a large number of records for the Australian Fairy Tern occur along the northern shoreline of Port Phillip Bay, from Limeburners Bay in the west through to the Study Area boundary in the east. Multiple records and mapped habitat occur in the Moolap locality. Mapped habitat and a smaller number of records occurs at the Lake Connewarre Complex. A smaller area of habitat not associated with records occurs in the estuarine environment of Thompson Creek in the south of the Study Area.	Map 19-11	Changes to water flows and quality Disturbance from increased public access to natural areas
Australian Painted Snipe	*Rostratula australis*	E	A large area of habitat and some records of the species occur at the Lake Connewarre Complex. Some records occur in the north-east of the Study Area in the locality of Little River. An isolated record occurs at Brisbane Ranges National Park in the north-west of the Study Area. Otherwise, habitat is mapped largely along riparian habitats, including the Moorabool River, Barwon River, Hovells Creek, Little River, and Thompsons Creek. Some habitat is also mapped along the coastline in the Port Wilson area.	Map 19-12	Changes to water flows and quality Disturbance from increased public access to natural areas

Common name	Scientific name	EPBC listing^	Occurrence in the Study Area	Map	Relevant indirect impacts
Curlew Sandpiper	*Calidris ferruginea*	CE; FPAL; Mig	Mapped habitat and a large number of records for the Curlew Sandpiper occur along the northern shoreline of Port Phillip Bay, from Limeburners Bay in the west through to the Study Area boundary in the east. Multiple records and mapped habitat occur in the Moolap locality, and at the Lake Connewarre Complex. A smaller area of habitat not associated with records occurs in the estuarine environment of Thompson Creek in the south of the Study Area.	Map 19-13	Changes to water flows and quality Disturbance from increased public access to natural areas
Eastern Curlew	*Numenius madagascariensis*	CE; FPAL; Mig	Mapped habitat and records for the Eastern Curlew occur along the northern shoreline of Port Phillip Bay, from Limeburners Bay in the west through to the Study Area boundary in the east. Records and mapped habitat also occur in the Moolap locality and at the Lake Connewarre Complex. A smaller area of habitat not associated with records occurs in the estuarine environment of Thompson Creek in the south of the Study Area.	Map 19-14	Changes to water flows and quality Disturbance from increased public access to natural areas
Great Knot	*Calidris tenuirostris*	CE; FPAL; Mig	Mapped habitat and records for the Great Knot occur along the northern shoreline of Port Phillip Bay, from Limeburners Bay in the west through to the Study Area boundary in the east. Records and mapped habitat also occur in the Moolap locality and at the Lake Connewarre Complex. Habitat not associated with records occurs in the estuarine environment of Thompson Creek in the south of the Study Area.	Map 19-15	Changes to water flows and quality Disturbance from increased public access to natural areas
Greater Sand Plover	*Charadrius leschenaultii*	V; FPAL; Mig	Two records and mapped habitat for the Greater Sand Plover occurs in the Moolap locality. Otherwise, habitat is mapped along the northern shoreline of Port Phillip Bay, from Limeburners Bay in the west through to the Study Area boundary in the east, and at the Lake Connewarre Complex.	Map 19-16	Changes to water flows and quality Disturbance from increased public access to natural areas
Lesser Sand Plover	*Charadrius mongolus*	E; Mig	Mapped habitat and one record of the Lesser Sand Plover occurs along the northern shoreline of Port Phillip Bay, from Limeburners Bay in the west through to the Study Area boundary in the east. Three records and mapped habitat also occur in the Moolap locality.	Map 19-17	Changes to water flows and quality Disturbance from increased public access to natural areas

Common name	Scientific name	EPBC listing^	Occurrence in the Study Area	Map	Relevant indirect impacts
			Mapped habitat not associated with records occurs at the Lake Connewarre Complex and in the estuarine environment of Thompson Creek in the south of the Study Area.		
Orange-bellied Parrot	*Neophema chrysogaster*	CE	Mapped habitat and a large number of records for the Orange-bellied Parrot occur along the northern shoreline of Port Phillip Bay, from Limeburners Bay in the west through to the Study Area boundary in the east. Multiple records and mapped habitat also occur at the Lake Connewarre Complex. Habitat not associated with records is located at Moolap and at the estuarine environment of Thompson Creek in the south of the Study Area.	Map 19-18	Changes to water flows and quality
Red Knot	*Calidris canutus*	E; FPAL; Mig	Mapped habitat and records for the Red Knot occur along the northern shoreline of Port Phillip Bay, from Limeburners Bay in the west through to the Study Area boundary in the east. Records and mapped habitat also occur in the Moolap locality and at the Lake Connewarre Complex. Habitat not associated with records occurs in the estuarine environment of Thompson Creek in the south of the Study Area.	Map 19-19	Changes to water flows and quality Disturbance from increased public access to natural areas
Western Alaskan Bar-tailed Godwit	*Limosa lapponica baueri*	V; FPAL; Mig (as *Limosa lapponica)*	Mapped habitat and records for the Western Alaskan Bar-tailed Godwit occur along the northern shoreline of Port Phillip Bay, from Limeburners Bay in the west through to the Study Area boundary in the east. Records and mapped habitat occur in the Moolap locality, and at the Lake Connewarre Complex. A smaller area of habitat not associated with records occurs in the estuarine environment of Thompson Creek in the south of the Study Area.	Map 19-20	Changes to water flows and quality Disturbance from increased public access to natural areas

^ The following abbreviations have been used: V – Vulnerable; E – Endangered; CE – Critically Endangered; FPAL – Finalised Priority Assessment List; Mig – Migratory

Table 19-8: The occurrence in the Study Area and relevant indirect impacts under the Plan for each of the fish species considered in the combined assessment

Common name	Scientific name	EPBC listing^	Occurrence in the Study Area	Map	Relevant indirect impacts
Australian Grayling	*Prototroctes maraena*	V	Site surveys indicated the presence of suitable habitat at Cowies Creek for the Australian Grayling (EHP, 2021). However, no records of the species occur at Cowies Creek. Potential habitat for the species occurs within the Moorabool River adjacent to the WGGA. Records for this species occur where the Moorabool River meets the Barwon River at Fyansford. Habitat is mapped along the Moorabool River and the Barwon River. Some habitat is also mapped within the Lake Connewarre Complex. Habitat is also mapped at Hovells Creek, although no records occur at this location.	Map 19-21	Changes to water flows and quality Recreational fishing
Eastern Dwarf Galaxias	*Galaxiella pusilla**	V; FPAL	There are no VBA records of the Eastern Dwarf Galaxias within the Study Area. However, the species is known to occur within the upper Barwon River catchment near Barwon Downs, and in the Moorabool River near Batesford (EHP, 2021). It is noted that Batesford is within the Study Area and is near the Strategic Assessment Area. It is possible that there are records of the species in this area which have not been entered into the VBA database. The Corangamite CMA is proposing to remove in-stream barriers associated with Batesford quarry within the next few years which may allow the Eastern Dwarf Galaxias to access upstream habitat within the Moorabool River (EHP, 2021) Site surveys indicated the presence of suitable habitat at Cowies Creek for the Eastern Dwarf Galaxias (EHP, 2021). Potential habitat for the species occurs within the Moorabool River adjacent to the WGGA. Habitat is mapped along the Moorabool River, the Barwon River and at Hovells Creek. Some habitat is also mapped within the Lake Connewarre Complex.	Map 19-22	Changes to water flows and quality Illegal collection
Yarra Pygmy Perch	*Nannoperca obscura*	V; FPAL	VBA records for this species occur in multiple locations along the Moorabool River, along the Barwon River, within Waurn Ponds Creek, within the Lake Connewarre Complex, and along Thompson Creek. Habitat for the species is mapped along the Moorabool River, Barwon River, Waurn Ponds Creek, Armstrong Creek, and Thompson Creek. Some habitat is	Map 19-23	Changes to water flows and quality Illegal collection

Common name	Scientific name	EPBC listing^	Occurrence in the Study Area	Map	Relevant indirect impacts
			also mapped within the Lake Connewarre Complex. Potential habitat for the species occurs within the Moorabool River adjacent to the WGGA. It is reported that there are records of the species immediately adjacent to WGGA in the Moorabool River (EHP, 2021). However, there are no records in this locality on the VBA database. It is possible that there are records of the species in this area which have not been entered into the VBA database.		

^ The following abbreviations have been used: V – Vulnerable; E – Endangered; CE – Critically Endangered; FPAL – Finalised Priority Assessment List; Mig - Migratory

*Note that the taxonomy of this species has recently been revised, and *G. pusilla* has been split into two species – *G. pusilla* and *G. toourtkoourt*. The Study Area occurs within the range of *G. toourtkoourt*. However, the species is referred to as *G. pusilla* as that is the name which the species is listed as under the EPBC Act.

19.5.4 ANALYSIS OF IMPACTS

This section provides an analysis of the potential impacts for the species. It provides a discussion of avoidance and direct impacts (noting none will occur), and the relevant indirect impacts and how they will be managed under the Plan.

AVOIDANCE AND DIRECT IMPACTS

Bird species

There are no records or potential habitat for any of the bird species within the Growth Areas and the likelihood of the species relying on the Strategic Assessment Area for any key stages of their life cycles is considered to be very low. There will be no direct impacts to any of the species.

Fish species

Potential habitat for the three fish species is mapped within the Moorabool River within the WGGA and the wider Strategic Assessment Area. The Moorabool River corridor within the WGGA will be protected as part of the precinct planning processes for Batesford North, and no direct impacts will occur to habitat for these fish.

INDIRECT IMPACTS

There are two potential indirect impacts associated with development under the Plan which may affect the birds considered in this assessment. These are identified in Table 19-7 and include:

- Changes to water flows and quality
- Disturbance from increased public access to natural areas

Further, there are two potential indirect impacts associated with development under the Plan which may affect the fish considered in this assessment. These are identified in Table 19-8 and include:

- Changes to water flows and quality
- Recreational fishing and illegal collection

Each of these is assessed below. Note that the assessment of changes to water flows and quality considers indirect impacts to both birds and fish.

Changes to water flows and quality

Mechanism of impact

The Plan has the potential to impact on water flows and quality in the following ways (US EPA, 2022):

- Increased impermeable surfaces in developed areas reduces infiltration and increases surface runoff volumes during rain events
- The speed and efficiency of surface runoff flows to streams can be increased by stormwater drainage infrastructure
- Vegetation removal can reduce evapotranspiration

Urbanisation can subsequently increase the frequency, magnitude and duration of high flow events, increase the speed of flow and likelihood of flash flooding, and decrease the lag time of flows (meaning that a flow event finishes more quickly). Stream flow characteristics during low flow periods can also be affected (US EPA, 2022).

Urban development can also impact upon water quality through polluting runoff. Stormwater from urban areas contains a range of pollutants, including sediments, nutrients, organics, and heavy metals and litter (Shahzad *et al.*, 2022).

How impacts can affect threatened birds

Changes to water flows can have a range of impacts on threatened birds. For instance, changes to surface water runoff volumes into estuarine environments can affect water body salinity, affecting habitat values (DAWE, 2020). Increased or decreased discharge volumes can result in habitats either overfilling and becoming inundated or drying up and losing hydrological connections with nearby water bodies (DAWE, 2020). Changed hydrological regimes can also affect the patterns of natural water level fluctuation, which can result in water levels in some areas becoming too deep and developing inappropriate vegetation cover (DSEWPaC, 2013).

Changes to water quality also impact threatened birds. For example, nutrient enrichment of wetlands can cause cyanobacterium blooms which impact upon habitat values and prey availability (TSSC, 2016c).

How impacts can affect threatened fish

Changes to water flows can have a range of impacts on threatened fish. For example, inappropriate water velocities can impact spawning and migration triggers (TSSC, 2021). Alterations to flooding and drying cycles can also impact habitat connectivity (Saddlier and Hammer, 2010; Saddlier, Jackson and Hammer, 2010).

Changes to water quality can also impact threatened fish. For example, sedimentation can result in siltation of gravel beds, which can affect spawning habitat (TSSC, 2021).

General areas at risk from impacts

The areas which are at risk from impacts to changes in water flows and quality are aquatic environments which are downstream of the Growth Areas. These include the Moorabool River (which flows into the Barwon River and Lake Connewarre Complex), Hovells Creek (which flows into Limeburners Bay), and Cowies Creek.

Areas at risk from impacts associated with bird species

Of these areas, wetland and estuarine environments (including the Lake Connewarre Complex and Limeburners Bay) are most strongly associated with records and habitat for the eleven bird species assessed here. Riparian environments including the Moorabool River, Barwon River and Hovells Creek are associated with fewer species' records and smaller areas of habitat. There are no records and minimal habitat mapped for the eleven bird species along Cowies Creek. Refer to Table 19-7 for a brief description of occurrence of each species in the Study Area. Detailed descriptions of occurrence are available in Attachment A.

Areas at risk from impacts associated with fish species

Records of all three fish species occur within the Moorabool catchment. Further, site surveys indicate that suitable habitat is present within the Moorabool River for the Australian Grayling and Eastern Dwarf Galaxias (EHP, 2021), while habitat is mapped along the Moorabool River for the Yarra Pygmy Perch. For planning purposes, these species are assumed to be present within the Moorabool River within and adjacent to WGGA and further downstream.

Site surveys have indicated the presence of suitable habitat in Cowies Creek for the Australian Grayling and Eastern Dwarf Galaxias (EHP, 2021). Habitat is also mapped in this creek for the Yarra Pygmy Perch. No records of any of these species occur within Cowies Creek.

Potential habitat for all three fish species is mapped within Hovells Creek. No records of the species occur in this creek.

Mitigation measures to minimise impacts

The Plan includes a specific Commitment (Commitment 9) to minimise the indirect impacts of the development on protected matters associated with waterways, riparian areas and wetlands, including EPBC listed threatened and migratory birds, and the three fish species. The measures relevant to water flow and quality that will be undertaken to deliver on this Commitment include:

- Undertaking relevant technical studies to understand the key risks from development on protected matters associated with Hovells Creek, Cowies Creek and the Moorabool River. These studies will:
    - Address potential risks associated with changes to water quality and hydrology as a result of development within the Growth Areas

  - Identify appropriate measures, standards or targets to avoid and minimise adverse impacts on protected matters including, as relevant:
    - Water quality parameters
    - Water retention and flow management requirements
    - Limits on extraction or use
    - Habitat buffer requirements
    - Monitoring and reporting
- Preparing guidelines based on the results of the relevant technical studies to guide the preparation of PSPs and decisions on planning permits and permit conditions to ensure risks to protected matters in relation to indirect and downstream impacts are adequately managed
- Undertaking a planning scheme amendment or other appropriate process to ensure guidelines are considered during preparation of PSPs and in decisions on planning permits and permit conditions

There are also a range of existing measures within the planning system that address changes to water flows and quality. The Geelong Planning Scheme includes requirements to:

- Ensure land use on floodplains minimises the risk of waterway contamination during flooding (Clause 13.03-1S)
- Prevent inappropriate development in areas prone to erosion (Clause 13.04-1S)
- Retain natural drainage corridors, minimise runoff volume from developed areas, filter sediment and waste from stormwater prior to discharge, ensure land use and development minimises nutrient contributions to runoff, and implement measures to minimise sediment discharge from construction sites (Clause 14.02-1S)
- Minimise impacts to water quality through ensuring that land uses which have potential to produce contaminated runoff are appropriately sited and managed (Clause 14.02-2S)
- Implement integrated water management to sustainably manage water supply and demand, water resources, wastewater, drainage, and stormwater (Clause 19.03-3S)

The Geelong Planning Scheme also includes a range of requirements to ensure stormwater management meets appropriate objectives and standards, including objectives for stormwater quality (for example, see Clause 53.18).

The NWGGA Framework Plan also includes various mitigation-related actions to address water flows and quality, including implementation of riparian buffers, and the preparation of masterplans for Cowies Creek and Barwon and Moorabool rivers for integrated water management.

Commitment 7 of the Plan ensures that these standard mitigation measures will continue to be implemented over the life of the Plan. Refer to Section 5.5 of Chapter 5 for a more detailed description of these existing measures.

Implementation of Commitments 7 and 9 under the Plan will adequately minimise the risk of adverse impacts associated with changes to water flow and quality.

Disturbance from increased public access to natural areas

Human disturbance to natural areas can affect threatened migratory birds by interrupting feeding and roosting behaviours, reducing the time available for a species to forage and rest and increasing the time spent by the species engaging in vigilance and anti-predator behaviours. This can affect the species' capacity to build up energy stores required for migration (DoE, 2015b).

Human disturbance to non-migratory threatened birds can also impact breeding success. For example, disturbance can cause adults to leave the nest, which can result in the overheating or chilling of eggs and death of chicks from exposure. Disturbance can also result in adults abandoning nests. Further, predation of eggs and chicks in exposed nests can also increase during periods of human disturbance (DAWE, 2020).

The Plan has potential to increase the risk of disturbance from increased public access to natural areas through increasing the population size of the Geelong region. However, it is also recognised that the Geelong region is already substantially developed, with an existing large population size, in addition to a large number of visitors to the region. Therefore, disturbance of natural areas from public access is considered an existing threat in the region. It is unlikely that the Plan would substantially exacerbate this threat beyond its current levels in the region.

There are a range of existing measures in place in the wider Geelong region to manage human disturbance to natural areas. These include ongoing management of existing reserves and management of domestic dogs in public areas.

There are a number of reserves within the wider Geelong locality which support records and/or habitat for the eleven threatened birds assessed here. These include Limeburners Lagoon Flora and Fauna Reserve, Lake Connewarre Wildlife Reserve, The Spit Wildlife Reserve, and Breamlea Flora and Fauna Reserve. Each of these reserves is managed by Parks Victoria to protect and enhance flora and fauna values while supporting appropriate community use. Refer to Table 19-9 for further information on the characteristics of each reserve, existing management measures in place, and threatened bird species supported by each reserve (with regards to the eleven bird species assessed here).

In addition to these reserves, there is also a region at Moolap which is managed for conservation purposes under the Moolap Coastal Strategic Framework Plan. Refer to Table 19-9 for further information.

Further, there are existing management frameworks to manage the impacts of domestic dogs in coastal environments. State-appointed independent land management authorities are responsible for large areas of coastline around the Bellarine Peninsula. These authorities develop dog orders for these coastal areas. Geelong City Council is then responsible for patrolling and enforcing dog orders. Dog orders include seasonal dog orders to protect endangered wildlife and coastal nesting birds (The City of Greater Geelong, 2022c).

Overall, it is considered that the existing management measures in the wider region will adequately minimise the risk of adverse impacts associated with disturbance from increased public access to natural areas.

Recreational fishing and illegal collection

Recreational fishing poses a threat to the Australian Grayling. While it is protected from targeted fishing, the species is still caught incidentally. As a delicate species with deciduous scales, the Australian Grayling is extremely prone to handling stress (TSSC, 2021).

Illegal collection poses a threat to the Eastern Dwarf Galaxias and the Yarra Pygmy Perch. Collection has potential to decrease population sizes and impact genetic integrity of wild populations if individuals are released into different populations from where they were collected (Saddlier and Hammer, 2010; Saddlier, Jackson and Hammer, 2010).

The Plan has potential to exacerbate these threats through:

- Increasing the accessibility of the Moorabool River within the WGGA through increasing development in proximity to the river
- Increasing the overall population of the Geelong region, which increases the pressure associated with recreational activities across the landscape. However, it is recognised that the Geelong region already supports a large population, in addition to large numbers of visitors to the area. In the context of the existing level of threat within the landscape, it is considered unlikely that an increased population density under the Plan would substantially exacerbate this threat

The Plan includes a specific Commitment (Commitment 9) to minimise the indirect impacts of the development on protected matters associated with waterways, riparian areas and wetlands, including the three fish species assessed here.

Implementation of Commitment 9 will adequately minimise the risk of recreational fishing to this species due to development under the Plan.

Table 19-9: Sites within the Geelong region with existing management in place to minimise human disturbance

Site	Site location and description	Existing management	Habitat supported by the reserve	Records (1990 onwards) supported by the reserve
Limeburners Lagoon Flora and Fauna Reserve	This reserve is located within Limeburners Bay and is part of the Port Phillip Bay (Western Shoreline) and Bellarine Peninsula Ramsar site. It is part of a broad, sandy estuarine inlet, with shallow tidal water. The inlet supports shoreline, sandy spit and seagrass environments.	This reserve is managed by Parks Victoria. The following are not permitted: dogs, cats, other pets, horses, bicycles, fires, firearms, and vehicles (excluding management vehicles). (Parks Victoria, 2022d)	Australasian Bittern; Australian Fairy Tern; Australian Painted Snipe; Curlew Sandpiper; Eastern Curlew; Greater Sand Plover; Lesser Sand Plover; Orange-bellied Parrot; Red Knot; Western Alaskan Bar-tailed Godwit	-
Lake Connewarre Wildlife Reserve	This reserve is located within the Lake Connewarre Complex and is part of the Port Phillip Bay (Western Shoreline) and Bellarine Peninsula Ramsar site. It is a large, shallow estuarine lagoon, and contains a diverse range of wetlands and vegetation including mangroves and saltmarsh communities.	This reserve is managed by Parks Victoria. The reserve is large and has variable restrictions in different areas of the reserve. Dogs are permitted on a leash in some locations and are prohibited in other areas. The following are prohibited in some areas, yet permitted in other areas: horses, vehicles (excluding management vehicles), firearms, camping, and generators. Fires are prohibited and boating zones apply throughout the reserve. (Parks Victoria, 2022g, 2022f, 2022i, 2022a, 2022e)	Australasian Bittern; Australian Fairy Tern; Australian Painted Snipe; Curlew Sandpiper; Eastern Curlew; Great Knot; Greater Sand Plover; Lesser Sand Plover; Orange-bellied Parrot; Red Knot; Western Alaskan Bar-tailed Godwit	Australasian Bittern; Australian Fairy Tern; Australian Painted Snipe; Curlew Sandpiper; Eastern Curlew; Great Knot; Orange-bellied Parrot; Red Knot; Western Alaskan Bar-tailed Godwit
The Spit Wildlife Reserve	This reserve is located within the Port Wilson area and is part of the Port Phillip Bay (Western Shoreline) and Bellarine Peninsula Ramsar site. It contains sand spits, a lagoon, mudflats and areas of saltmarsh.	This reserve is managed by Parks Victoria. Public access to this reserve is partially restricted. At publicly accessible sites, dogs and vehicles (excluding management vehicles) are prohibited. Boating zones also apply (Parks Victoria, 2022c, 2022j). Public access to some areas of the reserve is restricted and require a permit from Melbourne Water as the site is adjacent to the Werribee Sewage Farm (Conservation Volunteers Australia, 2022).	Australasian Bittern; Australian Fairy Tern; Australian Painted Snipe; Curlew Sandpiper; Eastern Curlew; Great Knot; Greater Sand Plover; Lesser Sand Plover; Orange-bellied Parrot; Red Knot; Western Alaskan Bar-tailed Godwit	Australasian Bittern; Australian Fairy Tern; Curlew Sandpiper; Eastern Curlew; Great Knot; Lesser Sand Plover; Orange-bellied Parrot; Red Knot; Western Alaskan Bar-tailed Godwit

Site	Site location and description	Existing management	Habitat supported by the reserve	Records (1990 onwards) supported by the reserve
Breamlea Flora and Fauna Reserve	This reserve is located in the south of the Study Area associated with Thompson Creek. It supports saltmarshes and coastal dune environments.	This reserve is managed by Parks Victoria (Parks Victoria, 2022b). Dogs are not permitted within the reserve (The Breamlea Association, 2016).	Australasian Bittern; Australian Fairy Tern; Australian Painted Snipe; Curlew Sandpiper; Eastern Curlew; Greater Sand Plover; Lesser Sand Plover; Orange-bellied Parrot; Red Knot; Western Alaskan Bar-tailed Godwit	-
'Wetlands and Former Saltworks Precinct' within the Moolap Coastal Strategic Framework Plan	The Moolap Coastal Strategic Plan outlines the management objectives and strategies for the Moolap area. The area covered by the Strategic Plan includes the Moolap IBA, in addition to areas of land outside of the IBA. The majority of the Moolap IBA is located in the 'Wetlands and Former Saltworks Precinct' of the Strategic Plan. The area includes salt pans separated by bunds (from a former saltworks) which is used as a feeding location by many migratory birds. Seagrass meadows occur in the shallow bay area adjacent to the salt bunds.	The overarching goal for the Precinct is that the area be managed and coordinated to prioritise environmental outcomes and to respond to existing values and risks. With regards to disturbance management, the Strategic Plan contains a range of strategies, including: • Facilitating while managing public access to enable recreation and passive enjoyment of the area while conserving environmental values • Avoiding and managing risks of domestic animals entering conservation areas • Avoiding boating and marine infrastructure where it would impact ecological values (DELWP, 2019)	Australasian Bittern; Australian Fairy Tern; Australian Painted Snipe; Curlew Sandpiper; Eastern Curlew; Great Knot; Greater Sand Plover; Lesser Sand Plover; Orange-bellied Parrot; Red Knot; Western Alaskan Bar-tailed Godwit	Australasian Bittern; Australian Fairy Tern; Curlew Sandpiper; Eastern Curlew; Greater Sand Plover; Lesser Sand Plover; Red Knot; Western Alaskan Bar-tailed Godwit

19.5.5 OFFSETS

Offsets are not required for the eleven bird species considered here. There are no direct impacts to habitat or records of any of these species under the Plan. Further, indirect impacts will be adequately mitigated through the existing planning system and measures under the Plan.

Offsets are also not required for the three fish species considered here. There are no direct impacts and indirect impacts will be adequately mitigated through the existing planning system and measures under the Plan.

19.5.6 ANALYSIS OF REQUIREMENTS FOR MIGRATORY SPECIES

Seven of the eleven bird species considered within this assessment are also listed as migratory species. These are:

- Curlew Sandpiper
- Eastern Curlew
- Great Knot
- Greater Sand Plover
- Lesser Sand Plover
- Red Knot
- Western Alaskan Bar-tailed Godwit (as *Limosa lapponica*)

Section 146L of the EPBC Act sets out the approval considerations in relation to migratory species. In summary, the outcomes of the Plan must not be inconsistent with any of the international agreements relating to migratory species. Of relevance to migratory birds are:

- The Bonn Convention (or the Convention on the Conservation of Migratory Species)
- The bilateral agreements for the conservation of migratory birds between the Government of Australia and the Government of Japan (JAMBA), the Government of China (CAMBA), and the Government of the Republic of Korea (ROKAMBA)

The *Wildlife Conservation Plan For Migratory Shorebirds* (Commonwealth of Australia, 2015) provides a useful summary of Australia's commitments under these agreements. The key obligations (of relevance to this assessment) which cut across the various agreements in different forms are for Australia to:

- Conserve and where possible restore habitats
- Mitigate and manage threats to migratory birds

As outlined in Section 19.5.4 above, the Plan will not result in direct impacts to habitat for any of these migratory species. Further, indirect impacts will be appropriately mitigated through commitments under the Plan, and through existing management measures in the planning system. Overall, the Plan is considered to adequately manage and mitigate threats to migratory birds within the Study Area.

Further, the Plan will not prevent habitats for migratory birds from being conserved and restored.

Overall, the Plan is not inconsistent with international agreements relating to migratory species.

19.5.7 EVALUATION AND CONCLUSION

A review of relevant information, including Conservation Advices, Recovery Plans and other key documents, has been completed for each of the eleven bird species and three fish species considered here (see Attachment A and Attachment B). This has helped to identify the key issues that have the potential to negatively influence the long-term viability of each of these species. The issues relevant to implementation of the Plan for these species include habitat loss, changes to water flow and quality, disturbance from increased public access to natural areas, and recreational fishing and illegal collection.

The impact assessment presented here has analysed each of these issues and concluded that:

- There are no direct impacts to any of the bird or fish species under the Plan. Subsequently, habitat loss will not be exacerbated for any of the species due to the Plan
- The potential indirect impacts are unlikely to be exacerbated under the Plan in a way which has a notable effect on any of the species, as:
  - The Plan includes a suitable commitment (Commitment 9) which will minimise the risk of potential indirect impacts associated with changes to water flow and quality. Further, a range of measures already exist within the planning system which will also contribute to minimising this threat
  - There are suitable existing management frameworks in place in natural areas within the Geelong region which will minimise potential impacts associated with increased disturbance from public access to natural areas
- The Plan is not inconsistent with international agreements relating to migratory species

20 Listed threatened flora

This chapter assesses the potential impacts of the Plan on flora species listed as threatened under the EPBC Act.

The categorisation process identified two threatened flora species which may potentially be impacted by implementation of the Plan. This includes one species known to occur within the Growth Areas, *Lachnagrostis adamsonii* (Adamson's Blown-grass), and one species which occurs outside of the Growth Areas, *Pimelea spinescens* subsp. *spinescens* (Spiny Rice-flower). Sections 20.1 and 20.2 assess the potential impacts of the Plan on these species.

Refer to Section 12.3 of Chapter 12 for the method used to identify relevant protected matters.

KNOWN TO OCCUR WITHIN THE GROWTH AREAS

20.1 ADAMSON'S BLOWN-GRASS *(LACHNAGROSTIS ADAMSONII)*

SPECIES BACKGROUND

This section sets out the basic information about the species. It provides an overview of the species' ecology, distribution, habitat, populations and threats. These provide context for the impact assessment. At the end of the section are links to key species' documents that provide additional background information.

EPBC ACT LISTING	Endangered
DESCRIPTION	*Lachnagrostis adamsonii* (Adamson's Blown-grass) is a grass that grows to 70 cm in height. It has open inflorescences that grow up to 25 cm with light green – purple tinged spikelets 3 – 4 mm in length which dry into a pale golden colour (Murphy, 2010).
ECOLOGY	The species flowers from November to December. It produces copious seeds which are dispersed by the wind. Germination occurs during winter and spring. The species appears to have the ability to colonise and expand into surrounding areas if suitable habitat and conditions are present (DCCEEW, 2022). Variation occurs amongst Adamson's Blown-grass populations. This is associated with distribution and site characteristics. The size of plants and number of inflorescences can vary due to seasonal conditions. The species is typically a perennial grass although it may behave as an annual at sites where moisture conditions fluctuate throughout the year (Murphy, 2010).
DISTRIBUTION AND HABITAT	Adamson's Blown-grass is endemic to south-western Victoria, occurring across approximately 15,000 km^2. It is distributed from Clifton Springs near Geelong, to near Coleraine in the Victorian Volcanic Plains and Victorian Midlands IBRA bioregions (Murphy, 2010). The species occurs along slow moving creeks, depressions and drainage lines that are seasonally inundated or waterlogged. Soils comprise black, cracking clays or duplex soils with poorly permeable subsoils. Sites are usually moderately to highly saline and vary in acidity (Murphy, 2010). The species generally won't survive in deeper water although it can tolerate some waterlogging (DCCEEW, 2022). The species appears to favour sites with a level of shelter from the wind which is often provided by other plant species. It is not often found at larger, more exposed saline lakes (Murphy, 2010). Habitat critical to the survival has not been defined. The species' Recovery Plan includes a proposed action to determine its definition (Murphy, 2010).
POPULATIONS	It is highly likely that many historical populations of the species were lost due to extensive native vegetation loss within the Victorian Volcanic Plains and Victorian Midlands (Murphy, 2010). In the 1990s, extensive surveying identified the species at 68 locations. However, the current number of populations is believed to be substantially fewer. The total number of plants is unknown. Estimates suggest there are <50,000 plants. Populations occupy small areas of less than 1 ha (Murphy, 2010). The largest populations of the species occur north-west of Cavendish, south of Glenthompson and Wickliffe, and in the Willaura/Maroona area (DCCEEW, 2022).

	The species 2010 Recovery Plan (Murphy, 2010) identified 16 important populations of the species. One important population occurs within the Strategic Assessment Area located at Warners Road near Cowies Creek. This population consists of up to 500 plants and is considered to be the largest population at the eastern edge of the species range (Murphy, 2010). Site surveys in 2019 and 2020 did not record Adamson's Blown-grass along Cowies Creek. However, the species has been assumed present in Cowies Creek based on the presence of historical records and suitable habitat (this is discussed further below) (EHP, 2021).

THREATS	The species' Recovery Plan has identified the following threats (Murphy, 2010):
	• Altered hydrology, due to:
	  ○ Changes in land use resulting in decreased water availability and soil salinity
	  ○ Climate change resulting in increased droughts
	• Weed invasion / competition
	• Disturbance / destruction of plants and habitat, including through:
	  ○ Disturbance of populations during road and utilities management works
	  ○ Disturbance due to agricultural practices (such as cropping and grazing) on private land
	• Heavy grazing

RELEVANT PLANS AND POLICIES	National Recovery Plan for Adamson's Blown-grass *Lachnagrostis adamsonii* (Murphy, 2010)
SPECIES-SPECIFIC GUIDELINES	There are no species-specific guidelines for this species.
SPRAT LINK	https://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=76211

APPROACH TO BASELINE DATA

This section provides a summary of the baseline information used in the assessment. It sets out:

- *An overview of the habitat mapping for the species within and outside the Growth Areas*
- *An overview of the population mapping for the species*

Please refer to Chapter 13 for further details about the approach to threatened species baseline data, including a description of the different types and sources of data, as well as some discussion on the interpretation and suitability of the data for use in the impact assessment.

HABITAT MAPPING	**WITHIN THE SURVEYED AREAS OF THE GROWTH AREAS**
	Habitat for Adamson's Blown-grass within the surveyed areas of the Growth Areas was mapped using the habitat mapping results of the EHP surveys. The species was not recorded during targeted surveys though has been assumed present within suitable habitat along Cowies Creek (EHP, 2021)
	WITHIN THE UNSURVEYED AREAS OF THE GROWTH AREAS
	There is no suitable potential habitat within the unsurveyed areas of the Growth Areas
	OUTSIDE THE GROWTH AREAS
	Adamson's Blown-grass habitat was mapped within wetlands and streams associated with existing VBA records
POPULATION MAPPING	**RECORD SELECTION**
	Species records were compiled from the VBA and surveys undertaken for the project. The VBA records were filtered to remove records prior to 1990 for the purpose of the impact assessment
	RECORD DOWNLOAD DATE
	VBA records for Adamson's Blown-grass used in this assessment were downloaded in June 2022

	POPULATION DEFINITION
	The historical records of Adamson's Blown-grass within Cowies Creek are considered to be a single population

OCCURRENCE IN THE STUDY AREA

This section describes the occurrence of the species in the Study Area. It includes reference to a map of records and habitat which can be viewed as a separate file. The map provides critical context for the assessment and should be viewed in conjunction with the text presented in this assessment. This section also provides a qualitative description of where records and habitat occur.

See Map 20-1 for a map of records and habitat across the Study Area, and Map 20-2 for a map of records and habitat within the Strategic Assessment Area.

20.1.1 OCCURRENCE WITHIN THE GROWTH AREAS AND STRATEGIC ASSESSMENT AREA

There are nine historical VBA records of Adamson's Blown-grass within the Strategic Assessment Area. Two of these records occur within the WGGA adjacent to Cowies Creek within an area that may have been subsequently cropped (EHP, 2021). Both records were recorded in 1995. The remaining records of Adamson's Blown-grass occur less than 100 m from the WGGA and are associated with Cowies Creek. These records represent the important population identified in the species Recovery Plan at Warners Road near Cowies Creek (Murphy, 2010). The most recent of these records was made in 2002 and includes 500 individual Adamson's Blown-grass plants.

Targeted surveys were undertaken for the species within suitable habitat in the Growth Areas between November 2019 and December 2020 by EHP (EHP, 2021).The species was not recorded during these field assessments, which occurred at an appropriate time of year when the species is generally known to be flowering and readily detectable. However, EHP (2021) did not identify any reference population to ensure the species was detectable at the time of survey.

Based on the results of these surveys and a lack of suitable habitat and historical records, the species is unlikely to occur within the NGGA.

EHP made the following observations of potential habitat in the WGGA (EHP, 2021):

> *Potential habitat adjacent to Cowies Creek in the WGGA was highly modified and dominated by exotic grasses, including Toowoomba Canary-grass and Kikuyu Pennisetum clandestinum. The drainage lines contained little native vegetation and were generally comprised of improved and exotic pasture. Further, there was little evidence to indicate that the drainage lines had recently supported standing water, with any areas subject to waterlogging dominated by Toowoomba Canary-grass or Rush Juncus sp.*
>
> *Given the known threats to the species that are present within the NWGGA, including a high cover of annual and perennial weeds within or adjacent to areas of potential habitat, ongoing agricultural disturbance (including cropping, grazing and vegetation clearance), as well as altered hydrological regimes (Murphy 2010), it is considered that existing habitat quality for the species is marginal.*

Despite this, Adamson's Blown-grass has been assumed present within Cowies Creek based on historical records and the presence of suitable (albeit marginal) habitat (EHP, 2021).

20.1.2 OCCURRENCE WITHIN THE BROADER STUDY AREA

There is one record of Adamson's Blown-grass in the broader Study Area. The record occurs near Breamlea approximately 19 km south of the Strategic Assessment Area. It is associated with Thompson's Creek and was recorded in 2003.

AVOIDANCE OF IMPACTS

This section provides an overview of the area of potential habitat that was avoided for the species through the design of development within the Growth Areas. Avoidance of impacts to biodiversity was a critical part of the process to develop the Plan. A detailed explanation of the avoidance process and terminology is provided in Chapter 16.

Development under the Plan will avoid impacts to potential habitat for Adamson's Blown-grass associated with Cowies Creek. Potential habitat will be protected within the Cowies Creek Conservation Area.

DIRECT IMPACTS

This section provides an analysis of any direct impacts. Direct impacts are assessed in relation to known populations, loss of potential habitat, or fragmentation of habitat.

Implementation of the Plan will not lead to direct impacts or fragmentation of potential habitat for Adamson's Blown-grass.

POTENTIAL INDIRECT IMPACTS AND MITIGATION

This section identifies the relevant potential indirect impacts to the species that may occur as a result of development under the Plan. Indirect impacts were identified as being relevant to the species if:

- *The indirect impact is identified as a threat in a relevant profile, conservation advice, or recovery plan, and*
- *The Plan has the potential to introduce or exacerbate the threat*

It discusses each relevant potential indirect impact in detail and outlines how the Plan addresses it.

Please refer to Chapter 17 for a detailed discussion and analysis of indirect impacts and mitigation measures included in the Plan. It is critical to read Chapter 17 in order to understand the conclusions reached in this section.

20.1.3 RELEVANT POTENTIAL INDIRECT IMPACTS

The Recovery Plan for Adamson's Blown-grass identifies a range of threats to the species (Murphy, 2010). The following threats are potentially relevant to implementation of the Plan and are discussed further below:

- Altered hydrological conditions affecting water flows and salinity levels
- Weed invasion

The species is potentially vulnerable to indirect impacts associated with these threats at the following locations:

- Along Cowies Creek in the WGGA where marginal potential habitat has been identified
- Along Cowies Creek upstream of the WGGA where an important population of the species has previously been recorded

There are a number of additional threats to the species identified in the Recovery Plan. However, potential indirect impacts associated with these threats are considered unlikely as a result of development under the Plan. Refer to Section 17.2 of Chapter 17 for a detailed assessment of potential indirect impacts associated with the implementation of the Plan.

Climate change is also identified as a threat to the species. The potential impacts of climate change and relevant mitigation measures under the Plan are outlined in Section 29.5 of Chapter 29.

ALTERED HYDROLOGY

The species has been impacted by changes in water availability in recent years. Altered hydrology impacts Adamson's Blown-grass by changing the salinity of and reducing the level of water in habitat. Adamson's Blown-grass favours saline environments and tends to be out-competed by other species in freshwater environments. Further, periods of drought pose a threat to the species, as populations may not be able to migrate to suitable habitat (Murphy, 2010).

Indirect impacts to Adamson's Blown-grass associated with changes to the hydrological conditions may occur as a result of:

- An increase in hard surfaces due to urban development in the areas of the WGGA and NGGA that are hydrologically linked to Cowies Creek, leading to an increased volume of water entering downstream waterways that might support the species
- Revegetation or restoration works along Cowies Creek within the WGGA which has the potential to alter salinity levels

The Plan includes two key commitments to address the potential indirect impacts of development on hydrology including:

- A commitment (Commitment 9) to minimise the indirect impacts of the development on protected matters associated with waterways, riparian areas and wetlands, including Adamson's Blown-grass. The measures that will be undertaken to deliver on this Commitment include:
  - Undertaking relevant technical studies to understand the key risks from development on protected matters associated with Hovells Creek, Cowies Creek and the Moorabool River. These studies will:
    - Address potential risks associated with changes to water quality and hydrology as a result of development within the Growth Areas
    - Identify appropriate measures, standards or targets to avoid and minimise adverse impacts on protected matters including, as relevant: water quality parameters, water retention and flow management requirements, limits on extraction or use, habitat buffer requirements and monitoring and reporting
  - Preparing guidelines based on the results of the relevant technical studies to guide the preparation of PSPs and decisions on planning permits and permit conditions to ensure risks to protected matters in relation to indirect and downstream impacts are adequately managed
  - Undertaking a planning scheme amendment or other appropriate process to ensure guidelines are considered during preparation of PSPs and in decisions on planning permits and permit conditions
- A commitment (Commitment 6) to prepare and implement a Conservation Management Plan for the protection and ongoing management of the Growling Grass Frog population and areas of potential habitat for Adamson's Blown-grass within the Cowies Creek Conservation Area. One of the measures that will be undertaken to deliver on this Commitment includes a requirement to present the following information in the Conservation Management Plan specifically relating to Adamson's Blown-grass:
  - The location of potential habitat for Adamson's Blown-grass
  - Management actions and arrangements to maintain suitability of the area for Adamson's Blown-grass, including the use of appropriate indigenous species for revegetation

There are also a range of existing measures within the planning system that address changes to water flows. The Geelong Planning Scheme includes requirements to:

- Retain natural drainage corridors, minimise runoff volume from developed areas, filter sediment and waste from stormwater prior to discharge, ensure land use and development minimises nutrient contributions to runoff, and implement measures to minimise sediment discharge from construction sites (Clause 14.02-1S)
- Implement integrated water management to sustainably manage water supply and demand, water resources, wastewater, drainage, and stormwater (Clause 19.03-3S)

The Geelong Planning Scheme also includes a range of requirements to ensure stormwater management meets appropriate objectives and standards, including objectives for stormwater quality (for example, see Clause 53.18).

The NWGGA Framework Plan also includes various mitigation-related actions to address water flows and quality, including implementation of riparian buffers, and the preparation of masterplans for Cowies Creek and the Barwon and Moorabool rivers for integrated water management.

Commitment 7 of the Plan ensures that these standard mitigation measures will continue to be implemented over the life of the Plan. Refer to Section 5.5 of Chapter 5 for a more detailed description of these existing measures.

Implementation of Commitments, 6, 7 and 9 under the Plan will adequately minimise the risk of adverse impacts associated with changes to hydrology on Adamson's Blown-grass.

SPREAD OF WEEDS

In areas across its distribution, Adamson's Blown-grass has been found to co-occur with a number of exotic species (Murphy, 2010). Salt-tolerant species pose more of a threat than less salt tolerant species as they may out-compete Adamson's Blown-grass in conditions with increasing salinity. Tall-wheat grass is of particular concern, as it is highly competitive, and invasion of this species is likely to result in the extinction of Adamson's Blown-grass at some sites (Murphy, 2010).

(EHP, 2021) noted the existing degradation of potential habitat areas during their surveys, including the presence of high levels of exotic species. Development activities under the Plan are unlikely to influence the spread of weeds in a way that would noticeably impacts Adamson's Blown-grass along Cowies Creek for the following reasons:

- Potential Adamson's Blown-grass habitat within Cowies Creek will be subject to management to improve the condition of the corridor. This will include the removal of weeds
- A conservation interface will be established between urban development and Cowies Creek to mitigate potential edge effects, including weeds. This will be delivered through Commitment 8, which requires a list of actions to be implemented as part of development to mitigate the indirect impacts of development in the Cowies Creek Conservation Area
- Standard weed management protocols will be a relevant requirement of development through the existing planning system

Refer to Section 17.2.3 of Chapter 17 for a detailed assessment of potential indirect impacts associated with the spread of weeds under the Plan.

OFFSETS TO COMPENSATE FOR RESIDUAL ADVERSE IMPACTS

This section identifies any offsets needed to address residual adverse impacts to listed threatened species

Implementation of the Plan will not lead to direct impacts or fragmentation of the species. As a result, the Plan does not provide specific offsets for the species.

LIKELY EFFECTS OF IMPLEMENTATION OF THE PLAN ON THE LONG-TERM VIABILITY OF THE SPECIES

This section considers the likely effects of implementation of the Plan on the long-term viability of the species. The assessment of viability has regard for the guidance in the Conservation Advice (if applicable) and the Recovery Plan (if applicable), and draws on the analysis of avoidance, impacts and offsets presented above.

Where applicable, this section also discusses the consistency of the Plan with any Recovery Plans and relevant Threat Abatement Plans. The general consistency of the Plan with Threat Abatement Plans is discussed in detail in Section 17.3 of Chapter 17.

20.1.4 IMPLICATIONS FOR THE SPECIES LONG-TERM VIABILITY AND SUMMARY OF OUTCOMES

Adamson's Blown-grass has not been recorded in recent years within the Growth Areas, despite targeted surveys. Marginal potential habitat exists within Cowies Creek in the WGGA, and an important population of the species has previously been recorded nearby the WGGA, upstream along Cowies Creek. This area is towards the edge of the species range, which increases its conservation significance.

Development under the Plan will not impact the species directly. The assessment presented here analysed the potential for the species to be impacted indirectly as a result of potential changes in hydrology and the spread of weeds. It was concluded that the range of commitments and measures under the Plan are expected to adequately protect the species from these potential impacts if it is present.

In this way, development under the Plan is unlikely to adversely influence the long-term viability of Adamson's Blown-grass. The Plan aims to positively contribute to the species in the region by protecting and managing potential habitat within the Cowies Creek Conservation Area where the species has previously been recorded, in order to maintain the suitability of habitat for the long term.

20.1.5 CONSISTENCY WITH RECOVERY PLAN

In accordance with Section 146K of the EPBC Act, this section considers whether the implementation of the Plan is not inconsistent with the species' Recovery Plan. It considers two questions:

- Does the Plan prevent achievement of the objectives of the Recovery Plan?
- Does the Plan prevent implementation of the Recovery Plan actions?

These questions are discussed below.

DOES THE PLAN PREVENT ACHIEVEMENT OF THE OBJECTIVES OF THE RECOVERY PLAN?

The overall objective of the Recovery Plan is to minimise the probability of extinction of *Lachnagrostis adamsonii* in the wild and to increase the probability of populations becoming self-sustaining in the long term. This overall objective is associated with a series of specific objectives (Murphy, 2010):

1. Determine taxonomy, distribution, abundance and population structure
2. Determine habitat requirements
3. Ensure that all populations and their habitat are protected and managed
4. Identify and manage threats to populations
5. Identify key biological functions
6. Determine growth rates and viability of populations
7. Establish a seed bank
8. Build community and government support for conservation

The outcome under the Plan for Adamson's Blown-grass will not prevent of any of the objectives of the Recovery Plan being achieved.

DOES THE PLAN PREVENT IMPLEMENTATION OF THE RECOVERY PLAN ACTIONS?

The Recovery Plan identifies a set of actions in order to deliver on the objectives. Each action is associated with performance criteria (Murphy, 2010). The Plan will not prevent the implementation of any of these actions, nor will it prevent the achievement of any of the performance criteria.

Implementation of the Plan will contribute to achieving the objectives of the Recovery Plan identified above. The protection and management of the Cowies Creek Conservation Area will contribute to Objective 3 of the Recovery Plan by retaining and conserving 4.9 ha of potential Adamson's Blown-grass habitat. Further, commitments and measures under the plan will contribute to Objective 4 through managing threats related to the spread of weeds and potential changes to hydrology.

20.1.6 KEY THREATENING PROCESSES AND CONSISTENCY WITH THREAT ABATEMENT PLANS

Relevant Key Threatening Processes (KTPs) and any of their associated Threat Abatement Plans (TAPs) have been identified in Table 20-1 where they relate to:

- The potential direct impacts of the Plan, or
- The relevant indirect impacts

Table 20-1: Relevant Key Threatening Processes and associated Threat Abatement Plans for Adamson's Blown-grass

Key threatening process	Threat abatement plan
Land clearance	There is no relevant TAP
Loss of climatic habitat caused by anthropogenic emissions of greenhouse gases	There is no relevant TAP
Loss and degradation of native plant and animal habitat by invasion of escaped garden plants	There is no relevant TAP
Novel biota and their impact on biodiversity	There is no relevant TAP

OCCUR OUTSIDE THE GROWTH AREAS

20.2 SPINY RICE-FLOWER *(PIMELEA SPINESCENS* SUBSP. *SPINESCENS)*

SPECIES BACKGROUND

This section sets out the basic information about the species. It provides an overview of the species' ecology, distribution, habitat, populations and threats. These provide context for the impact assessment. At the end of the section are links to key species' documents that provide additional background information.

EPBC ACT LISTING	Critically Endangered
DESCRIPTION	*Pimelea spinescens* subsp. *spinescens* (Spiny Rice-flower) is a small spreading shrub which grows to approximately 50 cm. The species has narrow green leaves, and pale yellow flowers (TSSC, 2016b).
ECOLOGY	Spiny Rice-flower is slow growing and may live up to 100 years (TSSC, 2016b). Plants are generally either female or male. However, hermaphrodites have also been observed (SWIFFT, 2022b). Germination may be partly regulated by rainfall, with autumn drought and high rainfall both seeming to prevent germination. The species is fire tolerant and mature plants will resprout after fire (TSSC, 2016b). The species flowers between April and August. Germination occurs from July to November. Pollination is carried out by insects (DEWHA, 2009a). Dispersal distances are small, and most seed results from outcrossing (the transfer of genetic material between genetically diverse individuals) via pollinators. Self-pollination has also been observed (TSSC, 2016b). Plants from populations in the north of their distribution have a different growth form from the southern populations. Northern populations are larger and generally more robust, likely due to increased rainfall and competition with other plants in southern Victoria (DEWHA, 2009a).
DISTRIBUTION AND HABITAT	The Spiny Rice-flower is endemic to Victoria. It occurs predominantly in the Victorian Volcanic Plain, with a small number of populations occurring in the Victorian Midlands and Riverina IBRA Bioregions (TSSC, 2016b). The Growth Areas are towards the south-eastern extent of the species distribution (DCCEEW, 2022). The species habitat comprises grasslands including native temperate grasslands, grassy woodlands and open shrublands (DEWHA, 2009b) in areas that have received low levels of disturbance (SWIFFT, 2022b). It usually develops on clay soils. The species is mostly found in the following ecological communities, 'Natural Temperate Grassland of the Victorian Volcanic Plain' and 'Natural Grasslands of the Murray Valley Plains'. It has also been reported in association with yellow gum-grey box grassy woodland in the Goldfields and *Allocasuarina luehmannii* open grassy woodland in the Wimmera (TSSC, 2016b). Topography is mostly flat, but populations may occur on slight rises or in slight depressions (TSSC, 2016b). The species habitat varies slightly across its range. Southern populations are associated with heavy grey-black clay loams with Kangaroo Grass, Wallaby-grass and Spear-grass. Northern populations occur on red clay complexes with Spear-grass, and Wallaby-grass (TSSC, 2003; DEWHA, 2009b).
POPULATIONS	Populations are now substantially fragmented and depleted due to land clearing (TSSC, 2016b). Populations are often geographically isolated, and gene flow between populations is restricted (DEWHA, 2009a). As of 2008, the population size was estimated to be between 30,000 – 50,000 plants in 120 populations (DSE, 2008). The 2016 Conservation Advice notes that based on the state-wide database, there may be 88,000 plants occurring in 208 – 275 sites. The Conservation Advice notes that the record database for the Spiny Rice-flower includes multiple old and imprecise records, so this population estimate may be over-estimating the occurrence of the species. Populations are typically small (with many containing less than 100 plants), and often occur in small remnant patches of habitat less than 1 ha in size (TSSC, 2016b).
THREATS	The species' Conservation Advice (TSSC, 2016b), Recovery Plan (Carter & Walsh, 2006) and Significant Impact Guidelines (DEWHA, 2009b) have identified the following threats: • Habitat loss and fragmentation due to:

	○ Pasture improvement and agricultural intensification ○ Road and rail maintenance ○ Changing land use from farming to industrial and residential land uses • Inappropriate fire regimes • Weed invasion • Grazing by feral herbivores and livestock • Small and declining populations with limited gene flow
RELEVANT PLANS AND POLICIES	Conservation Advice *Pimelea spinescens* subsp. *spinescens* Spiny Rice-flower (TSSC, 2016b) National Recovery Plan for the Spiny Rice-flower *Pimelea spinescens* subsp. *spinescens* (Carter & Walsh, 2006) Commonwealth Listing Advice on *Pimelea spinescens* subsp. *spinescens* (Plains Rice-flower, Spiny Rice-flower, Prickly Pimelea) (TSSC, 2003) Threat abatement plan for competition and land degradation by rabbits (DoEE, 2016c)
SPECIES-SPECIFIC GUIDELINES	EPBC Act Policy Statement 3.11 - Significant Impact Guidelines for the Critically Endangered Spiny Rice-flower (*Pimelea spinescens* subsp. *spinescens*) (DEWHA, 2009b)
SPRAT LINK	http://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=21980

APPROACH TO BASELINE DATA

This section provides a summary of the baseline information used in the assessment. It sets out:

- *An overview of the habitat mapping for the species within and outside the Growth Areas*
- *An overview of the population mapping for the species*

Please refer to Chapter 13 for further details about the approach to threatened species baseline data, including a description of the different types and sources of data, as well as some discussion on the interpretation and suitability of the data for use in the impact assessment.

HABITAT MAPPING	**WITHIN THE SURVEYED AREAS OF THE GROWTH AREAS**
	There are no areas of habitat mapped within the Growth Areas based on the results of ecological surveys, which concluded that the Growth Areas are unlikely to support habitat for the Spiny Rice-flower (EHP, 2021)
	WITHIN THE UNSURVEYED AREAS OF THE GROWTH AREAS
	There are no areas of habitat mapped within the unsurveyed areas of the Growth Areas based on observations from ecological surveys, which concluded that the unsurveyed areas are likely to support ecological values consistent with those already confirmed within the surveyed areas of the Growth Areas (EHP, 2021)
	OUTSIDE THE GROWTH AREAS
	Habitat mapping across the broader Strategic Assessment Area and Study Area was based on the Spiny Rice-flower HIM prepared by DELWP (DELWP, 2017d)
POPULATION MAPPING	**RECORD SELECTION**
	Species records were downloaded from the VBA. The VBA records were filtered to remove records prior to 1990 for the purpose of the impact assessment
	RECORD DOWNLOAD DATE
	VBA records for Spiny Rice-flower used in this assessment were downloaded in June 2022
	DEFINITIONS OF POPULATIONS
	Population mapping was not undertaken for Spiny Rice-flower records

OCCURRENCE IN THE STUDY AREA

This section describes the occurrence of the species in the Study Area. It includes reference to a map of records and habitat which can be viewed as a separate file. The map provides critical context for the assessment and should be viewed in conjunction with the text presented in this assessment. This section also provides a qualitative description of where records and habitat occur.

See Map 20-3 for a map of records and habitat across the Study Area.

20.2.1 SPECIES RECORDS

Targeted surveys were undertaken for Spiny Rice-flower between November 2019 and December 2022. The species was not recorded within the surveyed areas of the Growth Areas and there are no historical records for the species within the Growth Areas.

There is one existing VBA record of Spiny Rice-flower from 2010 in the Strategic Assessment Area, which occurs near Heales Road, approximately 1.3 km east of the NGGA. This appears to be a single plant associated with the Geelong Ring Road Employment Precinct. The property in which the record is located does not appear to have been developed. However, it is in the middle of an industrial area, and it is unknown whether the individual is extant.

There are 648 VBA records of Spiny Rice-flower within the Broader Study Area. The majority of these records occur in three broad areas, including:

- Approximately 12 km west of the Growth Areas near Bannockburn
- Between Lara and the north-eastern boundary of the Study Area, where a number of populations have been recorded along roadsides. The nearest of these populations is approximately 6.3 km from the Growth Areas
- At Lake Borrie Spit, at the Western Treatment Plant, over 18 km east of the NGGA

20.2.2 POTENTIAL HABITAT

Prior to surveys, the species was considered to have the potential to occur within patches of native vegetation and areas supporting embedded rock within the Growth Areas (EHP, 2021). However, systematic targeted searches within the surveyed areas did not detect the species. Site conditions across the two Growth Areas were found to exhibit few of the preferred habitat attributes of the species. EHP noted that within the NGGA and parts of the WGGA, biomass levels were high, with Chilean Needle-grass and Toowoomba Canary-grass particularly dominant outside patches of native vegetation resulting in little inter- tussock space being available for Spiny Rice-flower to co-exist. They found that most habitats within the WGGA were comprised of improved pasture, combined with agricultural land use, ongoing disturbance (grazing, slashing), high biomass, no recent evidence of fire and little to no inter- tussock space (EHP, 2021).

It is reasonable to assume that the likelihood of suitable habitat occurring within the unsurveyed areas of the Growth Areas is also low, consistent with the types of values observed in the surveyed areas and in the context of more modified or disturbed environments associated with rural residential landholdings.

Altogether, there is a low likelihood that the Growth Areas supports a population of the species.

In the Strategic Assessment Area and Study Area more broadly, the DELWP HIM for Spiny Rice-flower has been used to provide a high-level indication of potential habitat. This approach has mapped 32,136.6 ha of potential habitat for the Spiny Rice-flower across this broader area.

AVOIDANCE OF IMPACTS

This section provides an overview of the area of potential habitat that was avoided for the species through the design of development within the Growth Areas. Avoidance of impacts to biodiversity was a critical part of the process to develop the Plan. A detailed explanation of the avoidance process and terminology is provided in Chapter 16.

Spiny Rice-flower has a low likelihood of occurrence within the Growth Areas. Specific avoidance for the species associated with development within the Growth Areas is therefore not relevant.

There is some potential for the species to occur within the external infrastructure footprints within the Strategic Assessment Area, outside of the Growth Areas; noting that existing land use and development within the Strategic Assessment Area reduces the likelihood of an unknown population occurring within these corridors.

To address this potential, the Commitments and Measures under the Plan require targeted surveys within suitable habitat along these corridors prior to development. Any population of the Spiny Rice-flower recorded during these surveys would be important to the species. The Plan requires the following avoidance measures to be undertaken should the species be detected:

> *Should a population of the Spiny Rice-flower be recorded within the external infrastructure footprints, any confirmed population or part of the population must be avoided and will be protected, maintained and managed to ensure the persistence of that population in the long-term*

DIRECT IMPACTS

This section provides an analysis of any direct impacts. Direct impacts are assessed in relation to known populations, loss of potential habitat, or fragmentation of habitat.

Development under the Plan is unlikely to directly impact the Spiny Rice-flower.

POTENTIAL INDIRECT IMPACTS AND MITIGATION

This section identifies the relevant potential indirect impacts to the species that may occur as a result of development under the Plan. Indirect impacts were identified as being relevant to the species if:

- *The indirect impact is identified as a threat in a relevant profile, conservation advice, or recovery plan, and*
- *The Plan has the potential to introduce or exacerbate the threat*

It discusses each relevant potential indirect impact in detail and outlines how the Plan addresses it.

Please refer to Chapter 17 for a detailed discussion and analysis of indirect impacts and mitigation measures included in the Plan. It is critical to read Chapter 17 in order to understand the conclusions reached in this section.

20.2.3 RELEVANT POTENTIAL INDIRECT IMPACTS

The Conservation Advice (TSSC, 2016b), Recovery Plan (Carter and Walsh, 2006) and Significant Impact Guidelines (DEWHA, 2009b) for the Spiny Rice-flower identify a range of threats to the species. Development under the Plan is unlikely to either introduce or exacerbate any of these threats on populations of Spiny Rice-flower that are known to occur within the region. This conclusion is based on the:

- Distance of the majority of known populations from the Growth Areas, which are approximately 12 km west near Bannockburn, approximately 6.3 km north-east past Lara, and approximately 18 km east at the Western Treatment Plant
- Landscape context of these populations, which are surrounded by existing urban development, roads and/or extensive agricultural land
- Mitigation measures which are a requirement of the existing planning system and will address and minimise the standard indirect impacts associated with urban development in the Growth Areas

Refer to Section 17.2 of Chapter 17 for a detailed assessment of potential indirect impacts associated with implementation of the Plan more generally.

Should any additional populations of the species be recorded within the external infrastructure footprints, the Plan includes a measure to develop a Spiny Rice-flower management plan to ensure appropriate roadside management of the retained populations. This plan will address potential indirect impacts associated with the spread of weeds, fire regimes and inappropriate road maintenance works such as slashing, grazing, clearing, herbicide application, and soil disturbance from vehicle traffic.

OFFSETS TO COMPENSATE FOR RESIDUAL ADVERSE IMPACTS

This section identifies any offsets needed to address residual adverse impacts to listed threatened species

Residual adverse impacts to the Spiny Rice-flower are unlikely. As a result, the Plan provides no commitment to the delivery of any species-specific offsets.

LIKELY EFFECTS OF IMPLEMENTATION OF THE PLAN ON THE LONG-TERM VIABILITY OF THE SPECIES

This section considers the likely effects of implementation of the Plan on the long-term viability of the species. The assessment of viability has regard for the guidance in the Conservation Advice (if applicable) and the Recovery Plan (if applicable), and draws on the analysis of avoidance, impacts and offsets presented above.

Where applicable, this section also discusses the consistency of the Plan with any Recovery Plans and relevant Threat Abatement Plans. The general consistency of the Plan with Threat Abatement Plans is discussed in detail in Section 17.3 of Chapter 17.

20.2.4 IMPLICATIONS FOR LONG-TERM VIABILITY AND SUMMARY OF OUTCOMES

Spiny Rice-flower has not been recorded within the Growth Areas, despite targeted surveys. The condition and habitat attributes across the NGGA and WGGA are generally considered to be suboptimal for the species.

There are a number of records within the broader Study Area. The majority of these are associated with populations of the Spiny Rice-flower that are located some distance from the Strategic Assessment Area: to the west of Bannockburn, north-east of Lara, and at the Western Treatment Plant. The Plan will not contribute to or introduce new threats to any of these populations, owing to their distance from the Strategic Assessment Area and the urban and agricultural landscape surrounding them. In this way, these populations are unlikely to be adversely affected by development under the Plan.

There is some potential for the species to occur within the external infrastructure footprints within the Strategic Assessment Area, outside of the Growth Areas; noting that existing land use and development within the Strategic Assessment Area reduces the likelihood of an unknown population occurring within these corridors.

The Plan includes a Commitment to ensure that any new population identified through surveys will be appropriately avoided and managed to ensure the persistence of any such population for the long-term.

Altogether, the Plan is not expected to adversely influence the long-term viability of the Spiny Rice-flower.

20.2.5 CONSISTENCY WITH RECOVERY PLAN

In accordance with Section 146K of the EPBC Act, this section considers whether the implementation of the Plan is not inconsistent with the species' Recovery Plan. It considers two questions:

- Does the Plan prevent achievement of the objectives of the Recovery Plan?
- Does the Plan prevent implementation of the Recovery Plan actions?

These questions are discussed below.

DOES THE PLAN PREVENT ACHIEVEMENT OF THE OBJECTIVES OF THE RECOVERY PLAN?

The overall objective of the Recovery Plan is to minimise the probability of extinction of *Pimelea spinescens* subsp. *spinescens* in the wild and to increase the probability of important populations becoming self-sustaining in the long term. This overall objective is associated with a series of specific objectives (Carter and Walsh, 2006):

- Acquire accurate information for conservation status assessments
- Identify habitat that is critical, common or potential
- Ensure that all populations and their habitat are protected and managed appropriately
- Manage threats to populations
- Identify key biological functions

- Determine the growth rates and viability of populations
- Build community support for conservation

The Plan will not prevent the achievement of any of the objectives of the Recovery Plan.

DOES THE PLAN PREVENT IMPLEMENTATION OF THE RECOVERY PLAN ACTIONS?

The Recovery Plan identifies a set of actions in order to deliver on the objectives. Each action is associated with performance criteria (Carter and Walsh, 2006). The Plan will not prevent the implementation of any of these actions, nor will it prevent the achievement of any of the performance criteria.

20.2.6 KEY THREATENING PROCESSES AND CONSISTENCY WITH THREAT ABATEMENT PLANS

Relevant Key Threatening Processes (KTPs) and any of their associated Threat Abatement Plans (TAPs) have been identified in Table 20-2 where they relate to:

- The potential direct impacts of the Plan, or
- The relevant indirect impacts

Table 20-2: Relevant Key Threatening Processes and associated Threat Abatement Plans for Spiny Rice-flower

Key threatening process	Threat abatement plan
Competition and land degradation by rabbits	Threat abatement plan for competition and land degradation by rabbits (DoEE, 2016a)
Fire regimes that cause declines in biodiversity	There is no relevant TAP
Land clearance	There is no relevant TAP
Loss and degradation of native plant and animal habitat by invasion of escaped garden plants	There is no relevant TAP
Novel biota and their impact on biodiversity	There is no relevant TAP

21 Listed threatened ecological communities

This chapter assesses the potential impacts of the Plan on ecological communities listed as threatened under the EPBC Act.

The categorisation process identified one TEC which may potentially be impacted by implementation of the Plan. Section 21.1 assesses the potential impacts of the Plan on Natural Temperate Grassland of the Victorian Volcanic Plain.

Refer to Section 12.3 of Chapter 12 for the method used to identify relevant protected matters.

KNOWN TO OCCUR WITHIN THE GROWTH AREAS

21.1 NATURAL TEMPERATE GRASSLAND OF THE VICTORIAN VOLCANIC PLAIN

SPECIES BACKGROUND

This section sets out the basic information about the TEC. It provides a description of the TEC, and an overview of the EPBC definition, distribution and threats. These provide context for the impact assessment. At the end of the section are links to key species' documents that provide additional background information.

EPBC ACT LISTING	Critically Endangered
DESCRIPTION	Natural Temperate Grassland of the Victorian Volcanic Plain (Natural Temperate Grassland) is a complex and variable ecological community. Species composition and appearance varies seasonally, between dry and wet periods, and based on local site conditions and management practices (TSSC, 2008). The vegetation of Natural Temperate Grassland is mostly limited to a ground layer of grasses and herbs. Large trees are absent to sparse (TSSC, 2008). The TEC is dominated by a layer of native tussock-forming perennial grasses, including Kangaroo-grass *Themeda triandra*, Wallaby-grasses *Rytidosperma* spp., Spear-grasses *Austrostipa* spp. and Tussock-grasses *Poa* spp.. The spaces between tussock grasses are interspersed with a variety of herbs from the daisy (*Asteraceae*), lily (*Anthericaeae, Asphodelaceae, Phormiaceae*), pea (*Fabaceae*), and orchid (*Orchidaceae*) families (DEWHA, 2008a). Inter-tussock spaces are important for maintaining diversity of this TEC. Where grasses are too dense and crowd inter-tussock spaces, the regeneration of herbs and wildflowers is prevented. Historically, inter-tussock spaces were maintained through a combination of native herbivore grazing and wildfires. It is also possible that the activities of native fauna would have helped to encourage plant germination. However, many native fauna groups have experienced dramatic declines and the functional roles of these species are subsequently decreased. A management regime with periodic disturbance (such as grazing, fire management or slashing) is now required to maintain this TEC (TSSC, 2008). The TEC occurs on Quaternary basaltic plain with scattered volcanic cones and stony rises. It occurs on heavy grey to red cracking clay soils, which tend to be fertile yet with poor drainage. The TEC occurs in a climate characterised by hot, dry summers and cold winters with frost. Mean annual rainfall is between 500 and 700 mm (TSSC, 2008). The TEC provides habitat for many nationally threatened flora species, including Matted Flax Lily *Dianella amoena*, Spiny Rice-flower *Pimelea spinescens* subsp. *spinescens*, and Plains Greenhood *Pterostylis basaltica* (Vranjic, 2008). Natural Temperate Grassland supports skinks, snakes, birds of prey and ground-dwelling birds. The community used to support a range of mammal species, including rodents, macropods and bandicoots, yet this group has substantially declined in remaining remnants of the TEC. Invertebrate fauna is poorly known, aside from the Golden Sun Moth *Synemon plana* (TSSC, 2008).
EPBC DEFINITION	Only patches of the TEC that meet minimum size and condition thresholds are considered part of the TEC under the EPBC Act. Thresholds relate to factors such as patch size, total perennial tussock

	cover, ground cover of native forbs, the cover of non-grass weeds, or whether the patch is contiguous with other native vegetation patches. The Conservation Advice notes that the conservation value of a remnant patch is enhanced if there is a high native plant species richness, the patch is of a large size, there is minimal weed invasion, the patch supports the presence of threatened plant or animal species, there is exposed rock platforms and outcrops, or there are mosses, lichens or a soil crust on the soil surface. Further details of the thresholds are provided in the Listing Advice (TSSC, 2008).
DISTRIBUTION	Natural Temperate Grassland has a very restricted geographic distribution and has declined in extent and community integrity (DEWHA, 2008a). There is less than five per cent of the grassland remaining (Vranjic, 2008). Most known remnants are small (under 10 ha in size) and are highly fragmented (DSEWPaC, 2011a). Further, large remnants (greater than 100 ha) are very rare (TSSC, 2008). The TEC is limited to the basalt plains of Victoria, extending from Melbourne west to Hamilton (DEWHA, 2008a). Most of the remaining Natural Temperate Grassland occurs on private land, with some patches on public land such as roadsides, rail reserves and cemeteries. Good examples of the TEC occur at Craigieburn Reserve, Laverton North Grassland Reserve, and Mortlake Common Flora Reserve (DSEWPaC, 2011a). The TEC is known to occur within 19 reserves although the size of protected patches is unknown. Large grassland remnant patches are protected at Craigieburn Grasslands Reserve, Black's Creek Nature Conservation Reserve, Cobra-Killuc Wildlife Reserve, and Derrimut Grassland Reserve (TSSC, 2008).
THREATS	The Conservation Advice and Listing Advice for the TEC has identified the following threats (DEWHA, 2008a; TSSC, 2008): • Clearing, grazing and burning. • Changes to land management practices of remnants. • Application of herbicides and fertilisers. • Weed invasion. • Poorly managed subdivision, and land use in peri-urban areas. • Lack of knowledge or understanding of grassland remnants.
RELEVANT PLANS AND POLICIES	Approved Conservation Advice for the Natural Temperate Grassland of the Victorian Volcanic Plain (DEWHA, 2008a) Commonwealth Listing Advice on Natural Temperate Grassland of the Victorian Volcanic Plain (TSSC, 2008) Natural Temperate Grassland of the Victorian Volcanic Plain - a nationally threatened ecological community (DEWHA, 2008c) Nationally Threatened Ecological Communities of the Victorian Volcanic Plain: Natural Temperate Grassland & Grassy Eucalypt Woodland (DSEWPaC, 2011a)
SPRAT LINK	http://www.environment.gov.au/cgi-bin/sprat/public/publicshowcommunity.pl?id=42

APPROACH TO BASELINE DATA

This section provides an overview of the mapping of the TEC used in the assessment. Please refer to Chapter 13 for further details about baseline data.

HABITAT MAPPING	**WITHIN THE GROWTH AREAS**
	The mapped extent of Natural Temperate Grassland is based on the results of the targeted field surveys (EHP, 2021).
	OUTSIDE THE SURVEYED AREAS OF THE GROWTH AREAS
	There is no specific mapping or modelling available for Natural Temperate Grassland outside of the surveyed areas. For the purposes of this assessment, an indication of distribution and extent of

	the TEC within the unsurveyed areas of the Growth Areas has used DELWP's EVC mapping for EVC 132 (Plains Grassland) (DELWP, 2005). The Listing Advice notes that this EVC is associated with Natural Temperate Grassland although the benchmarks for the EVC do not equate directly with condition thresholds for the TEC (TSSC, 2008). Only a proportion of the modelled extent of the EVC is likely to meet the condition thresholds for the nationally listed community, as discussed further below.

OCCURRENCE IN THE STUDY AREA

This section describes the occurrence of the TEC in the Study Area. It includes reference to a map which can be viewed as a separate file. The map provides critical context for the assessment and should be viewed in conjunction with the text presented in this assessment. This section also provides a qualitative description of where the TEC occurs.

Refer to Map 21-1 for a map of the TEC across the Study Area, and Map 21-2 for a map of the TEC within the Strategic Assessment Area.

21.1.1 OCCURRENCE WITHININ THE GROWTH AREAS

NATURAL TEMPERATE GRASSLAND WITHIN THE SURVEYED AREAS OF THE GROWTH AREAS

There is 12.7 ha of Natural Temperate Grassland mapped within the surveyed areas of the NGGA. This area is mapped across six patches including (EHP, 2021):

- One patch in the central-north of the NGGA 1 ha in size
- Four patches in the central-east of the NGGA totalling 11.6 ha in size
- One small patch in the south of the NGGA adjacent to Emmersons road 0.1 ha in size

The TEC was not recorded within the WGGA (EHP, 2021).

The Listing Advice identifies patches of higher conservation value to include those with minimal weed invasion, high plant species diversity, and a larger patch size (TSSC, 2008). Areas of the community within the NGGA occur in a heavily modified form and do not meet these requirements for higher conservation value. This is reflected in its Site Condition Habitat Score (a score out of 75) which, when standardised, amounts to totals of either 16 or 24 out of 75 with an understorey score of 5/25. The later reflect the presence of less than 50% of the expected number of lifeforms in this community while still supporting more than a 50% cover of native perennial tussock-grasses.

Examples of the TEC within NGGA typically also have a weed cover of greater than 25% of the vegetation present, with high threat weeds such as Chilean Needle-grass being relatively common. Areas of the TEC with a relatively extensive cover of high threat, perennial, grassy weeds have relatively low resilience to ongoing weed invasion. This makes the Natural Temperate Grassland within the NGGA highly vulnerable to an ongoing rapid decline in condition, to the extent where the occurrences can be expected to fail the required condition criteria to be defined as the community within relatively short timeframes (less than a decade).

NATURAL TEMPERATE GRASSLAND WITHIN THE UNSURVEYED AREAS

Targeted surveys are required to understand the presence or absence of Natural Temperate Grassland. There is potential for the TEC to occur within the unsurveyed areas of the NGGA, with EHP noting that the unsurveyed areas are likely to support ecological values consistent with those already confirmed within the surveyed areas of the Growth Areas (EHP, 2021). The TEC is unlikely to occur within the unsurveyed areas of the WGGA.

DELWP modelling for EVC 132 Plains Grassland (DELWP, 2005) provides a broad indication of the possible distribution of the TEC (TSSC, 2008). However, once condition is taken into account, only a proportion of the modelled EVC extent is likely to meet the condition thresholds for the nationally listed community.

A comparison of the extent of modelled EVC 132 within the surveyed areas of the NGGA, with confirmed Natural Temperate Grassland patches based on surveys, shows that confirmed areas of the TEC account for 5.76 per cent of the modelled EVC extent.

The same factor has been used to estimate the likely extent of the TEC within the unsurveyed areas of the NGGA. This is considered appropriately conservative for the purposes of this assessment given the ecological values within the unsurveyed areas are expected to be broadly consistent, if not reduced, when compared with the broader Growth Areas. These areas generally comprise many small, rural residential landholdings which are fragmented by windrows/landscaping and have a much higher proportion of land use for dwellings and driveways compared to the broader Growth Areas. The environment within these unsurveyed areas tends to be more modified or degraded as a result.

There are approximately 103 ha of the modelled EVC 132 in the unsurveyed areas of the NGGA. Assuming that only 5.76 per cent of this qualifies as Natural Temperate Grassland, there is an estimated 5.9 ha of the TEC within the unsurveyed areas of the Growth Areas.

21.1.2 OCCURRENCE WITHIN THE BROADER STRATEGIC ASSESSMENT AREA AND STUDY AREA

Potential extent of the TEC in the SAA and broader Study Area has been estimated using a modified approach to that used for the unsurveyed areas of the Growth Areas described above.

Based on the modelled occurrence of related EVCs, the Listing Advice estimates that 5,245 ha of the TEC is remaining and that if condition is taken into account, less than 1,000 ha of this is expected to meet the definition of Natural Temperate Grassland (TSSC, 2008). This suggests that approximately 19 per cent of the modelled EVCs are in good enough condition to qualify as Natural Temperate Grassland. This figure is notably larger than the 5.76 per cent calculation generated for the unsurveyed areas of the Growth Areas.

The reasons for this could relate to the land use history and extent of modification within the Growth Areas compared with less developed or intensively farmed areas across its broader distribution. Recognising this, a range estimate of between 5.76 per cent and 19 per cent of modelled EVC 132 has been used to calculate potential extent of the TEC outside of the Growth Areas. This approach provides useful context for the impact assessment and suggests that there is between:

- 21.1 and 69.6 ha of Natural Temperate Grassland within the Strategic Assessment Area (excluding the Growth Areas)
- 827.3 and 2,728.9 ha of Natural Temperate Grassland within the broader Study Area (excluding the Strategic Assessment Area)

AVOIDANCE OF IMPACTS

This section provides an overview of the area of the TEC that was avoided for the species through the design of development within the Growth Areas. Avoidance of impacts to biodiversity was a critical part of the process to develop the Plan. A detailed explanation of the avoidance process and terminology is provided in Chapter 16.

Avoidance within the NGGA was determined through a structured decision making process as part of the strategic assessment to identify the optimal layout of development and conservation land in the Growth Area (see Section 16.3 of Chapter 16). A number of options to remove patches of Natural Temperate Grassland from the development areas were considered as part of this process.

This process needed to balance a range of State and Commonwealth biodiversity issues relevant to the Growth Areas and led to the avoidance of important areas of native grassland that provide habitat for the Striped Legless Lizard *Delma impar* and the Golden Sun Moth *Synemon plana*. Mapped patches of Natural Temperate Grassland were unable to be included in the avoided areas for the following reasons:

- The patches of the TEC in the central-east of the NGGA occur within and adjacent to a creekline which will need to be developed as part of urban stormwater management. This is a topographical constraint and there are no viable alternatives that are also conducive to development in the Growth Area.
- The option of extending the Conservation Area to the south to protect the patches of TEC towards the central-north of the NGGA was considered. However, the costs of acquiring and managing this land in addition to the other avoided areas was economically unviable. A suitable alternative layout that prioritised the retention of these areas of the TEC over the other native grassland values could not be designed in a way that would deliver a sensible:
    - Edge-to-area ratio of the conservation area to facilitate good on-going management

  - Urban form for the Growth Area
- The avoidance of the small, isolated remaining patches of the TEC in the southern half of the NGGA as pockets of undeveloped land surrounded by urban development would be difficult to deliver from an urban form perspective and difficult to deliver in terms of protecting and managing the TEC values against substantial edge effects

There is also some potential for the TEC to occur within the external infrastructure footprints within the Strategic Assessment Area, outside of the Growth Areas. The Commitments and Measures under the Plan require:

- Targeted surveys within areas that may support the TEC along these corridors prior to development and
- Demonstrated avoidance of any confirmed areas of the TEC, to the full extent possible

DIRECT IMPACTS

This section provides an analysis of any direct impacts to the TEC. It considers:

- *Predicted impacts within areas identified for development within the Growth Areas*
- *Potential issues associated with fragmentation*

Development under the Plan will lead to the loss of six patches of Natural Temperate Grassland across the total area of 12.7 ha that has been mapped within the NGGA, as well as the estimated loss of 5.9 ha of the TEC within the unsurveyed areas of the NGGA.

It is relevant to note that the current extent of weeds and apparent declining trend in condition across much of the NGGA suggests that the long-term viability of the remnants is poor if existing land management practices continue. Chilean Needle-grass *Nassella neesiana* is a particular species of concern for the TEC (TSSC, 2008) which is now prolific in some parts of the NGGA. In their assessment of the community, EHP noted that the patches of Natural Temperate Grassland that they identified only met the minimum conditions relating to species diversity and structure (EHP, 2021).

Despite this, it is also recognised that these patches of the TEC still provide conservation value. This reflects the critically endangered status of the community and rate of decline in extent, patch size and condition across its distribution. The loss of the patches within the NGGA will lead to a residual adverse impact which will need to be compensated for. A suitable offset is required, and the strategic delivery of these offsets provides an important opportunity to secure a good conservation outcome for the TEC.

POTENTIAL INDIRECT IMPACTS AND MITIGATION

The Conservation Advice and Listing Advice for Natural Temperate Grassland identify a range of threats to the TEC (DEWHA, 2008a; TSSC, 2008). Development under the Plan is unlikely to either introduce or exacerbate any of these threats on potential occurrences of the TEC within the region.

Development under the Plan is unlikely to influence a number of these threats (such as fertiliser or pesticide use, changes in land management practices, grazing, burning or a lack of knowledge or understanding of grassland remnants). The threats which have the potential to interact with development under the Plan (such as increased weed invasion) are unlikely to be exacerbated. This conclusion is based on the:

- Landscape context of the region, which is dominated by existing urban development, roads and/or extensive agricultural land
- Mitigation measures which are a requirement of the existing planning system and will address and minimise the standard indirect impacts associated with urban development in the Growth Areas

Refer to Section 17.2 of Chapter 17 for a detailed assessment of potential indirect impacts associated with implementation of the Plan more generally.

OFFSETS TO COMPENSATE FOR RESIDUAL ADVERSE IMPACTS

This section identifies any offsets needed to address residual adverse impacts to the TEC.

21.1.3 OFFSETS FOR RESIDUAL IMPACTS WITHIN THE GROWTH AREAS

The Plan will provide the following package of offsets to compensate for the loss of 18.6 ha of the TEC within the NGGA:

- Protection and ongoing management of 45 ha of areas supporting the TEC outside of the Growth Areas
- Strategic delivery of these offsets, which means:
  - Advanced offset delivery: 100% of the offsets for Natural Temperate Grassland will be delivered within the first five years of Plan implementation
  - Spatially planned offsets: Offsets will meet at least one of the following strategic landscape criteria:
    - Protection of areas supporting Natural Temperature Grassland that would be considered large for the community
    - Located within a key biodiversity corridor and improves connectivity across the landscape
    - Connection of the offset site to an existing conservation reserve

As outlined previously, strategic approaches to offsets such as this, can lead to outcomes that are in the order of 20-40% better than non-strategic offsets (Gordon *et al.*, 2011; Gordon and Peterson, 2019).

Any unavoidable clearing of confirmed areas of the TEC within the external infrastructure footprints will be offset in accordance with the EPBC Act Environmental Offsets Policy and associated Offsets Assessment Guide (Commonwealth of Australia, 2012). Given the existing level of development and land use in these areas, and the need to demonstrate avoidance to the full extent possible under the Plan, the potential level of clearing and associated need for offsets is expected to be minimal.

LIKELY EFFECTS OF IMPLEMENTATION OF THE PLAN ON THE LONG-TERM VIABILITY OF THE SPECIES

This section considers the likely effects of implementation of the Plan on the long-term viability of the TEC. The assessment of viability has regard for the guidance in the Conservation Advice and Listing Advice and draws on the analysis of avoidance, impacts and offsets presented above.

Where applicable, this section also discusses the consistency of the Plan with any Recovery Plans and relevant Threat Abatement Plans. The general consistency of the Plan with Threat Abatement Plans is discussed in detail in Section 17.3 of Chapter 17.

21.1.4 IMPLICATIONS FOR LONG-TERM VIABILITY AND SUMMARY OF OUTCOMES

A total of 18.6 ha of Natural Temperate Grassland has been mapped across the Growth Areas. All of this occurs within the NGGA and is comprised of a number of small, fragmented patches. The most consolidated patches account for 92 per cent of this area, comprising four closely located patches in the central east of the NGGA totalling 11.6 ha. The remaining two patches are smaller and more fragmented. In addition, there is a conservative estimate of 5.9 ha of potential Natural Temperate Grassland within the unsurveyed areas of the Growth Areas.

The ongoing agricultural land management and extensive threat from existing weeds, including Chilean Needle-grass, threaten the long-term viability of these remnants. At the time of surveys, EHP noted that the patches of mapped Natural Temperate Grassland only met the minimum condition thresholds for the EPBC community (EHP, 2021). Notable declines in native grassland condition and extent have been observed at locations across the NGGA since that time (see Chapter 13, Section 13.2 for details).

However, as identified in the Listing Advice, even small, degraded patches of the TEC retain biodiversity value. In recognition of this, a thorough process to consider options to avoid and retain areas of Natural Temperate Grassland within the NGGA was undertaken. None of the areas known to support the community could be retained due to competing priorities with other native vegetation values, and urban form and topographical constraints.

To compensate for this, the Plan commits to the delivery of an offsets package for the TEC which:

- Addresses the clearing of 18.6 ha within the NGGA with an offset quantum of 45 ha of the TEC outside of the Growth Areas

- Aims to identify consolidated patches of the TEC for protection in strategic locations; noting that larger remnants are now very rare across the TECs distribution, making any remaining large patches particularly important to the long viability of the community as a whole
- Will lead to the early protection and management of the offset sites, in advance of many impacts. The benefits of early or advanced offsetting in this context has been demonstrated in a number of studies (Gordon *et al.*, 2011; Gordon and Peterson, 2019)
- Will ensure that any unavoidable clearing of confirmed areas of the TEC within the external infrastructure footprints will be offset in accordance with the EPBC Act Environmental Offsets Policy and associated Offsets Assessment Guide (Commonwealth of Australia, 2012)

When balanced against the condition, size and existing threats to the remnants within the NGGA, the offsets for Natural Temperate Grassland that will be delivered under the Plan are expected to lead to an improved long-term outcome for the community.

21.1.5 CONSISTENCY WITH RECOVERY PLAN

There is no Recovery Plan for the TEC.

21.1.6 KEY THREATENING PROCESSES AND CONSISTENCY WITH THREAT ABATEMENT PLANS

Relevant Key Threatening Processes (KTPs) and any of their associated Threat Abatement Plans (TAPs) have been identified in Table 20-1 where they relate to:

- The potential direct impacts of the Plan, or
- The relevant indirect impacts

Table 21-1: Relevant Key Threatening Processes and associated Threat Abatement Plans for Adamson's Blown Grass

Key threatening process	Threat abatement plan
Fire regimes that cause declines in biodiversity	There is no relevant TAP
Land clearance	There is no relevant TAP

22 Ramsar wetlands

22.1 INTRODUCTION

The Port Phillip Bay (Western Shoreline) and Bellarine Peninsula Ramsar site (the Ramsar site) occurs partially within the Study Area, with two sections occurring downstream from the growth areas.

This chapter sets out:

- Australia's international conservation obligations regarding the Ramsar site
- A general description of the Ramsar site
- The Ramsar listing criteria
- A summary of the ecological character of the Ramsar site
- How the Growth Areas relate to the Ramsar site
- An analysis of potential direct and indirect impacts
- An analysis of how the Plan addresses obligations under the Ramsar convention

22.2 REGULATORY CONTEXT

22.2.1 INTERNATIONAL AGREEMENTS AND OBLIGATIONS

Australia is party to a number of international agreements and treaties which require protection of significant wetlands and habitat for migratory birds. These include (DELWP, 2018, 2020):

- The Ramsar Convention on Wetlands
- The Convention on the Conservation of Migratory Species of Wild Animals (Bonn)
- The Japan - Australia Migratory Bird Agreement (JAMBA)
- The China - Australia Migratory Bird Agreement (CAMBA)
- The Republic of Korea–Australia Migratory Bird Agreement (ROKAMBA)
- The East Asian - Australasian Flyway Partnership (EAAFP)

The Ramsar Convention aims to prevent the degradation and loss of important wetlands across the globe through requiring implementation of appropriate site management and conservation principles. Section 22.8 discusses how obligations under the Ramsar Convention have been addressed.

The Bonn Convention is an environmental treaty of the United Nations and aims to conserve migratory species within their migratory ranges. The Bonn convention is the only global convention which specialises in the conservation of migratory species, their habitats and migration routes. As of 1 November 2019, there were 130 Parties to the Convention.

JAMBA, Bonn, CAMBA and ROKAMBA are bilateral agreements which provide for protection of migratory birds and their important habitats.

The EAAFP is an informal and voluntary initiative which aims to protect migratory waterbirds and their habitats. Members of EAAFP include countries, intergovernmental agencies, NGOs, and the international business sector.

22.3 GENERAL DESCRIPTION OF THE RAMSAR SITE

The Ramsar site is located across six distinct areas and covers an area of 22,652 hectares (see Map 22-1). The six areas are (DELWP, 2020):

- Point Cook / Cheetham (420 hectares)
- Werribee / Avalon (14,592 hectares)
- Point Wilson / Limeburners Bay (942 hectares)
- Swan Bay (2,660 hectares)
- Mud Islands (625 hectares)
- Lake Connewarre (3,412 hectares)

The Ramsar site supports a diversity and abundance of waterbird species, along with native fish and frogs. It also supports the Subtropical and Temperate Coastal Saltmarsh TEC which is listed as vulnerable under the EPBC Act. The Ramsar site is comprised of the following 12 wetland types (DELWP, 2020):

- Permanent shallow marine waters: this includes the seaward boundary which provides sub-tidal areas of permanent inundation within the Ramsar site
- Marine subtidal aquatic beds: this includes extensive area of seagrass in Swan Bay and Mud Islands, and areas of kelp / macro-algal beds in the Werribee sector
- Intertidal marshes: this includes extensive areas of intertidal saltmarsh in Lake Connewarre, Hospital Swamp, Swan Bay, Mud Islands, Point Wilson, and the shorelines of Werribee and Point Cooke
- Wastewater treatment areas: this comprises the Western Treatment Plant
- Salt exploitation sites: this comprises the Cheetham wetlands which are no longer used for harvest
- Intertidal mud, sand or salt flats: this includes areas around Mud Islands and Swan Bay
- Seasonal intermittent freshwater marshes / pools on inorganic soils: this includes Reedy Lake and Ryan's Swamp
- Intertidal forested wetlands: this includes small areas of mangrove along Limeburners Bay and the Barwon Estuary
- Sand, shingle or pebble shores: this includes beach areas along the Werribee shoreline, Swan Bay and around Mud Islands
- Estuarine waters: this includes Barwon Estuary and Limeburners Bay
- Permanent rivers, streams and creeks: this includes the Barwon River and Little River
- Rocky marine shores: this includes small areas near Point Wilson and Point Cooke

The Ramsar site is managed primarily by DELWP, Parks Victoria, Melbourne Water, and the Department of Defence (DELWP, 2020).

DELWP is currently running a process to review the boundaries of the Ramsar site (DELWP, 2022). This includes consideration of adding a number of additional wetlands to the listing. All of the proposed additions broadly occur within the same vicinity as the six areas that are currently part of the Ramsar site. Given the similar locations and values of these wetlands to the existing site, the impact assessment presented in this chapter broadly addresses the threats and pressures that may be relevant due to implementation of the Plan.

22.4 RAMSAR LISTING CRITERIA

The Ramsar site was listed as a Wetland of International Importance under the Ramsar Convention in 1982. For a wetland to be designated as a Ramsar site it must satisfy one or more of the Ramsar listing criteria. The Ramsar site meets criteria 2, 3, 4, 5, and 6 (see Table 22-1). Note that these criteria have changed since the original listing in 1982 due to administrative changes (DELWP, 2020).

Table 22-1: Criteria for Ramsar listing (DELWP, 2020)

Criterion	Justification
Criterion 2 - *A wetland should be considered internationally important if it supports vulnerable, endangered, or critically endangered species or threatened ecological communities*	The Ramsar site regularly supports one threatened ecological community and 13 threatened fauna species, including: • Subtropical and Temperate Coastal Saltmarsh TEC • Australasian Bittern (*Botaurus poiciloptilus*) • Australian Fairy Tern (*Sternula nereis nereis*) • Bar-tailed Godwit (*Limosa lapponica baueri*) • Curlew Sandpiper (*Calidris ferruginea*) • Eastern Curlew (*Numenius madagascariensis*) • Great Knot (*Calidris tenuirostris*) • Greater Sand Plover (*Charadrius leschenaultia*) • Hooded Plover (*Thinornis rubricollis rubricollis*) • Lesser Sand Plover (*Charadrius mongolus*) • Red Knot (*Calidris canutus*) • Orange-bellied Parrot (*Neophema chrysogaster*) • Australian Grayling (*Prototroctes maraena*) • Growling Grass Frog (*Litoria raniformis*)
Criterion 3 - *A wetland should be considered internationally important if it supports populations of plant and/or animal species important for maintaining the biological diversity of a particular biogeographic region*	The Ramsar site provides a diversity of waterbird habitats, and a total of 120 species of waterbird have been recorded within the Ramsar site. The Port Phillip Bay (Western Shoreline) and Bellarine Peninsula Ramsar Site represents the most species rich Ramsar site in the South East Coast (Victoria) Drainage Division with respect to waterbirds when compared to other large marine and costal wetland systems in the bioregion
Criterion 4 - *A wetland should be considered internationally important if it supports plant and/or animal species at a critical stage in their life cycles, or provides refuge during adverse conditions*	The Ramsar site supports a diversity of species throughout critical life stages, including: • Migration - There are over 30 international migratory shorebirds recorded in the Ramsar site. Further, the Ramsar site regularly supports 22 species during the summer non-breeding months. The Barwon River Estuary also provides a migratory corridor for a number of native diadromous fish species • Drought refuge – The permanent freshwaters of the Western Treatment Plant lagoon and reedy Lake provide refuge for waterfowl and other native species when other temporary wetland systems are dry • Breeding – The Ramsar site supports breeding of at least 49 species of waterbirds, marine fish, and native frogs • Moulting – the Western Treatment Plant supports large numbers of moulting waterfowl, over 30,000 birds have been recorded in primary moult at this site
Criterion 5 - *A wetland should be considered internationally important if it regularly supports 20,000 or more waterbirds*	Waterbird counts across the Ramsar site are very high, a sum of maximum annual abundance indicated that the Ramsar site has supported >20,000 waterbirds each year since 1981. This is a conservative estimate, and a maximum of over 300,000 birds were recorded in 1993
Criterion 6 - *A wetland should be considered internationally important if it regularly supports 1% of the individuals in a population of one species or subspecies of waterbird*	At the time of listing, 13 species met this criterion. More recent estimates (2000 – 2019) indicate that the Ramsar site supports > 1 % of the population of 15 species

By designating the Port Phillip Bay (Western Shoreline) and Bellarine Peninsula as a Ramsar site, Australia is obligated to establish and implement a management framework that aims to conserve the wetland and ensure its wise use. 'Wise use' under the Convention is broadly defined as maintaining the 'ecological character' of the wetland (see Section 22.5 for an overview of ecological character) (DEWHA, 2008b).

22.5 SUMMARY OF THE ECOLOGICAL CHARACTER

22.5.1 OVERVIEW OF ECOLOGICAL CHARACTER

Ecological character is defined under the Ramsar Convention as the combination of the ecosystem components, processes, benefits and services that characterise a wetland at a given point in time (Ramsar Convention, 2005). It provides a baseline description of the wetland at the time of listing and often incorporates limits of acceptable change (LAC). LACs are the "range of variation in the components, processes and benefits or services that can occur without causing a change in the ecological character of the site" (DEWHA, 2008b).

Ecological character is also the main element for the consideration of significant impacts under the EPBC Act. The significant impact guidelines (DoE, 2013) state that:

An action is likely to have a significant impact on the ecological character of a declared Ramsar wetland if there is a real chance or possibility that it will result in:

- *areas of the wetland being destroyed or substantially modified*
- *a substantial and measurable change in the hydrological regime of the wetland, for example, a substantial change to the volume, timing, duration and frequency of ground and surface water flows to and within the wetland*
- *the habitat or lifecycle of native species, including invertebrate fauna and fish species, dependent upon the wetland being seriously affected*
- *a substantial and measurable change in the water quality of the wetland – for example, a substantial change in the level of salinity, pollutants, or nutrients in the wetland, or water temperature which may adversely impact on biodiversity, ecological integrity, social amenity or human health, or*
- *an invasive species that is harmful to the ecological character of the wetland being established (or an existing invasive species being spread) in the wetland.*

This assessment uses these guidelines to discuss the potential impacts to the Ramsar site.

22.5.2 ECOLOGICAL CHARACTER OF THE PORT PHILLIP BAY (WESTERN SHORELINE) AND BELLARINE PENINSULA RAMSAR SITE

The Ecological Character Description of the Ramsar site identifies the critical components, processes, services and benefits of the Ramsar site, along with the limits of acceptable change (DELWP, 2020).

Table 22-2 provides a high-level summary of the ecological character of the Ramsar site.

Table 22-2: High level summary of the ecological character of the Port Phillip Bay (Western Shoreline) and Bellarine Peninsula Ramsar site (adapted from (DEWHA, 2008b)**)**

Component of ecological character	Key points	Limits of acceptable change
Critical components and processes		
Hydrology	The following aspects of hydrology are considered critical to the ecological character: • Interaction between freshwater inflows and tidal exchange in the Lake Connewarre Complex • Artificial water regimes which maintain the highly productive lagoons of Cheetham Wetlands and the Western Treatment Plant	• Reedy Lake will not be continuously wet for more than 10 continuous years, or continuously dry for more than five • At least 75% of aerobic treatment lagoons at the Western Treatment Plant will contain permanent water • At least 75% of the lagoons at Cheetham will contain permanent water
Vegetation	Vegetation in the Ramsar site includes: • Seagrass: present in the Mud Islands, Swan Bay, and coastal areas adjacent to Point Wilson/Limeburners Bay • Saltmarsh: seven communities are present, dominated by shrubs of the genera *Tecticornia* and *Sarcocornia* • Mangroves: a small area in the Barwon Estuary • Freshwater wetland vegetation: including tall marsh and lignum shrubland at Reedy Lake, and a variety of emergent, submerged, and floating aquatic species in parts of the Western Treatment Plant	• Seagrass - Seagrass extent will not fall below 1,500 hectares for a period of greater than 20 continuous years • Saltmarsh - Total saltmarsh extent will not fall below 900 hectares • Mangroves - Total mangrove extent will not fall below 40 hectares • Freshwater wetland vegetation - A habitat mosaic will be maintained at Reedy Lake that comprises open water, emergent native vegetation (sedges, rushes, and reeds) and lignum shrubland with no habitat comprising more than 70 percent of the total wetland area for more than five successive years
Native fish	The Ramsar site supports a variety of native fish, including: • Freshwater fish in Little River, the Western Treatment Plant, and Lake Connewarre • Diadromous fish, including the Australian Grayling which has been recorded in Lake Connewarre • Marine and estuarine fish	• A minimum of 3 fish species per standard haul of a 10 m seine net from three replicate hauls in subtidal habitats of Swan Bay • A minimum abundance of 5 fish per standard haul of a 10 m seine net from three replicate hauls in subtidal or intertidal habitats of Swan Bay

Component of ecological character	Key points	Limits of acceptable change
Waterbird diversity and abundance	The Ramsar site supports over 120 species of wetland dependant bird, including 22 regularly recorded migratory shorebirds. At the time of listing, the annual maximum abundance was ~180,000 birds	Abundance and diversity of waterbirds will not decline below the following where abundance is calculated as a rolling five-year average of maximum annual count, and diversity is calculated as a rolling five-year average of number of species: • Total waterbirds – 100,000 (abundance), 70 (diversity) • Migratory waders - 20 (diversity) • Australasian waders – 1,500 (abundance), 10 (diversity) • Ducks – 30,000 (abundance), 10 (diversity) • Fish eating species – 2,250 (abundance), 12 (diversity) • Herbivores – 6,000 (abundance), 2 (diversity) • Double-banded plover – 1 % (abundance) • Red-necked stint – 1 % (abundance) • Sharp-tailed sandpiper – 1.5 % (abundance) • Gulls – 2 (diversity) • Large bodied waders – 7 (diversity) • Other – 2 (diversity)
Waterbird breeding	At least 49 species of wetland dependent birds have been recorded breeding at the Ramsar site. Beach nesting species have been recorded breeding at Cheetham Wetlands and on Mud Islands, and a number of waterfowl breed at the Western Treatment Plan	• Annual breeding at Mud Islands of colonial nesting species of at least 25,000 pairs / nests. Presence of all of the following species breeding in at least three in every five years: Australian pelican, Australian pied oystercatcher, Australian white ibis, crested tern, little pied cormorant, pied cormorant, silver gull, straw-necked ibis, and white-faced storm petrel. • Annual breeding at Western Treatment Plant of > 300 pairs of Pied Cormorant
Supporting components and processes		
Climate	Climate has an important role in the ecology of the Ramsar site. Rainfall occurs year-round and the annual average is in the order of 500 mm per year, evaporation exceeds rainfall year-round	N/A

Component of ecological character	Key points	Limits of acceptable change
Geomorphic setting	The Geomorphology exerts a strong influence on surface and groundwater connections. Port Phillip Bay is a circular embayment with a narrow connection to the Southern Ocean. The marine areas of the Ramsar site are in the shallow depth contour (< 2 m). There are six sites of geomorphic significance in the Ramsar site, including Mud Islands, the Spit and Edwards Point	N/A
Water quality – salinity, nutrients, water clarity	The salinity within the Ramsar site ranges from predominantly fresh at the Western Treatment Plant and parts of Lake Connewarre, to hypersaline at Cheetham Wetlands Water clarity has an important ecological role, in the shallow marine waters, between 40 – 50 per cent of surface irradiance reaches the sea floor Nitrogen is a significant nutrient in the Ramsar site, sourced primarily from Western Treatment Plant and the Yarra River	N/A
Critical services and benefits		

Provides physical habitat (for waterbirds)	The Ramsar site provides habitat for waterbird feeding, roosting, moulting, and breeding. The Ramsar site supports a wide range of functional groups (i.e., shorebirds, ducks, fish-eaters, large-bodied waders) each with different habitat requirements	• Australasian Bittern, Bar-tailed Godwit, Eastern Curlew, Great Knot, Hooded Plover, Lesser Sand Plover, and Red Knot recorded within the Ramsar site in three out of five seasons.
		• Abundance of waterbirds will not decline below the following (calculated as a rolling five year average of maximum annual count; percentages calculated based on Hansen et al. (2016) for migratory shorebird species and the latest Wetlands International Waterbird Population for other species):
		  ○ Australian Fairy Tern – 0.6 %
		  ○ Curlew Sandpiper – 1.7 %

Provides nursery habitat for native fish	The saltmarsh and seagrass communities in Swan Bay provide nursery habitat for juvenile fish, including the larval stages of some fish species including King George Whiting, Blue Rock Whiting, Leatherjackets and Pipefish	The LAC for native fish is captured in the LACs for saltmarsh and seagrass

Component of ecological character	Key points	Limits of acceptable change
Threatened wetland species and ecosystems	The Ramsar site provides important habitat for 13 species of threatened fauna, including seven international migratory shorebirds. The commonwealth listed Subtropic and Temperate Coastal Saltmarsh community is also present within the Ramsar site	• Orange-Bellied Parrot – captured in the LAC for saltmarsh • Australian Grayling - Australian Grayling continues to be supported in the Barwon River system • Growling Grass Frog: o At Western Treatment Plant > 200 Growling Grass Frogs in 3 out of 5 years o Presence of Growling Grass Frog in the Lake Connewarre complex in 3 out of 5 years
Ecological connectivity	There are a range of distinct wetland types within the Ramsar site which are ecologically connected. In particular, the connection between marine, estuarine and freshwater components is significant for fish migration and reproduction. The Ramsar site also supports significant numbers of migratory shorebirds	• Connectivity between the Barwon River and the Southern Ocean is not impeded between March and November for more than two consecutive years
Cultural services		
Recreation, education, and tourism	There are various uses of the Ramsar site including: • Hunting of ducks between March and June in the freshwater areas of Reedy Lake • Fishing and bird watching at the Western Treatment Plant and the Cheetham Wetlands • The Marine and Freshwater Discovery Centre	N/A
Aboriginal cultural values	The Ramsar site is important to two Indigenous language groups. Mud islands and the area east of the Werribee is Boonwurrung country, and the remainder of the site is Wathaurong country There are a number of important sites including middens, artefacts and burial sites within the Ramsar site. The Lake Connewarre Complex is a significant for the Wathaurong people	N/A

Component of ecological character	Key points	Limits of acceptable change
Scientific research	The proximity of the Ramsar site to larger cities provides opportunities for research. Various research projects are functioning within the Ramsar site, including: • The Fisheries Research Facility (run by the Victorian Fisheries Authority) • Research on the Western Treatment Plant and surrounding shorelines (run by Melbourne Water) • Monitoring of shorebirds occurs at a number of locations within the Ramsar site	N/A

22.6 HOW THE GROWTH AREAS RELATE TO THE RAMSAR SITE

Three of the six areas that form the Ramsar site occur within the Study Area. They are:

- Point Wilson / Limeburners Bay (see Map 22-2)
- The Lake Connewarre Complex (see Map 22-3)
- Werribee / Avalon (see Map 22-4)

Point Wilson / Limeburners Bay and the Lake Connewarre Complex occur downstream of the Growth Areas. The connection between the Growth Areas and these sections of the Ramsar site is discussed below.

The Werribee / Avalon section of the Ramsar site is not hydrologically connected to the Growth Areas.

22.6.1 POINT WILSON / LIMEBURNERS BAY

Approximately 52 per cent of the NGGA drains east to Point Wilson / Limeburners bay via Hovells Creek, which passes through the town of Lara before connecting to Limeburners Bay. This section of the NGGA is approximately 1,088 ha in size, or approximately 4.6 per cent of the total size of the Hovells Creek catchment.

The hydrological distance between the Ramsar site and the NGGA is approximately 9 – 10 km (stream length).

22.6.2 THE LAKE CONNEWARRE COMPLEX

The Lake Connewarre Complex occurs downstream of both the WGGA and a small section of the NGGA. The WGGA is connected to this area of the Ramsar site via the Moorabool River (a tributary of the Barwon River) which flows to the Lake Connewarre Complex south of Geelong. The hydrological distance of the WGGA to the site is approximately 25 km (stream length).

The small section of the NGGA is connected to this area of the Ramsar site via Sutherland Creek, a tributary of the Moorabool River, which then connects to the Barwon River and Lake Connewarre Complex. The hydrological distance between this area of the Ramsar site and the NGGA is approximately 41 km (stream length). The section of the Barwon river that occurs downstream of the Growth Areas passes by Batesford Quarry and through the southern part of Geelong.

Approximately 39 per cent of the WGGA and 2 per cent of the NGGA will drain to the Lake Connewarre Complex.

22.6.3 WERRIBEE / AVALON

The Werribee / Avalon section of the Ramsar site does not occur downstream of the Growth Areas and is therefore not hydrologically linked to development. However, the southern section is approximately 8 km from the NGGA and will potentially experience increased visitation for recreational reasons as a result of new urban development in the area.

22.7 ANALYSIS OF POTENTIAL IMPACTS

22.7.1 DIRECT IMPACTS

The Ramsar site is located outside of the Strategic Assessment Area (see Map 22-1) and will not be subject to any direct impacts as a result of implementing the Plan.

22.7.2 INDIRECT IMPACTS

There are a number of potential threats to the Ramsar site outlined in the Ecological Character Description (DELWP, 2020). Table 22-3 below outlines the priority threats to the three areas of the Ramsar site that occur within the Study Area and identifies which threats are relevant to potential indirect impacts under the Plan.

A detailed discussion of potential indirect impacts under the Plan is provided below.

Table 22-3: Priority threats at the relevant locations of the Port Phillip Bay (Western Shoreline) and Bellarine Peninsula Ramsar site (DELWP, 2020)

Threat	Relevant areas of the Ramsar site*			Description of threat	Potential impacts pathways under the Plan
	Point Wilson / Limeburners	Werribee / Avalon	Lake Connewarre		
Climate change: sea level rise impacting on intertidal vegetation and waterbird habitat	✓✓	✓✓	✓✓	Sea level rise has the potential to impact saltmarsh, intertidal habitats, and waterbirds. Saltmarsh and mangrove community composition and extent is largely determined by the depth and frequency of tidal inundation (DELWP, 2020)	The potential impacts of climate change and relevant mitigation measures under the Plan are outlined in Section 29.5 of Chapter 29
Climate change: increased temperature increases the frequency and severity of avian disease		✓✓		Increased temperatures are likely to have direct impacts to biota, including the increased risk of avian diseases under warmer conditions (DELWP, 2020)	The potential impacts of climate change and relevant mitigation measures under the Plan are outlined in Section 29.5 of Chapter 29
Climate Change: increased intensity of storms resulting in erosion of shoreline habitats		✓✓		The increased frequency and intensity of storms is a greatest threat to areas already experiencing erosion (DELWP, 2020)	The potential impacts of climate change and relevant mitigation measures under the Plan are outlined in Section 29.5 of Chapter 29
Changed operations at the Western Treatment Plant decreasing nutrients and carbon	✓	✓✓		Treated wastewater is discharged from the Western Treatment into the Ramsar site. Although counter intuitive, there is significant scientific understanding of the importance of the productivity driven by discharges from the Western Treatment Plant on shorebird diversity and abundance (DELWP, 2020)	The Plan will not interact with the operations of the Western Treatment Plant
Toxicants from catchment inflows and stormwater	✓	✓✓	✓	Stormwater and catchment inflows are often the source of nutrients, sediments, or toxicants discharging into the Ramsar site (DELWP, 2020)	Point Wilson / Limeburners Bay and the Lake Connewarre Complex occur downstream of the growth areas. Potential indirect impacts to water quality are discussed below

Threat	Relevant areas of the Ramsar site*			Description of threat	Potential impacts pathways under the Plan
	Point Wilson / Limeburners	Werribee / Avalon	Lake Connewarre		
Emerging chemicals of concern from the Western Treatment Plant	✓	✓✓		Urban treated sewage contains a range of chemicals including steroid hormones which may impact fauna in the Ramsar site (DELWP, 2020)	The Plan will not interact with the operations of the Western Treatment Plant
Stormwater results in decreased salinity and altered water regimes			✓✓	Stormwater and catchment inflows are often the source of nutrients, sediments, or toxicants discharging into the Ramsar site (DELWP, 2020)	The Lake Connewarre Complex occurs downstream of the Growth Areas. Potential indirect impacts to water quality are discussed below
Urban development: direct habitat removal and loss of buffer	✓	✓	✓✓	The predicted increase in the Greater Melbourne population is a pressure to the Ramsar site. Urban encroachment results in the loss of wetland buffers, and at times, the boundary of the Ramsar site (DELWP, 2020)	The Plan will not result in habitat removal at any of the areas of the Ramsar site
Litter (including micro-plastics) effects biota	✓✓	✓		Recent studies have indicated there is a large amount of micro-plastic and litter on the beaches of Port Phillip Bay. Ingestion of litter is threat to biota in the Ramsar site (DELWP, 2020)	Urban development may increase levels of visitation to the areas of the Ramsar site within the Study Area. The issues associated with recreational use of the Ramsar site are discussed further below
Invasive species: foxes and cats predating on waterbirds	✓	✓	✓✓	Predation by foxes and cats are a significant threat to shorebirds and beach nesting birds. Foxes remain widespread throughout the Ramsar site (DELWP, 2020)	The Plan is not likely to exacerbate the threat of invasive fauna to the Ramsar site. The areas that form the Ramsar site occur a distance from the Growth Areas, and these locations are already surrounded by urban development
Invasive species: salt tolerant weeds impacting saltmarsh and waterbird habitat	✓✓	✓	✓✓	A number of salt tolerant weeds have been recorded in Port Phillip Bay. These weeds impact both saltmarsh communities, and the biota that use saltmarsh and intertidal flats as habitat (DELWP, 2020)	The Plan is not likely to exacerbate the threat of invasive flora to the Ramsar site. The areas that form the Ramsar site occur a distance from the Growth Areas, and these locations are already surrounded by urban development

Threat	Relevant areas of the Ramsar site*			Description of threat	Potential impacts pathways under the Plan
	Point Wilson / Limeburners	Werribee / Avalon	Lake Connewarre		
Invasive species: non-native grazing animals (rabbits and deer) impacting vegetation and habitat	✓	✓	✓✓	Rabbits are widespread throughout the coastal areas of Port Phillip Bay, and cause damage to native vegetation through grazing and digging. Grazing from deer in the Lake Connewarre Complex can cause extensive damage to habitats and saltmarsh (DELWP, 2020)	The Plan is not likely to exacerbate the threat of invasive fauna to the Ramsar site. The areas that form the Ramsar site occur a distance from the Growth Areas, and these locations are already surrounded by urban development
Recreation: boats, jets skis, kite surfers disturbing waterbird feeding, breeding, and roosting	✓✓	✓	✓	Disturbance from shore based or nearshore boating activities is a high risk to waterbirds in the Ramsar site. The consequences for populations and individuals can include decreased time spent feeding, increased energy spent flying away from disturbances, nest abandonment and general population declines (DELWP, 2020)	Urban development may increase levels of visitation to the areas of the Ramsar site within the Study Area. The issues associated with recreational use of the Ramsar site are discussed further below
Recreation: walkers, horse-riding disturbing waterbird feeding, breeding, and roosting	✓✓	✓	✓	Disturbance of waterbirds by human activities can negatively impact feeding behaviour and habitat use. The consequences for populations and individuals can include decreased time spent feeding, increased energy spent flying away from disturbances, nest abandonment and general population declines (DELWP, 2020)	Urban development may increase levels of visitation to the areas of the Ramsar site within the Study Area. The issues associated with recreational use of the Ramsar site are discussed further below
Recreation: vehicles damaging saltmarsh			✓✓	Vehicle damage to saltmarsh communities has been reported across the Ramsar site. Saltmarsh communities are slow recovering, and damage can range from subtle, to severe (DELWP, 2020)	Urban development may increase levels of visitation to the areas of the Ramsar site within the Study Area. The issues associated with recreational use of the Ramsar site are discussed further below
Duck hunting impacts to non-target species	✓✓	✓✓	✓✓	Hunting is permitted in areas of the Ramsar site, primarily between March and June. This overlaps with the presence of migratory shorebirds and Orange-bellied Parrots. Impacts to non-target species in the Ramsar site are a concern (DELWP, 2020)	Urban development may increase levels of visitation to the areas of the Ramsar site within the Study Area. The issues associated with recreational use of the Ramsar site are discussed further below

*Note that '✓✓' indicates the highest priority threats for each location

Based on the threats to the Ramsar site identified in the Ecological Character Description (DELWP, 2020), relevant potential indirect impacts under the Plan can be summarised as:

- Changes to water flows and quality
- Disturbance from increased public access to natural areas

An assessment of these indirect impacts is provided below.

CHANGES TO WATER FLOWS AND QUALITY

Mechanism of impact

The Plan has the potential to impact on water flows and quality in the following ways (US EPA, 2022):

- Increased impermeable surfaces in developed areas reduces infiltration and increases surface runoff volumes during rain events
- The speed and efficiency of surface runoff flows to streams can be increased by stormwater drainage infrastructure
- Vegetation removal can reduce evapotranspiration

Urbanisation can subsequently increase the frequency, magnitude and duration of high flow events, increase the speed of flow and likelihood of flash flooding, and decrease the lag time of flows (meaning that a flow event finishes more quickly). Stream flow characteristics during low flow periods can also be affected (US EPA, 2022).

Urban development can also impact upon water quality through polluting runoff. Stormwater from urban areas contains a range of pollutants, including sediments, nutrients, organics, heavy metals, bacteria, viruses, and litter (Shahzad *et al.*, 2022)

How impacts can affect the Ramsar site

Water flows and quality in the Ramsar site may be affected through development in the areas of the WGGA and NGGA that are hydrologically linked. As outlined previously, this relates to Limeburners Bay (via Hovells Creek) and the Lake Connewarre Complex (via the Moorabool and Barwon Rivers) (see Section 22.6). The potential indirect impacts on water flows and quality for these areas is discussed below.

Point Wilson / Limeburners Bay

Potential changes to water flows and quality at Point Wilson / Limeburners may impact vegetation and habitat for threatened fauna.

The area supports both seagrass and saltmarsh vegetation. Mapping of seagrass distribution has identified that the Point Wilson area contains a mix of medium and sparse *Zostera* spp. and the only significant patches of *Halophila ovalis* that occur within the area. Point Wilson also supports saltmarsh, although the extent is likely to have reduced since the time of listing (DELWP, 2020).

The area also supports a number of threatened fauna species. This includes estuarine and marine fish, breeding of *Sternula nereis* (Fairy Tern), and a number of migratory shorebirds. The area along the coast between Point Wilson and the Werribee River mouth is also considered to contain the most important sites for the Orange Bellied Parrot in Victoria (DELWP, 2020).

The potential influence on the hydrological values of the Point Wilson/Limeburners Bay area as a result of development within the NGGA is expected to be small given:

- The small area of the development (4.6%) relative to the size of the Hovells Creek catchment
- The greater apparent level of tidal versus freshwater influence of Limeburners Bay as indicated by the:
  - Relatively small size of Hovells Creek
  - Location and extent of mangroves along the banks of Limeburners Bay
  - Fact that decreased salinity and altered water regimes as a result of stormwater inflows are not identified as a threat to the Point Wilson/Limeburners Bay area of the Ramsar site
- The distance between the NGGA and Limeburners Bay (approximately 9-10 km)

The measures described below, which will lead to more detailed analysis, mitigation and management of these potential impacts, will ensure that any residual risks associated with stormwater and catchment inflows are adequately addressed.

Lake Connewarre Complex

The greatest risk in relation to stormwater and catchment inflows at the Ramsar site is at Lake Connewarre. The interaction between freshwater inflows and tidal exchange in the Lake Connewarre Complex is considered to be critical to the ecological character of the site. The Lake Connewarre Complex has a salinity gradient from fresher conditions at Reedy Lake to saline in the Barwon Estuary. The lake receives freshwater inflows from the Barwon river through Reedy Lake when flows overtop the boundary between the two wetlands. Fresh water flows are generally restricted to winter / spring when river discharge is the highest (DELWP, 2020). Changes to the salinity caused by increased stormwater and catchment inflows has the potential to impact the vegetation of the site, and habitat for native fish.

Increased toxicants in catchment inflows from the Moorabool and Barwon Rivers has the potential to impact vegetation and threatened fauna habitat within the Lake Connewarre Complex. The lake contains 68 per cent of the total saltmarsh within the broader site, while also supporting mangrove shrubland and freshwater wetland vegetation including lignum shrubland. Reedy Lake, the Barwon River Estuary and Lake Connewarre are important areas for native fish where over 20 species have been recorded. The Barwon river estuary is also an important migratory route for native fish. Lake Connewarre supports significant numbers of migratory shorebirds and Reedy Lake within the Lake Connewarre Complex is an important breeding site for colonial nesting (DELWP, 2020).

The potential influence on the interaction between freshwater inflows and tidal exchange in the Lake Connewarre Complex, and water quality indicators, as a result of development in the Growth Areas is expected to be small given:

- The distance between the two locations (around 41 km stream length)
- The effect of the Batesford Quarry in interrupting flows and connectivity

The measures described below, which will lead to more detailed analysis, mitigation and management of these potential impacts, will ensure that any residual risks associated with stormwater and catchment inflows are adequately addressed.

Commitments to address indirect impacts

The Plan includes a specific Commitment (Commitment 9) to minimise the indirect impacts of the development on protected matters associated with waterways, riparian areas and wetlands, including the ecological character of the Port Phillip Bay (Western Shoreline) and Bellarine Peninsula Ramsar site. The measures relevant to water flow and quality that will be undertaken to deliver on this Commitment include:

- Undertaking relevant technical studies to understand the key risks from development on protected matters associated with Hovells Creek and the Moorabool River. These studies will be undertaken prior to PSP preparation for each relevant precinct and will:
    - Address potential risks associated with changes to water quality and hydrology as a result of development within the Growth Areas
    - Identify appropriate measures, standards or targets to avoid and minimise adverse impacts on protected matters including, as relevant:
        - Water quality parameters
        - Water retention and flow management requirements
        - Limits on extraction or use
        - Habitat buffer requirements
        - Monitoring and reporting
- Preparing guidelines based on the results of the relevant technical studies to guide the preparation of PSPs and decisions on planning permits and permit conditions to ensure risks to protected matters in relation to indirect and downstream impacts are adequately managed
- Undertaking a planning scheme amendment or other appropriate process to ensure guidelines are considered during preparation of PSPs and in decisions on planning permits and permit conditions

There are also a range of existing measures within the planning system that address changes to water flows and quality. The Geelong Planning Scheme includes requirements to:

- Ensure land use on floodplains minimises the risk of waterway contamination during flooding (Clause 13.03-1S)
- Prevent inappropriate development in areas prone to erosion (Clause 13.04-1S)
- Retain natural drainage corridors, minimise runoff volume from developed areas, filter sediment and waste from stormwater prior to discharge, ensure land use and development minimises nutrient contributions to runoff, and implement measures to minimise sediment discharge from construction sites (Clause 14.02-1S)
- Minimise impacts to water quality through ensuring that land uses which have potential to produce contaminated runoff are appropriately sited and managed (Clause 14.02-2S)
- Implement integrated water management to sustainably manage water supply and demand, water resources, wastewater, drainage, and stormwater (Clause 19.03-3S)

The Geelong Planning Scheme also includes a range of requirements to ensure stormwater management meets appropriate objectives and standards, including objectives for stormwater quality. The key measures are summarised in the BCS, Section 4.3, Table 12. For example, a key objective/standard is Clause 56.07-4, which says - an application for subdivision or development must meet stormwater objectives and standards, including objectives for stormwater quality in the *Urban Stormwater – Best Practice Environmental Management Guidelines* (Victorian Stormwater Committee, 1999).

The NWGGA Framework Plan also includes various mitigation-related actions to address water flows and quality, including implementation of riparian buffers, and the preparation of masterplans for Cowies Creek and Barwon and Moorabool rivers for integrated water management.

Commitment 7 of the Plan ensures that these standard mitigation measures will continue to be implemented over the life of the Plan. Refer to Section 5.5 of Chapter 5 for a more detailed description of these existing measures.

Implementation of Commitments 7 and 9 under the Plan will adequately minimise the risk of adverse impacts to the Ramsar site associated with changes to water flow and quality.

DISTURBANCE FROM INCREASED PUBLIC ACCESS TO NATURAL AREAS

Mechanism of impact

Development under the Plan will lead to increased numbers of people in the Greater Geelong region that may cause increased visitation to the Ramsar site. This has the potential to indirectly impact the Ramsar site through increased public access.

The following threats identified in the Ecological Character Description of the Ramsar site are relevant to this issue (DELWP, 2020):

- Litter (including micro-plastics) effects biota
- Boats, jets skis, kite surfers disturbing waterbirds
- Walkers, horse-riding disturbing waterbird feeding, breeding, and roosting
- Vehicles damaging saltmarsh
- Duck hunting impacts to non-target species

The Ramsar site is close to existing developed areas and is a popular destination for recreational activities. The recreational values of the site are also listed as a component of its Ecological Character (See Table 22-2) (DELWP, 2020).

This indirect impact is considered relevant to the three areas of the Ramsar site which occur within the Study Area.

Point Wilson / Limeburners Bay

Point Wilson / Limeburners is a designated public area managed by the City, Parks Victoria, and DELWP and occurs within the vicinity of significant urban development. The area includes Limeburners Lagoon State Nature Reserve which is managed by the City and Parks Victoria (DELWP, 2020).

The area is used recreationally for duck hunting during the season (March to June), small craft boating (such as canoes, kayaks, and small fishing boats), recreational fishing, walking, and horse riding. There are a number of visitor restrictions enforced by Parks Victoria intended to protect the biodiversity values of the area (DELWP, 2020).

While development under the Plan may increase visitation to Point Wilson / Limeburners Bay, it is considered unlikely that the increased visitation will significantly exacerbate the existing impacts of recreation on this section of the Ramsar site.

The Lake Connewarre Complex

The Lake Connewarre Complex is a designated public area managed by Parks Victoria and occurs within the vicinity of significant urban development. The majority of the area is managed as the Lake Connewarre State Game Reserve, with a small portion of land on the eastern and southern side of the lake managed as a Nature Conservation Reserve (DELWP, 2020).

The area is used recreationally for fishing (with a recreational fishing licence), small craft boating (such as canoes, kayaks, and small fishing boats) and duck hunting within designated areas during duck hunting season (March to June). There are a number of visitor restrictions enforced by Parks Victoria intended to protect the biodiversity values of the area (DELWP, 2020).

While development under the Plan may increase visitation to the Lake Connewarre Complex, it is considered unlikely that the increased visitation will significantly exacerbate the existing impacts of recreation on this section of the Ramsar site.

Werribee / Avalon

Werribee / Avalon is comprised of the Melbourne Water Western Treatment Plant, the Spit Wildlife Reserve, Werribee River Regional Park, Avalon Airfield, and a number of other private and publicly managed areas. The area is a designated public area and occurs between Melbourne and Geelong (DELWP, 2020).

The area is used recreationally for small craft boating (such as canoes, kayaks, and small fishing boats), walking, horse riding and duck hunting within designated areas during duck hunting season (March to June). Duck hunting is prohibited within two areas of Werribee / Avalon, the Spit Wildlife Reserve and the Western Treatment Plant, to protect priority locations for feeding shorebirds. There are a number of other visitor restrictions enforced by Parks Victoria in parts of Werribee / Avalon to protect the biodiversity values of the area (DELWP, 2020).

While development under the Plan may increase visitation to Werribee / Avalon, it is unlikely that the increased visitation will significantly exacerbate the existing impacts of recreation on this section of the Ramsar site.

Conclusion

Three areas of the Port Phillip Bay (Western Shoreline) and Bellarine Peninsula Ramsar site occur within the Study Area (Point Wilson / Limeburners Bay, Werribee / Avalon, and the Lake Connewarre Complex). These areas within the vicinity of highly urbanised locations and are subject to a range existing recreational pressure. The areas are currently managed by the City, Parks Victoria, and DEWLP, with a number of existing measures in place to protect the biodiversity of these areas. Although urban development in the Growth Areas may increase public use of the Ramsar site, it is unlikely that the threat will be significantly exacerbated by development under the Plan.

22.8 ADDRESSING OBLIGATIONS UNDER THE RAMSAR CONVENTION

To satisfy requirements under section 146J of the EPBC Act, section 4.6 of the ToR requires the Assessment Report to consider the extent to which the impacts of the Plan are consistent with Australia's international obligations, including the Ramsar Convention. The Ramsar Convention's broad aims are to halt the worldwide loss of wetlands and to conserve, through wise use and management, those that remain. This requires international cooperation, policy making, capacity building and technology transfer.

The Ramsar Convention has been considered in the development of the Plan, which includes consideration of avoidance, mitigation, and management measures for Ramsar wetlands. The Plan includes a specific commitment with a number of measures relevant to managing potential indirect impacts on the Port Phillip Bay (Western Shoreline) and Bellarine Peninsula Ramsar site.

Impacts to the Port Phillip Bay (Western Shoreline) and Bellarine Peninsula Ramsar site are unlikely and loss of wetlands due to the Plan is not foreseeable. The Plan is not considered to be inconsistent with the Ramsar Convention.

23 Non-threatened migratory species

23.1 INTRODUCTION

This chapter assesses potential impacts of implementing the Plan on non-threatened migratory species. Any species that are listed as both threatened and migratory are assessed in Chapter 19.

The chapter:

- Sets out the regulatory requirements relating to migratory species
- Identifies the species that are assessed
- Provides an assessment of the species that are migratory shorebirds
- Provides an assessment of the remaining species

23.2 REGULATORY REQUIREMENTS

23.2.1 EPBC ACT APPROVAL CONSIDERATIONS

Section 146L of the EPBC Act sets out the approval considerations in relation to migratory species. In summary, the outcomes of the Plan must not be inconsistent with any of the international agreements relating to migratory species. Of relevance to migratory birds are:

- The Bonn Convention (or the Convention on the Conservation of Migratory Species)
- The bilateral agreements for the conservation of migratory birds between the Government of Australia and the Government of Japan (JAMBA), the Government of China (CAMBA), and the Government of the Republic of Korea (ROKAMBA)

The *Wildlife Conservation Plan For Migratory Shorebirds* (Commonwealth of Australia, 2015) provides a useful summary of Australia's commitments under these agreements. The key obligations (of relevance to this assessment) which cut across the various agreements in different forms are for Australia to:

- Conserve and where possible restore habitats
- Mitigate and manage threats to migratory birds

It is also noted in the Wildlife Conservation Plan that the EPBC Act is the key piece of legislation which gives effect to Australia's international obligations. Following the process and meeting the requirements of the EPBC Act implicitly means that those obligations will be met.

23.2.2 RELEVANT GUIDELINES AND PLANS

EPBC Act Policy Statement 3.21

There are 37 species of migratory shorebirds that are listed under the EPBC Act which regularly visit Australia during their non-breeding season. The *EPBC Act Policy Statement 3.21 - Industry guidelines for avoiding, assessing and mitigating impacts on EPBC Act listed migratory shorebirds* (the migratory shorebird guidelines) (DoE, 2017) provides guidance to assist proponents in avoiding, assessing and mitigating impacts to these migratory shorebirds.

These guidelines:

- Outline legislative obligations for the protection of migratory shorebirds
- Define important habitat and provide guidance for identifying important habitat
- Define an ecologically significant proportion of individuals for each species
- Define a significant impact on migratory shorebirds and provide guidance on the kinds of actions which can result in significant impacts
- Provide guidance on ways to avoid and/or mitigate impacts to migratory shorebirds

The information in these guidelines have been considered as part of this assessment.

Note that a detailed description of the definitions of important habitat and ecologically significant proportions of individuals for each species, and the way in which this information has been used in this assessment, is outlined in Chapter 12, Section 12.3.3.

WILDLIFE CONSERVATION PLAN FOR MIGRATORY SHOREBIRDS

The Wildlife Conservation Plan for Migratory Shorebirds (Commonwealth of Australia, 2015) provides a framework to guide the conservation of migratory shorebirds in Australia. It:

- Summarises Australia's commitments to migratory shorebirds under international conventions and agreements
- Outlines national actions to support shorebird conservation

The Wildlife Conservation Plan is consistent with the EPBC Act referral guidelines. Particularly in relation to the definition of important habitat and the discussion of threats.

WILDLIFE CONSERVATION PLAN FOR SEABIRDS

The *Wildlife Conservation Plan for Seabirds* (Commonwealth of Australia, 2020) aims to facilitate a nationally coordinated effort to protect and conserve seabirds listed under the EPBC Act. This plan has a series of objectives which relate to:

- Encouraging international collaboration to protect seabird habitats outside Australia
- Increasing identification and protection of seabird habitat within Australia
- Improving long-term survival of seabirds through research, monitoring, management and conservation activities
- Increasing community awareness of conserving seabirds and their habitats.

This seabird conservation plan includes profiles on seabird species, including ecology, habitat use, threats, and recommended management actions. The profiles are intended for use by agencies, land managers, and environmental organisations to inform management priorities for each species.

The information in this plan has been considered as part of this assessment.

23.3 IDENTIFICATION OF SPECIES REQUIRING ASSESSMENT

A categorisation process was completed to identify Category 1 non-threatened migratory species which have potential to be impacted under the Plan. This process involved consideration of:

- Guidance provided by the EPBC Act Significant Impact Guidelines 1.1 (DoE, 2013), draft referral guidelines (DoE, 2015a), and migratory shorebird guidelines (DoE, 2017) and supporting documents (Hansen, Fuller et al., 2016; Weller, Kidd et al., 2020)
- Information from key sources such as Birdlife International's Datazone database (Birdlife International, 2022) or other relevant information where available
- VBA records of species within the Study Area

Refer to Chapter 12 for a detailed description of the categorisation approach, and Chapter 18 for the categorisation results for non-threatened migratory species. Migratory species that are also listed as threatened are addressed in Chapter 19.

As a result of this categorisation process, 7 non-threatened migratory species were identified as Category 1 species requiring further assessment. They are all birds and include:

- Common Greenshank (*Tringa nebularia*)
- Double-banded Plover (*Charadrius bicinctus*)
- Latham's Snipe (*Gallinago hardwickii*)
- Little Tern (*Sternula albifrons*)
- Marsh Sandpiper (*Tringa stagnatilis*)
- Red-necked Stint (*Calidris ruficollis*)

- Sharp-tailed Sandpiper (*Calidris acuminata*)

Six of these species (all species excluding the Little Tern) are migratory shorebirds. Guidance for the assessment of these species is provided in the migratory shorebird guidelines (DoE, 2017), and these species have been assessed accordingly. The assessment of these six species is presented in Section 23.4 below.

The Little Tern is a migratory species which has no specific guidance available with regards to an appropriate assessment method. Assessment of the Little Tern has been completed by considering other guidance available for other species, including:

- The EPBC Act Significant Impact Guidelines 1.1 (DoE, 2013), migratory shorebird guidelines (DoE, 2017) and draft referral guidelines (DoE, 2015a)
- Species-specific information available within the draft Conservation Advice (DAWE, 2022), the Wildlife Conservation Plan for Seabirds (Commonwealth of Australia, 2020), and the Birdlife Datazone database (Birdlife International, 2022)

The assessment of the Little Tern is presented in Section 23.5 below.

23.4 ASSESSMENT OF MIGRATORY SHOREBIRDS

23.4.1 BACKGROUND TO MIGRATORY SHOREBIRDS

Thirty-seven species of migratory shorebirds regularly visit Australia during their non-breeding season (from the Austral spring to autumn). The majority of those breed in the northern hemisphere and use the East Asian-Australasian Flyway which stretches from Siberia and Alaska, through east and south-east Asia, to Australia and New Zealand. They depend upon a range of sites along the flyway for breeding, staging, feeding, and roosting. In Australia, coastal and freshwater wetlands provide important habitat (Commonwealth of Australia, 2015).

23.4.2 OVERVIEW OF SPECIES BEING ASSESSED

Table 23-1 provides an overview of the records and important habitat for the six migratory shorebirds. Please refer to Map 23-1 for a map of the boundaries of Important Bird Areas (IBAs) identified in this table.

Note that the Werribee/Avalon IBA and the Lake Connewarre and Barwon River Estuary IBA are part of the Port Phillip Bay (Western Shoreline) and Bellarine Peninsula Ramsar site, and the Moolap IBA is currently being considered for inclusion within the Ramsar site (Engage Victoria, 2022).

Table 23-1: Overview of Category 1 migratory shorebirds

Common name	Scientific name	Occurrence	Map	ESP* threshold	Location of important habitat^
Common Greenshank	*Tringa nebularia*	There have been 1,287 records (4,625 individuals) of the Common Greenshank within the Study Area over the past five years. This is above the threshold of an ecologically significant proportion of records for the species. Most of these individuals (over 2,800) occur along the northern coastline of Port Phillip Bay, extending from Avalon Beach in the west to the boundary of the Study Area in the east. This area is part of the Werribee/Avalon IBA. A substantial proportion of individuals (approximately 800) also occur within the Lake Connewarre Complex. This area is part of the Lake Connewarre and Barwon River Estuary IBA. Individuals are also recorded to occur within the Moolap region. This area is part of the Moolap IBA.	Map 23-2	110 individuals within the last 5 years (DoE, 2017; Hansen, Fuller et al., 2016).	Important habitat for the Common Greenshank has been mapped by Birdlife Australia within the Study Area in the following localities (Weller, Kidd et al., 2020): • Lake Connewarre and Barwon River Estuary IBA • Werribee/Avalon IBA
Double-banded Plover	*Charadrius bicinctus*	There has been 1 record (3 individuals) of the Double-banded Plover within the Study Area over the past 5 years. These individuals are recorded to occur along the northern coastline of Port Phillip Bay, adjacent to The Spit Wildlife Reserve. This is below the threshold of an ecologically significant proportion of records for the species. While few individuals of the Double-banded Plover have been recorded within the last 5 years, it is noted that when historical records are considered, a substantial number of individuals has been recorded within the Study Area within recent years (7,992 individuals from 1990 onwards). These records occur: • Along the northern shoreline of Port Phillip Bay. A small number of records also occur in the vicinity of Limeburners Bay. This area is part of the Werribee/Avalon IBA • Within the Lake Connewarre Complex. This area is part of the Lake Connewarre and Barwon River Estuary IBA • In the Moolap locality. This area is part of the Moolap IBA	Map 23-3 and Map-23-4	19 individuals within the last 5 years (DoE, 2017; Hansen, Fuller et al., 2016).	Important habitat for the Double-banded Plover has been mapped by Birdlife Australia within the Study Area in the following localities (Weller, Kidd et al., 2020): • Lake Connewarre and Barwon River Estuary IBA • Werribee/Avalon IBA • Moolap IBA
Latham's Snipe	*Gallinago hardwickii*	There have been 241 records (940 individuals) of the Latham's Snipe within the Study Area over the past 5 years. This is above the threshold of an ecologically significant proportion of records for the species. The majority of these individuals (over 580 individuals) occur either within the downstream reaches of the Barwon River or within the Lake Connewarre	Map 23-5	18 individuals within the last 5 years (DoE, 2017;	Important habitat for the Latham's Snipe has been mapped by Birdlife Australia within the Study Area in the following localities (Weller, Kidd et al., 2020):

Common name	Scientific name	Occurrence	Map	ESP* threshold	Location of important habitat^
		Complex. This area is part of the Lake Connewarre and Barwon River Estuary IBA. Most of the remaining individuals occur along the northern coastline of Port Phillip Bay, adjacent to The Spit Wildlife Reserve. A small number of individuals also occur adjacent to Limeburners Bay. This area is part of the Werribee/Avalon IBA. A small number of records occur in the Moolap locality. This area is part of the Moolap IBA. A single record occurs adjacent to Cowies Creek, approximately 600 m east of the boundary of WGGA. A small number of records also occur in the southern area of the Study Area along Thompson Creek and adjacent to Merrijig Creek. There is no mapped important habitat in either of these locations. Further, the small number of individuals suggests that neither of these sites are likely to constitute important habitat for the species.		Hansen, Fuller et al., 2016).	• Lake Connewarre and Barwon River Estuary IBA • Moolap IBA
Marsh Sandpiper	*Tringa stagnatilis*	There have been 980 records (4,714 individuals) of the Marsh Sandpiper within the Study Area over the past 5 years. This is above the threshold of an ecologically significant proportion of records for the species. Most of these individuals (over 4,000) occur along the northern coastline of Port Phillip Bay, extending from Avalon Beach in the west to the boundary of the Study Area in the east. This area is part of the Werribee/Avalon IBA. A substantial proportion of individuals (over 200) also occur within the Lake Connewarre Complex. This area is part of the Lake Connewarre and Barwon River Estuary IBA. Individuals are also recorded to occur within the Moolap region. This area is part of the Moolap IBA.	Map 23-6	130 individuals within the last 5 years (DoE, 2017; Hansen, Fuller et al., 2016).	Important habitat for the Marsh Sandpiper has been mapped by Birdlife Australia within the Study Area in the following localities (Weller, Kidd et al., 2020): • Werribee/Avalon IBA • Moolap IBA
Red-necked Stint	*Calidris ruficollis*	There have been 104 records (21,042 individuals) of the Red-necked Stint within the Study Area over the past 5 years. This is above the threshold of an ecologically significant proportion of records for the species. All of these recent individuals occur along the northern coastline of Port Phillip Bay, extending from Avalon Beach in the west to the boundary of the Study Area in the east. This area is part of the Werribee/Avalon IBA. While there are no records in these localities within the last 5 years, when date filters are removed and all available records of the species are considered,	Map 23-7	475 individuals within the last 5 years (DoE, 2017; Hansen, Fuller et al., 2016).	Important habitat for the Red-necked Stint has been mapped by Birdlife Australia within the Study Area in the following localities (Weller, Kidd et al., 2020): • Lake Connewarre and Barwon River Estuary IBA • Werribee/Avalon IBA

Common name	Scientific name	Occurrence	Map	ESP* threshold	Location of important habitat^
		substantial records of the species occur within the Lake Connewarre Complex (part of the Lake Connewarre and Barwon River Estuary IBA) and in the Moolap locality (part of the Moolap IBA).			• Moolap IBA
Sharp-tailed Sandpiper	*Calidris acuminata*	There have been 138 records (11,075 individuals) of the Sharp-tailed Sandpiper within the Study Area over the past 5 years. This is above the threshold of an ecologically significant proportion of records for the species. These recent records primarily occur along the northern coastline of Port Phillip Bay, within or adjacent to The Spit Wildlife Reserve. This area is part of the Werribee/Avalon IBA. While there are limited records in other localities within the last 5 years, when date filters are removed and all available records of the species are considered, substantial records of the species occur within the Lake Connewarre Complex (part of the Lake Connewarre and Barwon River Estuary IBA) and in the Moolap locality (part of the Moolap IBA). A small number of records also occur in the vicinity of Limeburners Bay (part of the Werribee/Avalon IBA).	Map 23-8	85 individuals within the last 5 years (DoE, 2017; Hansen, Fuller et al., 2016).	Important habitat for the Sharp-tailed Sandpiper has been mapped by Birdlife Australia within the Study Area in the following areas (Weller, Kidd et al., 2020): • Lake Connewarre and Barwon River Estuary IBA • Werribee/Avalon IBA • Moolap IBA

*ESP – Ecologically Significant Proportion

^ Refer to Map 23-1 for a map of important habitat

23.4.3 APPROACH TO ASSESSMENT

GUIDANCE WHICH INFORMED ASSESSMENT APPROACH

Impact pathways

The migratory shorebird guidelines set out four pathways by which impacts can be significant to migratory shorebirds:

- Loss of important habitat
- Degradation of important habitat leading to a substantial reduction in migratory shorebird numbers
- Increased disturbance within important habitat leading to a substantial reduction in migratory shorebird numbers
- Direct mortality of birds leading to a substantial reduction in migratory shorebird numbers

Avoiding and/or mitigating impacts

The migratory shorebird guidelines also outline a set of general measures to avoid and/or mitigate impacts to shorebirds. Measures include:

- Making every effort to avoid habitat loss
- Ensuring habitat is not degraded through the introduction of exotic species; changes to hydrology or water quality (including toxic inflows); fragmentation of habitat or exposure to litter or pollutants; and exposure of acid sulphate soils
- Mitigating against the impacts of disturbance
- Considerations around direct mortality to shorebirds
- Consideration of climate change

APPROACH TO ANALYSING IMPACTS

This assessment primarily draws on the concepts presented in the migratory shorebird guidelines and is based on:

- Analysis of potential direct and indirect impacts with a focus on:
  - The four potential impact pathways set out in the guidelines
  - The general measures to avoid and/or mitigate impacts to shorebirds set out in the guidelines
- Consideration of regulatory requirements for migratory species

The potential loss of important habitat was calculated by:

- Considering the locations of mapped important habitat for each of the shorebird species with regards to areas of development under the Plan
- Considering potential changes to hydrology, water quality or vegetation structural changes near important habitat sites

Potential degradation and disturbance within important habitat, and potential direct mortality of migratory shorebirds were assessed through:

1. Identifying how the Plan that may lead to these impacts
2. Considering how those activities are proposed to be managed under the Plan
3. Analysing the residual risk to important habitat and shorebirds

APPROACH TO EPBC ACT APPROVAL CONSIDERATIONS

Regulatory requirements were considered at the end of the assessment by drawing together the results of the impact analysis, examination of the benefits of the conservation measures in the Plan and reviewing any specific requirements for migratory species.

23.4.4 IMPACT ANALYSIS

This section considers the potential impacts to migratory shorebirds against the four impact pathways identified in the migratory shorebird guidelines (DoE, 2017). It also provides a brief consideration of climate change and an evaluation of the outcomes for shorebirds as listed migratory species.

LOSS OF IMPORTANT HABITAT

As outlined in the migratory shorebird guidelines (DoE, 2017), loss of important habitat can occur through either:

- Direct loss: e.g., through clearing, inundation, infilling or draining
- Indirect loss: e.g., through changes to hydrology, water quality, or vegetation structural changes near roosting areas

Direct loss

There will be no direct loss of important habitat due to development under the Plan. No important habitat is located within, or immediately adjacent to, the Strategic Assessment Area.

Important habitat for migratory shorebirds in the Study Area is located as follows (Weller, Kidd et al., 2020):

- Lake Connewarre and Barwon River Estuary IBA – this IBA is located over 7 km south-south-east of the Strategic Assessment Area
- Werribee/Avalon IBA – this IBA is located approximately 2 km to the east of the Strategic Assessment Area
- Moolap IBA – this IBA is located over 5 km east-south-east of the Strategic Assessment Area

Indirect loss

Changes to hydrology and water quality

Urban development and transport have the potential to lead to changes to hydrology and water quality. This is related to a range of factors but includes:

- Potential disruption to natural water flows
- The increase of hard surfaces leading to increased runoff
- Potential introduction of a range of contaminants that may affect water quality (e.g., nutrients, chemicals)

Migratory shorebird habitat that would be at risk of these effects are sites that are:

- In close proximity to development areas
- Hydrologically well connected (e.g., downstream) to development areas

None of the identified IBAs are in close proximity to development areas. However, some of the IBAs are downstream of development areas.

Of the identified IBAs, the following areas are downstream of development under the Plan:

- Lake Connewarre and Barwon River Estuary IBA is downstream of the WGGA via the Moorabool River, which discharges into the Barwon River. Approximately 39 per cent of the WGGA, and a small proportion of the NGGA (~2 per cent), drains into the Moorabool River (The City of Greater Geelong, 2016)
- Werribee/Avalon IBA is partially downstream of the Strategic Assessment Area. The westernmost section of this IBA, Limeburners Bay, is part of the Hovells Creek catchment. Approximately 52 per cent of the NGGA will drain to the Hovells Creek Catchment (The City of Greater Geelong, 2016). Other areas of this IBA, however, are not hydrologically linked to the Strategic Assessment Area

The Moolap IBA is not downstream of the Strategic Assessment Area.

The Plan includes a specific Commitment (Commitment 9) to minimise the indirect impacts of the development on protected matters associated with waterways, riparian areas and wetlands, including EPBC listed threatened and migratory birds. The measures relevant to changes to hydrology and water quality that will be undertaken to deliver on this Commitment include:

- Undertaking relevant technical studies to understand the key risks from development on protected matters associated with Hovells Creek and the Moorabool River. These studies will:
  - Address potential risks associated with changes to water quality and hydrology as a result of development within the Growth Areas
  - Identify appropriate measures, standards or targets to avoid and minimise adverse impacts on protected matters including, as relevant:
    - Water quality parameters
    - Water retention and flow management requirements
    - Limits on extraction or use
    - Habitat buffer requirements
    - Monitoring and reporting
- Preparing guidelines based on the results of the relevant technical studies to guide the preparation of PSPs and decisions on planning permits and permit conditions to ensure risks to protected matters in relation to indirect and downstream impacts are adequately managed
- Undertaking a planning scheme amendment or other appropriate process to ensure guidelines are considered during preparation of PSPs and in decisions on planning permits and permit conditions

There are also a range of existing measures within the planning system that address changes to hydrology and water quality. The Geelong Planning Scheme includes requirements to:

- Ensure land use on floodplains minimises the risk of waterway contamination during flooding (Clause 13.03-1S)
- Prevent inappropriate development in areas prone to erosion (Clause 13.04-1S)
- Retain natural drainage corridors, minimise runoff volume from developed areas, filter sediment and waste from stormwater prior to discharge, ensure land use and development minimises nutrient contributions to runoff, and implement measures to minimise sediment discharge from construction sites (Clause 14.02-1S)
- Minimise impacts to water quality through ensuring that land uses which have potential to produce contaminated runoff are appropriately sited and managed (Clause 14.02-2S)
- Implement integrated water management to sustainably manage water supply and demand, water resources, wastewater, drainage, and stormwater (Clause 19.03-3S)

The Geelong Planning Scheme also includes a range of requirements to ensure stormwater management meets appropriate objectives and standards, including objectives for stormwater quality (for example, see Clause 53.18).

The NWGGA Framework Plan also includes various mitigation-related actions to address changes to hydrology and water quality, including implementation of riparian buffers, and the preparation of masterplans for Cowies Creek and Barwon and Moorabool rivers for integrated water management.

Commitment 7 of the Plan ensures that these standard mitigation measures will continue to be implemented over the life of the Plan. Refer to Section 5.5 of Chapter 5 for a more detailed description of these existing measures.

Implementation of Commitments 7 and 9 under the Plan will adequately minimise the risk of adverse impacts associated with changes to hydrology and water quality

Changes to vegetation structure

Changes to vegetation structure can arise from factors such as increased vegetation cover or encroachment of buildings (DoE, 2017). This may be possible at sites that are in close proximity to development.

As outlined above, no areas of important habitat are located close to areas of development under the Plan. Subsequently, the Plan will not contribute to this threat in areas of important habitat in the Study Area.

DEGRADATION OF IMPORTANT HABITAT LEADING TO A SUBSTANTIAL REDUCTION IN MIGRATORY SHOREBIRD NUMBERS

The migratory shorebird guidelines (DoE, 2017) set out examples of the types of activities that can lead to degradation of important habitat. They include:

- Activities occurring in coastal or estuarine environments. For example:
  - Substantial loss of marine or estuarine vegetation
  - Invasion of intertidal mudflats by weeds
  - Exposure of acid sulfate soils
- Water pollution and changes to the water regime

Activities in coastal or estuarine environments

The Strategic Assessment Area is mostly comprised of agricultural areas and grassland habitats, and mostly does not include estuarine or coastal environments. The only coastal/estuarine environment is within the south-eastern arm of the Strategic Assessment Area, which extends along Cowies Creek to the edge of Corio Bay. This area is subject to existing development, and no new development will occur here under the Plan. Development under the Plan will instead occur further inland and will be concentrated within the two Growth Areas.

As development under the Plan will not occur in coastal or estuarine environments, the Plan will not result in substantial loss of marine or estuarine vegetation, and further will not result in invasion of intertidal mudflats by weeds.

Further, the location of coastal acid sulfate soils within Geelong have been mapped. The Strategic Assessment Area does not contain any coastal acid sulfate soils (Department of Jobs Precincts and Regions, 2022). Development under the Plan will not result in exposure of acid sulfate soils.

Water pollution and changes to the water regime

Potential water pollution and changes to the water regime are similar issues to those discussed above in relation to hydrology and water quality.

As outlined above, implementation of Commitments 7 and 9 under the Plan will adequately minimise the risk of adverse impacts associated with changes to hydrology and water quality

INCREASED DISTURBANCE WITHIN IMPORTANT HABITAT LEADING TO A SUBSTANTIAL REDUCTION IN MIGRATORY SHOREBIRD NUMBERS

As outlined in the migratory shorebird guidelines (DoE, 2017) increased disturbance to migratory shorebirds is a key threat within Australia. It may occur through:

- Construction activities (e.g., demolition)
- Residential and recreational activities such as four-wheel-driving, jet- and water-skiing, power boating, fishing, walking, windsurfing, kite-surfing, walking dogs, noise, and night-lighting

Migratory shorebird habitat that would be at risk of these effects are sites that are:

- In close proximity to development areas
- Publicly accessible for recreation (particularly where this is not managed to protect shorebirds)
- Adjacent to recreation areas (e.g., waterways used for boating etc)

The Plan has potential to increase the risk of disturbance to shorebird habitat from increased public access to natural areas through increasing the population size of the Geelong region. However, it is also recognised that the Geelong region is already substantially developed, with an existing large population size, in addition to a large number of visitors to the region. Therefore, disturbance of natural areas from public access is considered an existing threat in the region. It is unlikely that the Plan would substantially exacerbate this threat beyond its current levels in the region.

There are a range of existing measures in place to manage human disturbance to important shorebird habitat. The Lake Connewarre and Barwon River Estuary IBA and the Werribee/Avalon IBA both have existing wildlife reserves in key areas of habitat within these IBAs. These reserves are managed by Parks Victoria to protect and enhance flora and fauna values while supporting appropriate community use. Refer to Table 23-2 for further information on the characteristics of each reserve, existing management measures in place, and for a list of the migratory shorebird species which have important habitat within the reserve.

Further, while the Moolap IBA does not have a reserve in place, the site is managed under the Moolap Coastal Strategic Framework Plan. Refer to Table 23-2 for further information on the characteristics of this area, existing management measures in place, and for a list of the migratory shorebird species which have important habitat at this site.

Overall, it is considered that the existing management measures of each of the areas of important habitat will adequately minimise the risk of adverse impacts associated with disturbance of important shorebird habitat.

Table 23-2: Existing management of important shorebird habitat within the Study Area

IBA	Habitat supported by the IBA	Managed areas within IBA	Location and description	Existing management
Lake Connewarre and Barwon River Estuary IBA	Common Greenshank; Double-banded Plover; Latham's Snipe; Red-necked Stint; Sharp-tailed Sandpiper	Lake Connewarre Wildlife Reserve	This reserve is located within the Lake Connewarre Complex and is part of the Port Phillip Bay (Western Shoreline) and Bellarine Peninsula Ramsar site. It is a large, shallow estuarine lagoon, and contains a diverse range of wetlands and vegetation including mangroves and saltmarsh communities.	This reserve is managed by Parks Victoria. The reserve is large and has variable restrictions in different areas of the reserve. Dogs are permitted on a leash in some locations and are prohibited in other areas. The following are prohibited in some areas, yet permitted in other areas: horses, vehicles (excluding management vehicles), firearms, camping, and generators. Fires are prohibited and boating zones apply throughout the reserve. (Parks Victoria, 2022g, 2022f, 2022i, 2022a, 2022e)
Werribee/ Avalon IBA	Common Greenshank; Double-banded Plover; Marsh Sandpiper; Red-necked Stint; Sharp-tailed Sandpiper	Limeburners Lagoon Flora and Fauna Reserve	This reserve is located within Limeburners Bay and is part of the Port Phillip Bay (Western Shoreline) and Bellarine Peninsula Ramsar site. It is part of a broad, sandy estuarine inlet, with shallow tidal water. The inlet supports shoreline, sandy spit and seagrass environments.	This reserve is managed by Parks Victoria. The following are not permitted: dogs, cats, other pets, horses, bicycles, fires, firearms, and vehicles (excluding management vehicles). (Parks Victoria, 2022d)
		The Spit Wildlife Reserve	This reserve is located within the Port Wilson area and is part of the Port Phillip Bay (Western Shoreline) and Bellarine Peninsula Ramsar site. It contains sand spits, a lagoon, mudflats and areas of saltmarsh.	This reserve is managed by Parks Victoria. Public access to this reserve is partially restricted. At publicly accessible sites, dogs and vehicles (excluding management vehicles) are prohibited. Boating zones also apply (Parks Victoria, 2022c, 2022j). Public access to some areas of the reserve is restricted and require a permit from Melbourne Water as the site is adjacent to the Werribee Sewage Farm (Conservation Volunteers Australia, 2022).

IBA	Habitat supported by the IBA	Managed areas within IBA	Location and description	Existing management
Moolap IBA	Double-banded Plover; Latham's Snipe; Marsh Sandpiper; Red-necked Stint; Sharp-tailed Sandpiper	'Wetlands and Former Saltworks Precinct' within the Moolap Coastal Strategic Framework Plan	The Moolap Coastal Strategic Plan outlines the management objectives and strategies for the Moolap area. The area covered by the Strategic Plan includes the Moolap IBA, in addition to areas of land outside of the IBA. The majority of the Moolap IBA is located in the 'Wetlands and Former Saltworks Precinct' of the Strategic Plan. The area includes salt pans separated by bunds (from a former saltworks) which is used as a feeding location by many migratory birds. Seagrass meadows occur in the shallow bay area adjacent to the salt bunds.	The overarching goal for the Precinct is that the area be managed and coordinated to prioritise environmental outcomes and to respond to existing values and risks. With regards to disturbance management, the Strategic Plan contains a range of strategies, including: • Facilitating while managing public access to enable recreation and passive enjoyment of the area while conserving environmental values • Avoiding and managing risks of domestic animals entering conservation areas • Avoiding boating and marine infrastructure where it would impact ecological values (DELWP, 2019)

DIRECT MORTALITY OF BIRDS LEADING TO A SUBSTANTIAL REDUCTION IN MIGRATORY SHOREBIRD NUMBERS

As outlined in the migratory shorebird guidelines (DoE, 2017), direct mortality of birds may result from activities relating to:

- Bird strike due to:
  - Development of wind farms in migration or movement pathways
  - Aeroplanes or fixed structures such as towers with support cables
- Inappropriate waste management and chemical or oils spills

Bird strike

Development under the Plan does not relate to windfarms, aeroplanes, or large fixed structures with support cables. Risks of significant bird strike due to the development are considered to be low.

Inappropriate waste management and chemical or oils spills

Potential impacts due to inappropriate waste management and chemical or oils spills are similar issues to those discussed above in relation to hydrology and water quality.

As outlined above, implementation of Commitments 7 and 9 under the Plan will adequately minimise the risk of adverse impacts associated with changes to hydrology and water quality.

CONSIDERATION OF CLIMATE CHANGE

The migratory shorebird guidelines (DoE, 2017) suggest that "areas landward of important shorebird habitat areas should be maintained in an undeveloped state to allow the natural coastal processes of erosion and accretion to respond to possible rising sea levels".

The Strategic Assessment Area is not located in proximity to important shorebird habitat within the Study Area, nor is it located landward of any area of important bird habitat. Subsequently, development under the Plan will not exacerbate potential issues at important bird areas associated with rising sea levels.

Section 29.5 of Chapter 29 describes how the Plan more broadly has considered the extent to which it facilitates adaptation to climate change for MNES, including consideration of any particularly vulnerable matters.

EVALUATION OF THE OUTCOME FOR MIGRATORY SHOREBIRDS

As outlined in Section 23.2, the outcomes of the Plan must not be inconsistent with any of the international agreements relating to migratory species. The key obligations (of relevance to this assessment) which cut across the various agreements in different forms are for Australia to:

- Conserve and where possible restore habitats
- Mitigate and manage threats to shorebirds

The Plan is not inconsistent with these obligations, as:

- There will be no direct impacts to important habitat
- Indirect impacts to important habitat will be adequately controlled through commitments under the Plan and through existing land management frameworks in the region

23.4.5 CONCLUSION

The Plan will not result in residual adverse impacts to migratory shorebirds. No important habitat will be lost, and potential indirect impacts will be suitably mitigated and managed.

The outcomes of the Plan for these species meets the regulatory requirements for listed migratory species under the EPBC Act.

23.5 ASSESSMENT OF MIGRATORY BIRDS WHICH DO NOT HAVE GUIDELINES

23.5.1 OVERVIEW OF THE LITTLE TERN

SPECIES BACKGROUND

EPBC Act listing and description

The Little Tern is listed as migratory under the EPBC Act and is currently on FPAL to be listed as Vulnerable (DAWE, 2022).

It is the smallest tern in the Australian region (Commonwealth of Australia, 2020). The species has a silver-grey back and a white underside, and a black cap on its head with a triangular white patch on its forehead (DAWE, 2022).

Ecology

Nesting occurs in small loose colonies or occasionally solitarily. Nests are a shallow scrape or depression, and can be found on beaches, sand-spits, banks, ridges, islets or on sand dunes. Nests may also occur on artificial banks or excavated areas of dredge spoil. Nesting occurs in areas with little vegetation cover, and the species will abandon old nesting sites if vegetation becomes too dense.

The species lays between 1-3 eggs. Incubation occurs over 17-22 days, with fledging occurring at 17-19 days (Commonwealth of Australia, 2020).

The Little Tern feeds on fish and crustaceans, and forages by plunging into water (Commonwealth of Australia, 2020). Foraging occurs in shallow waters of estuaries, coastal lagoons and lakes, as well as along open coasts (DAWE, 2022).

Roosting mostly occurs on sand-spits, banks and bars in sheltered environments (DAWE, 2022).

Distribution and habitat

The Little Tern is distributed around most of the Australian coast, excluding the south-western corner of Australia (DAWE, 2022).

In Australia, the species inhabits sheltered coastal environments. Environments which are surrounded by narrow shallow lakes and channels are preferred to more exposed environments, such as spits in large lakes or ocean beaches (DAWE, 2022).

Populations

While the Little Tern is a species which has a large global distribution and population size, the Australian population is geographically distinct. Its occurrence in Australia can be divided into three groups:

- A sub-population that occurs in south-eastern Australia and New Zealand. It breeds in multiple areas in Australia, including Tasmania, South Australia, Victoria, NSW, and in Queensland (DAWE, 2022). This sub-population may be at risk from the Plan
- A sub-population that breeds in northern Australia between Cape York and Broome (DAWE, 2022). This sub-population is not at risk from the Plan
- A sub-population that breeds in north-east Asia and migrates to northern and eastern Australia during the non-breeding season. It is recognised that most threats to the species in Australia are associated with breeding, and therefore that the sub-population of non-breeding visitors is unlikely to be at risk (DAWE, 2022). This sub-population is not at risk from the Plan

For the purpose of this assessment, only the south-eastern sub-population of the species is considered. The estimated population size of the south-eastern sub-population is 1,200 mature individuals (DAWE, 2022).

Threats

The following threats have been identified for the Little Tern (Birdlife International, 2022; Commonwealth of Australia, 2020; DAWE, 2022b):

- Habitat loss due to development
- Human disturbance
- Altered hydrological regimes
- Invasive weeds
- Predation by native and invasive species
- Climate change
- Hybridisation with the Australian Fairy Tern
- Pollution
- Overfishing

GUIDANCE MATERIAL AND DEFINITIONS OF AN ECOLOGICALLY SIGNIFICANT PROPORTION OF INDIVIDUALS AND IMPORTANT HABITAT

Definition of an ecologically significant proportion of individuals

There is a lack of guidance for the Little Tern regarding the definition of an ecologically significant proportion of individuals. However, it is noted that both the EPBC Act Policy Statement 3.21 and the Migratory Bird Referral Guidelines consider 0.1 per cent of the total population of a species to be a threshold of national importance (DoE, 2015a, 2017). Subsequently, an ecologically significant proportion of individuals of the Little Tern is considered to be 0.1 per cent of the population.

The estimated population size of the south-eastern sub-population of the Little Tern is 1,200 mature individuals (DAWE, 2022). The threshold of an ecologically significant proportion of this species is therefore 12 individuals.

Definition of important habitat

As the Little Tern is not included in specific guidance materials for migratory species, there is a lack of general guidance relating to the definition of important habitat for this species.

However, the Little Tern has a range of other information sources available which provide descriptions of the species' ecology and habitat use. These sources include the draft Conservation Advice (DAWE, 2022), the Wildlife Conservation Plan for Seabirds (Commonwealth of Australia, 2020), and Birdlife International's Datazone database (Birdlife International, 2022).

While it is not possible to precisely define important habitat for the Little Tern, it is considered likely that important habitat would contain the following features:

- Sheltered coastal or estuarine environments with suitably open areas for roosting and nesting; and
- Areas of shallow waters suitable for foraging; and
- A large number of known records of the species, or known nesting records of the species

Note that important habitat is described qualitatively for this species and has not been mapped within the Study Area.

OCCURRENCE IN THE STUDY AREA

Refer to Map 23-9 for a map of species' records within the Study Area. Note that important habitat within the Study Area is described qualitatively for this species and has not been mapped.

Records

There are 735 records (3,779 individuals) of the Little Tern within the Study Area. Of these, 3,188 individuals have been recorded from 1990 onwards. This is above the threshold for an ecologically significant proportion of individuals (12 individuals).

Of the records from 1990 onwards, most (over 2,500 individuals) occur along the northern coastline of Port Phillip Bay, extending from Avalon Beach in the west to the boundary of the Study Area in the east. Over 300 individuals have also been recorded in the Moolap locality. A smaller number of individuals (67) have been recorded since 1990 within the Lake Connewarre Complex.

Important habitat

Based on the locations of records and the landscape characteristics within the Study Area, it is likely that important habitat for the Little Tern occurs along the northern coastline of Port Phillip Bay (extending from Avalon Beach in the west to the boundary of the Study Area in the east), in the Moolap locality, and at the Lake Connewarre Complex.

It is noted that each of these locations are mapped to provide important habitat for multiple other migratory shorebird species by Birdlife Australia (as the Werribee/Avalon IBA, the Moolap IBA and the Lake Connewarre and Barwon River Estuary IBA) (Weller, Kidd et al., 2020).

23.5.2 APPROACH TO ASSESSMENT

The Little Tern is a migratory species which has no specific guidance available with regards to an appropriate assessment method. Assessment has therefore been conducted through the following method:

- Species-specific information has been considered, including information relating to the species' occurrence in the Study Area
- Potential direct and indirect impacts to the species under the Plan have been identified
- The mitigation measures under the Plan to address these impacts are assessed
- The consistency of the Plan with international obligations relating to the protection of the Little Tern is assessed

APPROACH TO ANALYSING IMPACTS

Direct impacts

To determine whether the species is at risk of direct impacts, the development footprint of the Plan has been considered with regards to the location of records and potential areas of important habitat for the Little Tern.

Indirect impacts

Potential threats for the Little Tern have been identified through consideration of relevant species' information and are identified in Section 23.5.1 above. Where these threats have the potential to be introduced or exacerbated under the Plan, the Plan includes management strategies to mitigate their impacts.

The following potential indirect impacts (identified as threats) are considered relevant to implementation of the Plan:

- Human disturbance
- Altered hydrological regimes

A range of other threats have also been identified for the species. However, potential indirect impacts associated with these threats are considered unlikely given the landscape context of the site and the ecology of the species. Refer to Section 17.2 of Chapter 17 for a detailed assessment of potential indirect impacts associated with the implementation of the Plan.

APPROACH TO EPBC ACT APPROVAL CONSIDERATIONS

Regulatory requirements were considered at the end of the assessment by drawing together the results of the impact analysis, examination of the benefits of the conservation measures in the Plan and reviewing any specific requirements for migratory species.

23.5.3 IMPACT ANALYSIS

DIRECT IMPACTS

There are no records or important habitat for the Little Tern within the Strategic Assessment Area. The Plan will not result in indirect impacts to this species.

INDIRECT IMPACTS

The Plan has potential to indirectly impact the Little Tern through increasing human disturbance within important habitat, and through altering the hydrological regimes of important habitat.

The potential areas of occurrence of these impacts within the Study Area and the mitigation measures under the Plan to minimise these impacts are thoroughly assessed above in Section 23.4.4. It is noted that Important Bird Areas assessed in Section 23.4.4 are the same areas which are likely to contain important habitat for the Little Tern.

Overall, it is considered that implementation of Commitments 7 and 9 under the Plan will adequately minimise the risk of adverse impacts associated with altered hydrological regimes.

Further, it is considered that existing management measures of each of the areas of important habitat will adequately minimise the risk of adverse impacts associated with disturbance of important habitat for the Little Tern.

EVALUATION OF THE OUTCOME FOR MIGRATORY SHOREBIRDS

As outlined in Section 23.2, the outcomes of the Plan must not be inconsistent with any of the international agreements relating to migratory species. The key obligations (of relevance to this assessment) which cut across the various agreements in different forms are for Australia to:

- Conserve and where possible restore habitats
- Mitigate and manage threats to shorebirds

The Plan is not inconsistent with these obligations, as:

- There will be no direct impacts to important habitat
- Indirect impacts to important habitat will be adequately controlled through commitments under the Plan and through existing land management frameworks in the region

23.5.4 CONCLUSION

The Plan will not result in residual adverse impacts to the Little Tern. No important habitat will be lost, and potential indirect impacts will be suitably mitigated and managed.

The outcomes of the Plan for the Little Tern meet the regulatory requirements for listed migratory species under the EPBC Act.

24 Finalised Priority Assessment List (FPAL)

This chapter assesses the potential impacts of the Plan on species and ecological communities that are not currently listed as threatened under the EPBC Act and are identified on the Finalised Priority Assessment List (FPAL) (DAWE, 2021b) to be listed as threatened in the future.

The FPAL species identified in the categorisation process for a detailed assessment are now listed as threatened under the EPBC Act and are assessed in Chapter 19. This chapter will assess species on future FPAL with the potential to be impacted by the implementation of the Plan.

25 Cumulative impact assessment

25.1 INTRODUCTION

The Strategic Assessment Area is located within the Southern Volcanic Plain bioregion. This bioregion has a history of cumulative vegetation clearance and degradation. Historically, large areas of grasslands and woodland in the bioregion, including the Strategic Assessment Area, were cleared or degraded through agricultural land use (DSE, 2003; EHP, 2021). More recently, agricultural land is increasingly being developed as urban and commercial districts associated with regional growth in areas close to Melbourne, including Geelong. Native vegetation in the bioregion is becoming increasingly restricted, mostly occurring within reserves without formal conservation and within riparian corridors. Native vegetation that remains on agricultural land is typically highly modified and degraded, providing low biodiversity value (EHP, 2021).

Development of land within the bioregion is expected to continue in the coming decades. Geelong is considered to be the primary population centre outside of Melbourne and the population is forecast to increase from 317,857 people to over 500,000 by 2050 (The City of Greater Geelong, 2021b; Victoria State Government, 2017). Geelong will therefore be a key area for urban and commercial development within the bioregion.

In order to support the projected growth of Geelong, significant areas of land are required for development including housing, employment, community spaces and transport. The proposed development of land within the Strategic Assessment Area under the Plan will facilitate substantial social and economic growth. The Plan also recognises the importance of the unique environmental values within Geelong and the wider bioregion and will facilitate Geelong's future transformation by delivering diverse and sustainable urban development, within a landscape of protected areas for biodiversity conservation.

Through accommodating long-term population growth in a planned and strategic way, the Plan reduces the potential for adverse cumulative impacts to occur within the region. The Plan also includes a number of commitments to increase protection of the region's valuable environmental assets, which further reduces the risk of adverse cumulative impacts.

Although the Plan reduces the risk of cumulative impacts in the region over the long term, there is still a potential for adverse cumulative impacts to occur due to the combined impact of the Plan with other developments in the region. This Chapter provides an assessment of the cumulative impacts to MNES which may occur due to the combined effect of development under the Plan and other developments in the region.

25.2 REQUIREMENTS AND PURPOSE OF THE CIA

The Terms of Reference (ToR) for the strategic assessment require the following for cumulative impact assessment (CIA):

> *3.2 The Report must identify and describe each protected matter that may be impacted directly, indirectly and/or cumulatively by actions proposed to be taken under the Plan (the 'relevant protected matters')…*
>
> *4.1 The Report must describe and assess the likely direct, indirect and cumulative impacts of actions taken under the Plan on all relevant protected matters. This must include, but not necessarily be limited to, an assessment of impacts of clearing, disturbance and fragmentation.*

The protected matters that may be subject to direct, indirect and/or cumulative impacts by actions proposed to be taken under the Plan (relevant protected matters) are identified in Chapter 18. Each relevant protected matter has been subject to a matter-specific impact assessment (see Chapters 19 – 24). This Chapter assesses the cumulative impacts of actions taken under the Plan on MNES in the Strategic Assessment Area and wider region.

The purpose of the CIA is to:

- Understand cumulative impacts and threatening processes to MNES in the region
- Understand how development under the Plan may contribute to or exacerbate these threatening processes
- Evaluate the adequacy of the Plan's proposed avoidance, mitigation, and offset commitments in relation to the threatening processes

25.3 OVERVIEW AND STRUCTURE

The CIA approach involved the following key components:

- An understanding of the potential cumulative impacts and key threatening processes for relevant protected matters
- A quantitative assessment of cumulative direct impacts of the actions taken under the Plan and other projects in the Study Area on relevant protected matters
- A qualitative assessment of cumulative impacts to relevant protected matters in the region which considers potential direct impacts of smaller-scale developments, in addition to potential indirect impacts associated with development more broadly
- An evaluation of the adequacy of the Plan's proposed avoidance, mitigation, and offset commitments in relation to cumulative impacts for relevant protected matters

The Chapter is structured as follows:

- The cumulative impacts and threatening processes within the Study Area are identified
- Relevant protected matters for each assessment (quantitative and qualitative) are identified
- The quantitative impact assessment is presented, which includes an evaluation of impacts to relevant protected matters
- The qualitative impact assessment is presented, which includes an evaluation of the Plan's proposed avoidance, mitigation, and offset commitments in relation to the relevant threats and pressures

25.4 CUMULATIVE IMPACTS AND THREATNING PROCESSES

25.4.1 CUMULATIVE IMPACTS

The direct and indirect impacts that may occur as a result of actions taken under the Plan are identified and described in Chapter 11. Direct impacts include direct damage to species or TECs, or their habitat, within the development land as a result of land clearing for development. Development under the Plan also has the potential to indirectly impact habitat and populations of MNES within the Growth Areas and the wider region. These indirect impacts relate to:

- Changes to water flows and water quality
- Spread of infection or disease
- Spread of weeds
- Predation or competition by pest or domestic fauna
- Altered fire regimes
- Disturbance from increased public access to natural areas
- Fauna mortality and barriers to movement
- Disturbance due to noise, dust, or light
- Inadvertent impacts on adjacent habitat or vegetation

The direct and indirect impacts identified for Plan have the potential to have a cumulative effect on MNES in the Strategic Assessment Area and surrounding area, whereby the cumulative impacts from development under the Plan and other developments in the region result in combined effects that may be greater than the impact of an individual activity.

25.4.2 CUMULATIVE THREATING PROCESSES

The impacts identified under the Plan have also been considered with regards to Key Threatening Processes (KTPs) identified under the EPBC Act. The impacts identified and their cumulative effect have the potential exacerbate existing threating processes to MNES present within the Strategic Assessment Area and the surrounding region. The KTPs relevant to the Plan are identified in Chapter 17 and include:

- Land clearance
- Competition and land degradation by rabbits
- Competition and land degradation by unmanaged goats

- Fire regimes that cause declines in biodiversity
- Infection of amphibians with chytrid fungus resulting in chytridiomycosis
- Loss and degradation of native plant and animal habitat by invasion of escaped garden plants
- Novel biota and their impact on biodiversity
- Predation by feral cats
- Predation by European red fox
- Predation, habitat degradation, competition and disease transmission by feral pigs

25.5 MNES SUBJECT TO THE CIA

Relevant protected matters are the protected matters that may be impacted directly, indirectly and/or cumulatively by actions proposed to be taken under the Plan (as defined in the Strategic Assessment Agreement). Chapter 18 of the SAR identifies relevant protected matters for the strategic assessment as the following:

- One threatened ecological community
- 20 threatened species
- Seven migratory species
- One Ramsar site

25.5.1 QUANTITATIVE ASSESSMENT

A quantitative CIA was undertaken for MNES that will be subject to direct impacts under the Plan and other projects in the Study Area (see Section 25.6). Only direct impacts are able to be accurately quantified and therefore this assessment was limited to relevant protected matters with direct impacts as a result of actions taken under the Plan. This includes:

- Natural Temperate Grassland of the Victorian Volcanic Plain TEC
- Striped Legless Lizard
- Golden Sun Moth

The quantitative CIA was undertaken based on habitat rather than impacts to records or populations because habitat was most widely available information to enable comparison between the Plan and across the other projects.

All other relevant protected matters were only subject to the qualitative CIA (see below).

25.5.2 QUALITATIVE ASSESSMENT

The qualitative CIA was undertaken for all impacts of the Plan and other projects or actions in the region (see Section 25.7). This included direct impacts that could not be accurately quantified and indirect impacts. All relevant protected matters were considered in the qualitative CIA. However, this assessment was based around cumulative exacerbation of direct and indirect impacts relevant to the Plan, not through a CIA for each individual protected matter.

25.6 QUANTITATIVE CIA

25.6.1 PURPOSE OF THE QUANTITATIVE CIA

The purpose of the quantitative cumulative impact assessment is to evaluate cumulative impacts to relevant protected matters directly impacted under the Plan that are also directly impacted by other projects in the Southern Volcanic Plain bioregion by:

- Assessing the significance of cumulative impacts across the Plan and the other projects on these matters
- Determining whether the commitments under the Plan to address direct impacts to each matter are adequate in the context of the cumulative impacts on those matters

25.6.2 IDENTIFICATION OF OTHER PROJECTS

The assessment considers impacts from other projects in the Study Area:

- That are outside of the development land within the Growth Areas, as any development within this land is addressed by the Plan's impact assessment
- That have quantifiable impact footprints and offsets
- That will directly impact threatened ecological communities, species populations and/or species habitat
- That have been approved for development or have been subject to impact assessment for pending approval
- Where clearing for development has not yet occurred or has only occurred over part of the project area to date

Table 25-1 identifies the other projects included in the cumulative impact assessment and data availability for each project. The location of each project is shown in Map 25-1.

The Study Area was used as the boundary or scale for undertaking the quantitative CIA. This scale is considered appropriate for the quantitative CIA because:

- It provides a clearly defined area for cumulative impact assessment which is extends into the wider region
- Allows cumulative assessment for MNES that are in the same bioregion and locality as the Growth Areas and are therefore subject to similar cumulative pressures and threats
- Has an appropriate level of data availability to undertake a quantitative assessment

Note that the Strategic Assessment Area includes the entire NGGA as described in the Framework Plan but only includes the northern portion of the WGGA (the Creamery Road and Batesford North precincts). The remaining section of the WGGA identified in the Framework Plan covers 2,472.3 ha and has been excluded from the strategic assessment due to a lack of information and resolution relating to a range of factors needed to support and rationalise a full assessment and approval under the EPBC Act. This includes the anticipated development demand and timing, and the detailed plans for decommission and rehabilitation of the active quarry.

Although the southern portion of the WGGA was excluded from the Strategic Assessment Area and has not been submitted for approval, it is included within this cumulative impact assessment. This is because development of the area for urban growth is identified within the State planning framework and is therefore likely to be undertaken and contribute to cumulative impacts to MNES in the region.

The data available for the WGGA is limited compared to the other quantifiable projects as the development areas have not yet been surveyed and finalised, and offsets have not yet been identified. For the purposes of the CIA, the direct impacts from development of the southern WGGA are based on the layout of development land identified in the Framework Plan. This is therefore a conservative approach as the area will be subject to a further avoidance process to identify land avoided and/or protected for conservation purposes.

25.6.3 IDENTIFICATION OF AT RISK MATTERS

The relevant protected matters that are most likely at risk from cumulative impacts are those matters where:

- The Plan is having a notable impact (it is not within the scope of the Plan to address cumulative impacts from other projects on species/TECs that are subject to negligible or minor impacts under the Plan), AND
- The other projects make a significant contribution to cumulative impacts (relevant protected matters not substantially impacted by other projects only need to be addressed in terms of the impacts of the Plan). This was considered to be where:
  - Other projects have a total impact greater than 100 per cent of the impact of the Plan, or
  - Other projects have a total impact greater than 2 per cent of remaining habitat within the Study Area, AND
- There is a significant total cumulative impact from the Plan and major projects – this was considered to be where cumulative impacts were greater than 5 per cent of remaining habitat within the Study Area

25.6.4 LIMITATIONS

The quantitative CIA has the following limitations:

- Only known projects with publicly available information could be included (either through EPBC referral or state planning)
- Detailed data in relation to impacts or offsets was not always available for each project
- Data was not always available in a form that allowed consistent comparison across major projects or the Plan. For example, the Plan assesses species habitat in terms of known habitat from a combination of surveys, records and modelling (refer to Chapter 13 of Part 3) and potential habitat, whereas some major projects assess species habitat in terms of known or likely habitat (as these assessments are done at a finer scale) or a combination of both
- Due to data availability, cumulative impacts were not considered in terms of indirect impacts. Refer to Section 25.7 for evaluation of indirect impacts associated with cumulative impacts more broadly

Table 25-1: Other projects included in the quantitative cumulative impact assessment and data availability

Project *	Comments	Data source	Data used in the cumulative impact assessment			
			Impact data		Offset data	
			TEC	Species habitat	TEC	Species habitat
Southern WGGA	Clearing for urban development of the southern portion of the WGGA (excluded from the Strategic Assessment Area). Data used to calculate direct impact extent included the development land identified in the Framework Plan. This is likely an over estimation compared to actual direct impact that will occur.	*Northern and Western Geelong Growth Area Framework Plan* (The City of Greater Geelong, 2021b)	Modelled potential extent within development land	Modelled potential habitat extent within development land	N/A	N/A
Geelong-Bacchus Marsh Road Upgrade Project (EPBC 2017/8018)	Clearing to facilitate safety upgrades to Bacchus Marsh Road between Lara and Maddingley.	• *Geelong Bacchus Marsh Road – Between Lara and Maddingley Safer Roads Infrastructure Project, Geelong, Victoria - Compliance Assessment Report February 2022* (Regional Roads Victoria, 2022) • *Geelong-Bacchus Marsh Road Upgrade Project, Victoria [EPBC 2017/8018] – Offset Management Strategy* (SMEC, 2019)	Known extent within project area (maximum impact permitted in approval conditions)	Known and potential habitat within project area (maximum impact permitted in approval conditions)	Extent protected and managed within offset site	Habitat protected and managed within offset site
Cherry Creek Youth Justice Centre (EPBC 2017/8049)	Clearing to facilitate construction of a new youth justice centre and access roads.	• *Youth Justice Redevelopment Project, Cherry Creek, Victoria: Preliminary Documentation* (Biosis, 2018) • *Cherry Creek Youth Justice Project - EPBC 2017/8049 Compliance Report* (Community Safety Building Authority, 2022)	Extent within project area (maximum impact permitted in approval conditions) & non-compliant clearance outside the project area	Confirmed habitat within the project area (maximum impact permitted in approval conditions) & non-compliant clearance outside the project area	Extent protected and managed within offset sites	Extent protected and managed within offset sites

*Projects and their total impacts were included if any of their footprint intersected the Study Area

25.6.5 DIRECT CUMULATIVE IMPACTS

Table 25-2 identifies the relevant protected matters directly impacted by the Plan that are also impacted by other projects in the Study Area.

For relevant protected matter, the table shows:

- Impacts from project in terms of hectares impacted and as per cent of habitat within the Study Area, and the total impacts
- Total cumulative impacts across the projects and Plan in terms of:
  - Total impact in hectares
  - Per cent additional impact due to other projects
  - Total impact as per cent of remaining habitat within the Study Area

The table shows that the other projects contribute to cumulative impacts in relation to relevant protected matters directly impacted by the Plan. However, a contribution to cumulative impacts is only considered significant when the other projects have a total impact greater than 100 per cent of the impact of the Plan or greater than 2 per cent of remaining habitat within the Study Area (see Section 25.6.3). Therefore, the other projects make a significant contribution to cumulative impacts to NTG Natural Temperate Grassland of the Victorian Volcanic Plain TEC.

The total cumulative impact from the Plan and other projects is considered significant where total cumulative impacts were greater than 5 per cent of remaining habitat within the Study Area (see Section 25.6.3). A significant total cumulative impact across the Plan and other projects was not identified for any relevant protected matter.

Table 25-2: Potential cumulative impacts to species and TECs directly impacted by Plan

Protected matter	Total habitat in the Study Area	Plan impacts		Other project impacts					Cumulative impacts Plan and other projects		
		Impact (ha)	Impact as % of Study Area habitat	Southern WGGA (ha)	Bacchus Marsh Road Upgrade Project (ha)	Cherry Creek Youth Justice Centre	Total impact (ha)	Total impact as % of Study Area habitat	Total impact (ha)	% additional impact due to major projects	Impact as % of Study Area habitat
Natural Temperate Grassland of the Victorian Volcanic Plain TEC	2,817.2	18.6	0.7%	17.0	2.5	29.29	48.7	1.7%	**67.3**	**72.4%**	**2.4%**
Delma impar (Striped Legless Lizard)	8,124.9	153.4	1.9%	6.9	5.47	N/A	12.4	0.2%	**165.7**	**7.5%**	**2.0%**
Synemon plana (Golden Sun Moth)	20,418.1	657.7	3.2%	25.1	5.47	36.74	67.3	0.3%	**725.0**	**9.3%**	**3.6%**

25.6.6 OFFSETS FOR THE PLAN AND OTHER PROJECTS

Table 25-3 shows the minimum offset commitments under the Plan (though both conservation areas in the Growth Areas and external offsets), and offsets for other projects for the relevant protected matters directly impacted by the Plan. For each relevant protected matter, the tables show:

- Offsets from each project (in hectares) and the total offsets from other projects
- Total cumulative offsets across the other projects and the Plan in terms of:
  - Total offsets in hectares
  - Total offsets as a per cent of remaining habitat in the Study Area

Table 25-3: Offset commitments for species and TECs directly impacted by Plan

Protected matter	Total habitat in the Study Area	Plan offsets	Other project offsets (ha)^				Cumulative offsets Plan and other projects	
		Potential habitat secured through offsets (ha)	Southern WGGA (ha)	Bacchus Marsh Road Upgrade Project (ha)	Cherry Creek Youth Justice Centre (ha)	Total - major projects	Total offset (ha)	Offsets as % of Study Area habitat
Natural Temperate Grassland of the Victorian Volcanic Plain TEC	2,817.2	45	N/A	16	122	138	**321**	**11.4%**
Delma impar (Striped Legless Lizard)	8,124.9	375	N/A	16	N/A	16	**407**	**5.0%**
Synemon plana (Golden Sun Moth)	20,418.1	585	N/A	16	154.1	170.1	**925.2**	**4.5%**

25.6.7 EVALUATION OF CUMULATIVE IMPACTS

APPROACH

The evaluation was undertaken considering the following questions:

- To what extent is the Plan contributing to cumulative impacts both individually and with the other projects?
- Do the current offset and mitigation measures under the Plan deal adequately with the cumulative impact?

MATTERS OF CONCERN

The purpose of the cumulative impact assessment is to determine if any relevant protected matters impacted under the Plan are also significantly impacted by other major projects in the Victorian Volcanic Plain bioregion to:

- Assess the significance of cumulative impacts
- Determine whether the commitments under the Plan are adequate in the context of the cumulative impacts

The relevant protected matters that are most likely at risk from cumulative impacts are those matters where (see Section 25.6.3)

- The Plan is having a notable impact, and
- The major projects make a significant contribution to cumulative impacts, and
- There is a significant total cumulative impact from the Plan and other projects

No relevant protected matters meet these criteria.

CONCLUSION

Based on the quantitative impact assessment undertaken for relevant protected matters directly impacted by the Plan and other projects, no relevant protected matters are considered to be at significant risk from cumulative impacts. This does not mean that cumulative impacts are not occurring for these matters, more so that cumulative impacts are considered to be moderate. Additionally, the contribution of cumulative impacts from the southern WGGA project is likely to be overestimated as the data is based on modelled habitat and further avoidance of habitat is expected to occur during the approvals process.

The commitments and offsets under the Plan, together with the offsets through the other projects, are considered to adequately address these cumulative impacts. It is also considered that the Plan makes an adequate and substantial contribution to addressing landscape scale impacts (further discussed in the qualitative CIA below).

25.7 QUALITATIVE CIA

25.7.1 INTRODUCTION AND PURPOSE OF THE QUALITATIVE CIA

It is recognised that the Southern Volcanic Plain bioregion will be subject to many other types of development in the future, including:

- Smaller projects, such as smaller-scale infrastructure, residential or commercial developments
- Projects which were not considered as other projects in Section 25.6 due to direct impacts that could not be quantified, yet which have potential to result in indirect impacts over substantial areas
- Other projects which have not yet been planned or announced

It is not possible to quantitatively estimate the cumulative impacts of these developments and the Plan on MNES due to either a lack of available data on biodiversity impacts or uncertainty over the extent and location of development. However, the combined footprint and impacts of these projects have the potential to be substantial, particularly given the high development pressures and existing habitat degradation in the bioregion. These projects have potential to result in the following cumulative impacts to relevant protected matters within the Study Area:

- Direct impacts to and/or fragmentation of populations and/or habitat
- Exacerbated threatening processes from direct and indirect impacts

Furthermore, high development pressures in the area will increase the demand for offset sites for threatened matters in the region. The Strategic Assessment Area and wider bioregion has historically been cleared and degraded, and there are limited remaining areas of biodiversity. For species and TECs which are endemic to the region, there will be a finite availability of offsets which will eventually constrain permissible development of protected matters.

This section outlines a qualitative analysis of the Plan with regards to the cumulative impacts of minor or future major projects, and considers:

- Whether the design of development under the Plan will assist in minimising potential cumulative impacts from development pressures within the Southern Volcanic Plain bioregion
- Whether the Plan contains measures to increase protection of the most valuable environmental assets within the Southern Volcanic Plain bioregion, to reduce their vulnerability to future development
- Whether the Plan contains measures which will help to minimise landscape-scale threatening processes which may occur due to cumulative impacts

25.7.2 CUMULATIVE DIRECT IMPACTS AND FRAGMENTATION

Most high value biodiversity areas within the Strategic Assessment Area are currently vulnerable to future development or continued degradation. The vast majority of the remaining native vegetation within the Southern Volcanic Plain bioregion is privately owned and the majority of remaining native vegetation is restricted to small, fragmented patches within agricultural land or riparian zones. Protection of native vegetation is also limited, and the Growth Areas currently do not contain any formal conservation reserves. However, several reserves are managed by the City.

The Plan minimises the risk of future cumulative direct impacts and fragmentation by increasing protection of remaining biodiversity areas. Increased protection will be delivered in multiple ways, as follows:

- Protection and management of native vegetation in the Strategic Assessment Area to conserve biodiversity values in perpetuity, including:
  - Protection and management of native vegetation, which provides 74 ha of habitat for Striped Legless Lizard and 108 ha of habitat for Golden Sun Moth within the NGGA Conservation Area (Commitment 3)
  - Protection and management of native vegetation and habitat for Growling Grass Frog and Adamson's Blown-grass within the Cowies Creek Conservation Area (Commitment 5)
- Establishment and management of offset sites in strategic locations to protect and manage a minimum of the following amounts of habitat confirmed through field surveys to support the following MNES (Commitment 10):
  - 45 ha of Natural Temperate Grassland TEC
  - 375 ha of habitat for Striped Legless Lizard
  - 585 ha of habitat for Golden Sun Moth

The location of conservation lands and avoided lands have been developed strategically to include areas of the most viable and best-connected remnant vegetation within the Strategic Assessment Area. Additionally, a significant proportion of these offsets will be delivered early in the life of the Plan, preventing further degradation of these areas and leading to more immediate landscape scale benefits. The increased and early protection will therefore improve outcomes for multiple MNES within the Strategic Assessment Area over the long term.

25.7.3 CUMULATIVE INDIRECT IMPACTS

The Strategic Assessment Area is already subject to existing indirect impacts and subsequent threatening processes from existing development. Many of these threatening processes operate at a landscape scale, and current management programs for these threats are often spatially limited and/or under resourced, meaning the threats are generally not being adequately managed. Even without delivery of the Plan, these threatening processes are predicted to intensify in the future due to the high development pressures in the region.

COMMITMENTS FOR INDIRECT IMPACTS

The Plan includes a range of commitments to minimise and manage indirect impacts. These commitments will not only minimise the risk of indirect impacts occurring under the Plan, but they also contribute to minimising and managing the existing landscape threats which already occur within the Strategic Assessment Area (see Section 3.4). These commitments include:

- Standard mitigation measures will continue to be implemented to minimise the indirect impacts of the development in accordance with the requirements of the Geelong Planning Scheme, as updated from time to time, and generally in accordance with the Framework Plan (Commitment 7)
- Additional specific mitigation measures will be implemented to minimise the indirect impacts of the development on protected matters associated with waterways, riparian areas and wetlands including (Commitment 9):
  - EPBC listed threatened and migratory birds
  - *Galaxiella toourtkoourt* (Little Galaxias)
  - *Litoria raniformis* (Growling Grass Frog)
  - *Nannoperca obscura* (Yarra Pygmy Perch)
  - *Prototroctes maraena* (Australian Grayling)
  - *Lachnagrostis adamsonii* (Adamson's Blown Grass)
  - Port Phillip Bay (Western Shoreline) and Bellarine Peninsula Ramsar site
- Additional specific mitigation measures will be implemented to minimise the indirect impacts of the development on the NGGA Conservation Area and Cowies Creek Conservation Area (Commitment 8), including:
  - Identify a conservation interface between urban development and the boundaries of the NGGA Conservation Area and Cowies Creek Conservation Area
  - Design and baffle public lighting to prevent light spill and glare within the Cowies Creek Conservation Area
  - Prepare Construction Environmental Management Plans for construction works on land immediately adjacent to the NGGA Conservation Area and Cowies Creek Conservation Area

25.7.4 OFFSET AVAILABILITY

The availability of offsets is a key risk for development projects, particularly large scale projects (such as strategic assessments) within already cleared and/or degraded landscapes. The City identified offset availability as key component of the offset package for the strategic assessment. Appendix C of the BCS provides details of the offset package, including an analysis of offset availability. This analysis determined that there is sufficient offset availability for the strategic assessment but emphasised the importance of securing offsets as early as possible.

The Plan includes a commitment to secure the following offsets at a minimum, within the first five years of Plan implementation:

- 100% of the offset requirement for Natural Temperate Grassland
- 70% of the offset requirement for Striped Legless Lizard
- 50% of the offset requirement for Golden Sun Moth

By securing these offsets early in the life of the Plan, the City is ensuring that offsets will be available for the impacted MNES prior to further habitat loss and/or degradation.

25.7.5 EVALUATION

Overall, the Plan is considered to minimise the risk of adverse cumulative impacts to biodiversity values, as:

- The Plan will increase the protection of remaining areas with biodiversity values within the Strategic Assessment Area and wider Victorian Volcanic Plain bioregion, thereby decreasing the risk of future development in these areas
- The Plan includes a range of measures which will address and minimise existing landscape-scale threatening processes which are exacerbated by development
- By increasing protection from development over areas of biodiversity value in the conservation areas and offset sites, and providing these areas early in the life of the Plan, the Plan assists in ensuring availability of offsets

26 Socio-economic impact assessment

26.1 INTRODUCTION

26.1.1 ASSESSMENT REQUIREMENTS

Both the ToR and the EPBC Act require consideration of social and economic matters in relation to the assessment of the Plan.

ToR requirements

The relevant ToR are outlined in the following text box.

> *8.1. The Report must assess the social and economic impacts of the Plan.*
>
> *8.2. The Report must describe the consultation with the public (including affected parties) undertaken during the development of the Plan.*
>
> *8.3. The Report must describe the process by which parties who may be affected by the strategic assessment will be accorded natural justice and procedural fairness as part of the assessment of impacts of the plan.*

EPBC Act requirements

In addition to the ToR, Section 146F of the EPBC Act requires the Minister to consider social and economic matters when considering the approval of actions in accordance with an endorsed policy, plan or program.

26.1.2 STRUCTURE OF THIS CHAPTER

This Chapter is designed to address the ToR and provide information to meet the requirements of Section 146F. It provides an assessment of the socio-economic impacts of the Plan and is structured as follows:

- The approach to the socio-economic impact assessment is described
- The socio-economic impact assessment is presented
- Relevant consultation processes are described
- The way in which the strategic assessment process provides procedural fairness is outlined

26.2 APPROACH TO THE SOCIO-ECONOMIC IMPACT ASSESSMENT

26.2.1 METHODOLOGY

The methodology applied in this chapter is based around undertaking a high-level qualitative socio-economic impact assessment based on the approach set out by (Vanclay, Esteves et al., 2015).

The first step of the socio-economic impact assessment is to provide an overview of the socio-economic context and growth of Geelong. This is to provide an understanding of the context that has informed the analysis.

The socio-economic impact assessment uses an approach set out by (Vanclay, Esteves et al., 2015). This approach establishes principles for social impact assessment and suggests that social impacts can be conceptualised as changes to one or more of the following aspects of the community:

- People's way of life
- Their culture
- Their community
- Their political systems
- Their environment
- Their health and wellbeing
- Their personal and property rights

- Their fears and aspirations

Although this approach is considered to be a social impact assessment approach, the aspects are relevant to both social and economic factors and the quantitative data for social and economic factors is often inter-related. The socio-economic impact assessment undertaken in this chapter has therefore considered these aspects both socially and economically.

Table 26-1 identifies the socio-economic components of the aspects that are relevant to the Plan. These components were identified based on the current context of Geelong and the socio-economic factors that may be impacted by implementation of the Plan. Although some components are relevant to multiple socio-economic aspects, for the purposes of the impact assessment each component has only been assigned to one aspect.

Table 26-1: Components considered to be relevant to the Plan for each of the socio-economic aspects as defined in (Vanclay, Esteves et al., 2015)

Aspect	**Definition** (Vanclay, Esteves et al., 2015)	**Socio-economic components of the aspect relevant to the Plan**
People's way of life	That is, how they live, work, play and interact with one another on a day-to-day basis	• Employment • Training and education • Transport • Arts and recreation
Their culture	That is, their shared beliefs, customs, values and language or dialect	• Traditional owners • Ethnicity and language • Religion
Their community	Its cohesion, stability, character, services and facilities	• Public services • Post-contact heritage • Housing
Their political systems	The extent to which people are able to participate in decisions that affect their lives, the level of democratisation that is taking place, and the resources provided for this purpose	The relevant components of this aspect are consultation and procedural fairness. These are specifically addressed in Section 26.4 and not further discussed in this section
Their environment	The quality of the air and water people use; the availability and quality of the food they eat; the level of hazard or risk, dust and noise they are exposed to; the adequacy of sanitation, their physical safety, and their access to and control over resources	• Biodiversity • Air quality • Water resources • Fire risks • Hazard, risks or dust • Access to natural spaces • Visual amenity
Their health and wellbeing	Health is a state of complete physical, mental, social and spiritual wellbeing and not merely the absence of disease or infirmity	• Mental health • Physical health
Their personal and property rights	Particularly whether people are economically affected, or experience personal disadvantage which may include a violation of their civil liberties	• Land use change
Their fears and aspirations	Their perceptions about their safety, their fears about the future of their community, and their aspirations for their future and the future of their children	The Geelong community is diverse and has a wide range of fears and aspirations. Community concerns and aspirations are considered throughout the other aspects where relevant

For each of the socio-economic components identified in Table 26-1, the impact assessment provides:

- A description of the current context for Geelong
- An assessment of how the Plan may impact the component

Socio-economic impacts (positive and negative) are considered qualitatively in a broad manner, whereby potential influences or changes to each component as a result of the Plan are described.

The impacts are considered across the community of Geelong, with a particular focus (where possible) on:

- Existing residents and landowners of the Growth Areas
- Nearby residents of the Growth Areas
- Future residents of the Growth Areas

26.2.2 DATA

The data and information used to inform the socio-economic impact assessment was drawn from:

- Community and stakeholder consultation undertaken as part of the identification and planning for the Growth Areas and for the strategic assessment to date. See Section 26.4.1 below for a description of the consultation processes relevant to the project
- Publicly available information sources including:
  - 2021 Australian Census data (Australian Bureau of Statistics, 2022)
  - City of Greater Geelong plans, strategies and resources. For example, the NWGGA Framework Plan (The City of Greater Geelong, 2021b) and the City of Greater Geelong Community Plan (The City of Greater Geelong, 2021a)
  - Geelong Region Alliance (G21) resources (Geelong Region Alliance, 2007, 2019)

26.2.3 LIMITATIONS

The approach to the socio-economic impact assessment addresses the requirements of the ToR and EPBC Act. However, there are two key limitations. They are:

- A lack of specific consultation across the Geelong community to inform the socio-economic impact assessment
- A lack of a quantitative economic assessment

LACK OF SPECIFIC CONSULTATION

Although information and data from consultation related to Growth Areas was utilised, this data was not specifically collected to inform a socio-economic impact assessment or was collected as part of another earlier process such as the Framework Plan or G21 planning. However, the consultation data along with other publicly socio-economic data is considered adequate to undertake a socio-economic impact assessment that addresses the ToR.

Additionally, the full extent of the social impact of development is difficult to capture as society is dynamic and complex (Vanclay, Esteves et al., 2015). It is acknowledged that therefore makes it impossible to fully understand and represent the views of all members of society. The needs of and the processes impacting on a society are constantly changing and, therefore, require assessment over time. This ongoing assessment of the socio-economic impact of the Plan is built into the life of the Plan as part of the adaptive management approach under the MERI framework (refer to Chapter 2, Section 9.5).

LACK OF QUANTITATIVE ECONOMIC ASSESSMENT

The economic implications of implementing the Plan have only been addressed qualitatively as part of the socio-economic impact assessment. To enable a comprehensive assessment of economic impacts, quantitative data would need to be collected and analysed. However, this is not considered to be within the scope of this SAR.

The economic impact assessment undertaken as part of the socio-economic impact assessment is considered adequate to addresses the requirements of the ToR. Additionally, there will be ongoing assessment of the socio-economic impact of

the Plan as part of the adaptive management process under the Plan's MERI framework. This will enable relevant assessment of economic impacts over the life of the Plan (refer to Chapter 2, Section 9.5).

26.3 SOCIO-ECONOMIC IMPACT ASSESSMENT

26.3.1 INTRODUCTION

This section provides the socio-economic impact assessment of the Plan. As outlined in Section 26.2.1, the assessment uses the approach set out by (Vanclay, Esteves et al., 2015) and addresses the following aspects of the community:

- People's way of life
- Their culture
- Their community
- Their environment
- Their health and wellbeing
- Their personal and property rights

An overview of the socio-economic context and growth of Geelong is provided followed by an analysis of each of the aspects set out above.

26.3.2 OVERVIEW OF THE SOCIO-ECONOMIC CONTEXT AND GROWTH OF GEELONG

Geelong occurs approximately 75 kilometres from Melbourne. It is the largest regional centre in Victoria and supports a population of over 270,000 people (Informed Decisions, 2022b; Remplan, 2022). The local government area is 1,252 km^2 in size and is comprised of country, coastal and suburban areas (The City of Greater Geelong, 2021a).

The population of Geelong was recorded at 126,800 in 1981. Since the early 2000s, Geelong has experienced rapid population growth (DELWP, 2010). The population is expected to grow to 393,216 by 2041 (The City of Greater Geelong, 2022b).

The population is diverse in age, with the most dominant age groups as of 2021 being 35 – 49 (18.9 per cent of the population) and 25 – 34 (14.1 per cent of the population). Geelong appears to be supporting an increasingly aging population (Informed Decisions, 2022b).

Geelong has had strong economic growth in recent years, with an estimated Gross Regional Product of $15.4 billion, 19,600 businesses, and 120,000 local jobs. When compared to similar regions and cities across Australia, Geelong has had the higher growth in Gross Regional Product, jobs, and employment (The City of Greater Geelong, 2022d). Dominant industry sectors in Geelong include (Informed Decisions, 2022b; The City of Greater Geelong, 2022d):

- Healthcare and social assistance
- Retail trade
- Construction
- Education and training
- Public administration and safety
- Manufacturing

WADAWURRUNG COUNTRY

The Country known now as Geelong was occupied for at least 45,000 years by traditional owners prior to European Settlement. The traditional owners are the Wadawurrung Aboriginal people, meaning "the people who belong to the water". Geelong occurs within the area of the Kulin Nation, comprised of five communities including Wadawurrung. Land of the Kulin people covers approximately two million hectares. Communities of the Kulin Nation share similar languages and the same belief system (Rowe, 2021).

The Wadawurrung is comprised of 25 clans, each of which speak the same language or a similar dialect. The Wadawurrung people lived in the Geelong landscape in accordance with seasonal changes (Rowe, 2021).

European settlement had a devastating impact on the Wadawurrung people, including the dispossession of traditional land practices, food gathering and customs. The Wadawurrung population was also severely impacted by the introduction of European diseases. European settlement was responsible for conflict between the Wadawurrung people and settlers, resulting in a number of killings of Wadawurrung people. European settlement also increased tension and conflict between Aboriginal language groups (Rowe, 2021).

European settlement reduced the Wadawurrung population from thousands to about 70 people. The Wadawurrung population today is comprised of approximately 600 people, all descendants of the apical ancestor John Robertson (Wadawurrung Traditional Owners Aboriginal Corporation, 2020).

POST EUROPEAN SETTLEMENT

The earliest European exploration of Geelong was in 1802 by Lieutenant John Murray. Pastoralists arrived at Point Henry in the 1830s (Rowe, 2021). Geelong's industry began with an emphasis on wool production and sheep farming. For many years, Geelong was known as the wool centre of the world (Visit Victoria, 2022).

The twentieth century saw an expansion in the manufacturing sector in Geelong (DELWP, 2010). During this time, a number of large companies established a presence in Geelong including Ford Motor Company, Cresco fertilisers, Godfrey Hirst, and Pilkington's Glass. For much of the twentieth century, Geelong was considered a booming regional manufacturing centre (Johnson, Bartel et al., 2020).

The economy of Geelong experienced a shift towards professional services, health care and education in the twenty-first century (Johnson, Bartel et al., 2020). The decline in manufacturing in Geelong has had a strong impact on the region, causing unemployment and a level of social disadvantage in some areas. Despite these changes, Geelong is still considered as a manufacturing centre, although the nature of the industry has shifted towards jobs that require higher skill levels and capital modes of production (DELWP, 2010).

Since the initial arrival of Europeans, Greater Geelong has welcomed immigrants from many parts of the world shaping the multicultural population observed today (Rowe, 2021).

SOCIO-ECONOMIC GROWTH AND DEVELOPMENT WITHIN THE GROWTH AREAS

G21 and the identification of the Growth Areas

The growth of Geelong has long been recognised. To help address the challenges and opportunities associated with the growth of the region, the Geelong Region Alliance was established. The region alliance is a collaboration between government, business and the local community within the Geelong region (G21 region) (Geelong Region Alliance, 2007).

The region alliance has undertaken a range of work to addresses the challenges and opportunities of future growth in the G21 region, including the development of the *G21 Geelong Region Plan – a sustainable growth strategy* (G21 Region Plan) (Geelong Region Alliance, 2007). The G21 Region Plan was developed to establish a strategic framework for the environment, settlement, land use, community cohesion and the economy in the G21 region. The region plan identified how challenges for future growth may be addressed, including the delivery of priority projects to enable future productivity, liveability and sustainability. The research undertaken to inform the G21 region plan included a projection of future population growth within the G21 region of 500,000 people by 2050 (Geelong Region Alliance, 2007).

Further documents to build upon the initial G21 Region Plan were also developed. The *G21 Regional Growth Plan* established a framework for strategic land use and settlement planning to promote a self-sustaining region that supports a stronger and more robust economy and attracts a diverse community (Geelong Region Alliance, 2013). The *G21 Region Economic Development Strategy* identified the key initiatives that are most critical in driving beneficial socio-economic growth for the region and how they are supported by broader strategic objectives (Geelong Region Alliance, 2014). The *G21 Region Profile* was prepared in 2019 and provides updated region-level demographic, socio-economic, health, community, environmental and economic data (Geelong Region Alliance, 2019).

The work undertaken as part of the G21 identified the Growth Areas as 'further investigation areas' to support the projected future urban growth and informed the subsequent development of the Framework Plan.

The Framework Plan

The City subsequently developed the *Northern and Western Geelong Growth Areas Framework Plan* (the Framework Plan) (The City of Greater Geelong, 2021b), which describes the Growth Areas and outlines considerations for their future

development until 2047. The Growth Areas are the key areas identified for development to support Geelong's long-term growth. This growth is driven by a strong economy and employment opportunities that are expected to continue in the coming decades (Geelong Region Alliance, 2007; The City of Greater Geelong, 2021b).

The Framework Plan is a high-level strategic document that:

- Outlines considerations for future development in the Growth Areas
- Describes the existing social, economic and environmental context of the Growth Areas
- Summarises pre-existing technical investigations
- Provides an overarching vision for the Growth Areas and subsequent objectives and actions to achieve the vision
- Outlines concept plans for future land uses within the Growth Areas

A key function of the Framework Plan is to guide the future preparation of detailed Precinct Structure Plans (PSPs) for the Growth Areas, which will set-out the specific land uses within each urban precinct.

The Framework Plan is incorporated into the Geelong Planning Scheme at Clause 11.02.

A clever and creative future

The City have prepared *Greater Geelong: A Clever and Creative Future* to guide development in the Geelong region. This document represents the Geelong community's vision for the future and was prepared in consultation with over 16,000 Geelong residents. This is a key resource for designing and establishing the new communities in the Growth Areas (The City of Greater Geelong, 2021b, 2022a). *A Clever and Creative Future* includes nine community led aspirations which will be implemented throughout the development of the Growth Areas. These include (The City of Greater Geelong, 2022a):

- A prosperous economy that supports jobs and education opportunities
- A leader in developing and adopting technology
- Creativity drives culture
- A fast, reliable and connected transport network
- People feel safe wherever they are
- An inclusive, diverse, healthy and socially connected community
- Sustainable development that supports population growth and protects the natural environment
- Development and implementation of sustainable solutions
- A destination that attracts local and international visitors

26.3.3 PEOPLE'S WAY OF LIFE

EMPLOYMENT

As of 2016, approximately 93.6 per cent of the Geelong population was employed. Of this, 53.3 per cent were employed full time, and 38.6 per cent were employed part time. The dominant industry sector in Geelong as of 2016 was health care and social assistance (15.3 per cent) (DELWP, 2010). One of the largest employers in Geelong is Barwon Health. This is reflective of the increased demand for aged care in the region associated with the ageing population (DELWP, 2010). Other key industries included retail trade (11.8 per cent), construction (9.8 per cent), and education and training (9.8 per cent) (Informed Decisions, 2022b).

Individual income levels in Geelong as of 2021 indicate that of the population over 15 years of age, 32.3 per cent of people earn a low income (less than $500 per week), and 10.6 per cent of people earn a high income ($2,000 or more per week). Younger residents (aged 15 – 19) and older residents (greater than 50 years) are more likely to earn less than $400 per week. The average income of Indigenous peoples living in the Geelong region is lower than for non-indigenous peoples (Geelong Region Alliance, 2019).

TRAINING AND EDUCATION

The completion of Year 12 in the Geelong region is lower than the Victorian average. However, the proportion of students who have completed year twelve has increased consistently from 39.9 per cent in 2006 and 45.1 per cent in 2011 to 50.6 per cent in 2016. For those who completed year 12 (as of 2016), approximately 70 per cent of students continued to post-secondary education and 51 per cent were enrolled in university (Geelong Region Alliance, 2019).

The Geelong region has a lower number of post school qualifications than the Victorian average. Post school qualifications are more common in in men than women (Geelong Region Alliance, 2019).

TRANSPORT

A large number of residents in the Geelong region travel long distances to get to their workplace, including to the Melbourne CBD or inner suburbs. Travel to the Melbourne CBD for work has influenced an increased use of rail services. There are also a number of Greater Melbourne residents which travel to the Geelong region for work (Geelong Region Alliance, 2019).

Residents of Greater Geelong are considered to have relatively good access to public transport. More rural areas in the Geelong region tend to have a smaller population and have limited access to facilities and services like public transport. Approximately 76.9 per cent of the Greater Geelong population lives within 400 m of a public transport network (Geelong Region Alliance, 2019).

The proportion of Geelong residents who own a private vehicle is higher than the Victorian state average. Approximately 59.6 per cent of households in the Geelong region own two or more vehicles. Private vehicle ownership is a key component of the way Geelong residents travel daily given the limited access to public transport for some in more rural areas. Geelong residents are less likely to travel to work by train, bicycle, or working when compared with the Victorian average (Geelong Region Alliance, 2019).

ARTS AND RECREATION

Data from 2013/2014 indicates that a large proportion of the Geelong population over the age of 15 attended arts or cultural events (just under 90 per cent). Popular activities include cinemas, music events, libraries or archives, performing arts, art galleries, and museums (Geelong Region Alliance, 2019).

The City of Geelong has been designated as Australia's first and only City of Design. This designation assists in driving new business and creative talent in Geelong and provides opportunities for local Geelong designers to showcase their work to other Cities of Design globally (Geelong Region Alliance, 2019).

IMPACTS OF THE PLAN

Employment, education and training

The development supported by the Plan will generate substantial business opportunities and create jobs across a range of employment sectors including commercial business, industry, education, health care, transport and agriculture. Additionally, the construction phases of development under the Plan will boost the economy of the region and generate many jobs that will be sustained over the coming decades as each precinct is released and developed (The City of Greater Geelong, 2021b).

The Growth Areas are also near the Geelong Ring Road Employment Precinct, Port of Geelong, Avalon Airport and Melbourne, which will facilitate further employment opportunities and economic growth for these areas (The City of Greater Geelong, 2021b).

Implementation of the Plan will therefore provide new employment, training and education opportunities for both current and future residents, as well as nearby residents. This is likely to provide economic growth and benefits to Geelong and may lead to positive changes and diversification of the workforce in the Geelong region and influence the level of employment.

Transport

Development under the Plan will facilitate new public and private transport networks and corridors which will allow current and future residents and visitors to easily travel to and from the Growth Areas, as well as access facilities within the Growth Areas. Linkages and access points will be established to existing transport corridors such as the Geelong Ring Road to maximise use of existing transport infrastructure (The City of Greater Geelong, 2021b).

Public transport including buses and rail will be prioritised within the Growth Areas to help promote more sustainable transport options. Additionally, open spaces within the Growth Areas will be maximised to allow for shared pathways that will facilitate sustainable transport linkages, such as via walking and cycling, throughout the Growth Areas (The City of Greater Geelong, 2021b). This will provide new transport options and facilities for current and future residents, as well as visitors of the Growth Areas.

Arts and recreation

The Plan will facilitate the delivery of community infrastructure including libraries, art and cultural centres, sports facilities and function spaces. Community open spaces, including recreation reserves and local parks, will also be integrated into the layout of the Growth Areas, providing residents and visitors with new community and recreation opportunities (The City of Greater Geelong, 2021b). New art and recreation opportunities may also attract new businesses and investment in Geelong which may lead to increased tourism. This is likely to result in positive economic impacts and growth for Geelong.

Conclusion

Implementation of the Plan will provide new opportunities and growth in employment, education and training, transport, and arts and recreation. This will lead to overall positive socio-economic impacts for current, future and nearby residents and visitors of the Growth Areas.

26.3.4 THEIR CULTURE

TRADITIONAL OWNERS

As of 2021, approximately 1.3 per cent of the Geelong population comprises Aboriginal and Torres Strait Islander peoples (Informed Decisions, 2022b). The Indigenous population of Geelong is skewed towards younger generations, with about 54 per cent of the Indigenous population under 24 years of age. The under-representation of Indigenous people in older age groups is consistent with lower life expectancy figures. The life expectancy for Indigenous peoples is 67.2 years for males and 72.9 years for females compared with 78.7 years for non-Indigenous males and 82.6 years for non-Indigenous females (Geelong Region Alliance, 2019).

There are a number of registered Aboriginal places across the Growth Areas, comprised mostly of stone artefacts. The nature of the land in the NGGA suggests that the Wadawurrung people would have used the area for ephemeral activities (such as hunting and gathering) rather than long term occupation (The City of Greater Geelong, 2021b).

There has been limited archaeological investigation within the Growth Areas, and the available data may not accurately reflect land use by the Wadawurrung. Preliminary Aboriginal site sensitivity mapping has indicated areas of high archaeological potential along the waterways in the WGGA and one area in the NGGA near to a registered stone artefact (The City of Greater Geelong, 2021b).

ETHNICITY AND LANGUAGE

The community of Geelong has a diverse cultural profile. Ancestry data indicates that the 10 most prevalent ancestries include English, Australian, Irish, Scottish, Italian, German, Dutch, Indian, Croatian, and Chinese. English and Australian ancestries comprise 28 and 36 per cent of the population respectively. Irish and Scottish ancestries comprise 13 and 12 per cent of the population respectively. Remaining ethnicities comprise less than five per cent of the total Geelong population (Informed Decisions, 2022b).

Approximately 17.7 per cent of the Geelong population was born overseas, including the United Kingdom (4.1 per cent), India (1.9 per cent), New Zealand (1.1 per cent), and a number of other countries contributing to <1 per cent of the total population's birthplace. Approximately 11.7 per cent of the Geelong population speaks a language other than English at home. The most common languages spoken include Mandarin, Punjabi and Italian (Informed Decisions, 2022b).

RELIGION

The largest religious group as of 2021 in Geelong was Western (Roman) Catholic, comprising 22.2 per cent of the total population. Approximately 42 per cent of people did not identify with a religion in Geelong. There are a number of other religions contributing to the cultural diversity of Geelong, including Anglican (8 per cent of the population), Uniting Church (3.7 per cent of the population), and Presbyterian and Reformed (1.9 per cent of the population) (Informed Decisions, 2022b).

IMPACTS OF THE PLAN

As part of implementation of the Plan, the City aims to recognise and protect Aboriginal sites and work in partnership with the Wadawurrung people to interpret and manage Aboriginal heritage sites in the Growth Areas (The City of Greater Geelong, 2021b). Further consultation with Traditional owners will also be undertaken as part of the strategic assessment process and Plan implementation (see Section 26.4.1).

The Plan will facilitate urban development in the Growth Areas which will provide capacity to support the projected future population growth of Geelong (The City of Greater Geelong, 2021b). As new residents move to the Growth Areas and the population grows, the composition and diversity of religion, ethnicity and language will change.

It is not possible to accurately predict the exact changes to culture, as new residents may comprise of a more diverse population, but existing residents may also emigrate from the Growth Areas. Although the Plan will influence the culture of Geelong, it is not expected to have a substantial positive or negative effect.

26.3.5 THEIR COMMUNITY

PUBLIC SERVICES

Greater Geelong includes a number of public services and facilities. This includes (note that this list is not exhaustive and doesn't include hotels, restaurants, cafes, nightclubs, and churches) (The City of Greater Geelong, 2018):

- 74 aged care/nursing homes
- 35 caravan parks
- 18 childcare centres
- 34 kindergartens
- 51 community halls
- 44 disability centres
- 5 hospitals
- 20 maternal and childcare centres
- 127 schools
- 19 senior citizen centres
- 3 amusement parks
- 4 permanently staffed country fire authority stations
- 4 major police stations

The Geelong region has a higher than the Victorian average rate of access to community services and resources. Greater Geelong is well serviced with health and medical services. Public services in the Geelong region are impacted by temporary fluctuations in population associated with increased tourism during holiday seasons (Geelong Region Alliance, 2019).

POST-CONTACT HERITAGE

Post contact heritage values in the NGGA are mostly related to the early settlement of large pastoral estates, and the eventual subdivision to small-scale freehold agricultural enterprises. Post contact heritage values within the WGGA are related to early settlement of large pastoral estates, rail and road infrastructure, quarrying and the history of the Fyansford and Batesford townships (The City of Greater Geelong, 2021b).

HOUSING

The demand for housing in Geelong is driven by household formation patterns and population growth. Affordability of housing is a key constraint for the region. The number of people who own a home in Geelong is broadly consistent with the Victorian average. The median mortgage repayments in Geelong were $1,540 per month in 2016. This is approximately 9 percent less than the Victorian state median of $1,700 (Geelong Region Alliance, 2019).

There are less people renting in Geelong (23.5 per cent) than the Victorian Average (26.7 per cent). The average rental price in the Geelong region was $280 per week as of 2016, $45 per week less than the Victorian average. Approximately 21.1 per cent of the rental dwellings in Geelong were identified as affordable in 2018 (Geelong Region Alliance, 2019).

The City provides social housing for people on low incomes who need housing. Approximately 12.6 per cent of all rental dwellings in the Geelong region are occupied through public housing (3,680 dwellings). As of 2018, it was estimated that the total number of applicants for social housing in the Barwon Area was 2,699 (Geelong Region Alliance, 2019).

The Geelong region has experienced a growth in homeless people between 2011 and 2016. The homeless proportion of the Geelong region population was 0.3 per cent in 2016. This is lower than the state average (0.4 per cent) (Geelong Region Alliance, 2019).

IMPACTS OF THE PLAN

Public services

Development of the Growth Areas under the Plan will facilitate new public services and infrastructure that will be required to support the increasing population. This will add to the already high level of access to community services and resources for both current and future residents, and nearby residents of the Growth Areas. The increase in public services may also assist with fluctuations associated with increased tourism during holiday seasons (Geelong Region Alliance, 2019).

Post-contact heritage

The city aims to protect existing post-contact heritage sites and integrate them into the design of the Growth Areas. This will help provide the community with a sense of place and add character to the Growth Areas, potentially leading to positive community impacts for current and future residents (The City of Greater Geelong, 2021b). Protecting and integrating these sites may also lead to added tourism and economic benefits for the community due to people visiting the sites from outside of the Geelong region.

Housing

Recently (partly the result of the COVID-19 pandemic), housing availability has not adequately kept pace with demand, which has led to high house and land prices (Ratio, 2022). This trend has been seen across most of Australia and supply of affordable housing is needed (Informed Decisions, 2022a; Ratio, 2022). The Framework Plan was developed in consideration of the projected increase in Geelong's growth and aimed to help supply the urban land required to support Geelong's future growth.

The development supported by the Plan aims to provide a sustainable and diverse mix of housing and accommodation to support future residents and visitors of Geelong. Diverse housing is important for the success of new urban areas, as it attracts a range of potential residents at all stages of their life. The City intends to provide a mix of low-rise, multi-unit and clustered housing types, along with aged-care and affordable, community and social housing options (The City of Greater Geelong, 2021b).

The Growth Areas have the capacity to accommodate 110,000 new residents. In additional to residential housing, a range of other accommodation types will also be provided including hotels, motels and caravan and camping parks. Existing rural living spaces will also be retained in some areas, providing opportunities for agriculture and rural industry (The City of Greater Geelong, 2021b).

The increased availability and variety of housing options provided in the Growth Areas may relieve pressure on the current housing market and result in positive socio-economic impacts for current and future residents of Geelong.

Conclusion

Implementation of the Plan will provide new public service facilities and infrastructure and will supply a diverse mix of housing and accommodation to help support the future population growth of Geelong. Existing heritage sites will also be protected and integrated into the Growth Areas. Overall, the Plan is therefore likely to result in positive community related socio-economic impacts for current, future and nearby residents of the Growth Areas.

26.3.6 THEIR ENVIRONMENT

BIODIVERSITY

The Geelong region supports a range of biodiversity values such as flora and fauna, ecological processes and natural habitats throughout rural lands, waterways, coastal reserves, grasslands, forests, nature reserves and streetscapes. Aside from its inherent value, biodiversity provides important benefits for the community of Geelong including clean water and air, carbon sequestration, pollution and flood mitigation, productive soils, natural pest control, and visual amenity (The City of Greater Geelong, 2020b).

Biodiversity in the Geelong region is in serious decline. Urgent action is necessary to prevent further decline, provide protection, and enhance and restore these values (The City of Greater Geelong, 2020b).

A detailed description and impact assessment of biodiversity values listed under the EPBC Act is provided throughout Part 4 of the SAR.

AIR QUALITY

Air quality in the Geelong region is monitored at Geelong South against national air quality objectives and goals. Measuring results for Geelong in 2017 indicate that air quality in Geelong was (Geelong Region Alliance, 2019):

- Good to very good on 286 days
- Poor to very poor on 31 days

WATER RESOURCES

Water sources in Geelong are diverse, including groundwater, recycled water, water from Melbourne, and water from rivers and reservoirs. The availability of water resources in the Geelong region is expected to be impacted by climate change (Geelong Region Alliance, 2019). Population growth is also expected to put pressure on water supply in Geelong.

FIRE RISKS

The majority of the Geelong region is susceptible to bushfires. Aside from urban areas, remaining land has been defined as a 'bushfire prone area'. This risk is likely to be exacerbated in future climate scenarios (Geelong Region Alliance, 2019).

OTHER HAZARDS AND RISKS

The City has identified a number of hazards and risks to Geelong. These include (The City of Greater Geelong, 2022e):

- *"Heatwaves or drought*
- *Epidemics or pandemics*
- *Severe storms*
- *Riverine and flash flooding*
- *Major road and rail transport accidents*
- *Structural fires*
- *Bushfires*
- *Actions of terrorism*
- *External incidents that may impact – power failure, contamination of water supply"*

The City has a Municipal Emergency Management Plan in place to manage these risks (note this is currently under reform). This includes a Community Emergency Risk Assessment process (The City of Greater Geelong, 2022e).

ACCESS TO NATURAL SPACES

Access to open spaces, walking trails, and sports facilities is important for community. Providing the community with adequate access to safe environments to exercise is an ongoing priority for the City. Data indicates that more adults are meeting physical activity guidelines. However, the number of adults who spend greater than 8 hours per day sitting has increased (The City of Greater Geelong, 2021a).

Throughout Geelong, there is an estimated 1,300 ha of protected natural areas. Further, 2,146.8 ha within Geelong is designated as open public space (The City of Greater Geelong, 2021a).

VISUAL AMENITY

Amenity refers to the desirability, attractiveness, pleasantness, or utility of an area. Amenity is an important consideration for a number of stakeholders and the community (DPE, 2022). Amenity within neighbourhoods encourages residents to use and enjoy their surroundings in daily life. This may promote health and well-being by creating communities which are set within a healthy environment. Further, amenity will support businesses, attract new residents and facilitate major infrastructure and investment in arts and recreation (The City of Greater Geelong, 2021b).

IMPACTS OF THE PLAN

Biodiversity

In developing the Plan, the City applied the avoid, mitigate, and offset hierarchy to protect biodiversity within and around the Growth Areas. The Plan includes a conservation framework that sets out commitments that will be delivered for:

- Avoiding and minimising impacts to MNES
- Mitigating impacts to MNES
- Offsetting residual impacts to MNES

Avoidance and minimisation of impacts to high value areas of biodiversity has been a key focus of the Plan. This included:

- Avoidance of an additional important area in the NGGA that was focused on areas in better condition, connected to previously identified conservation area, likely to be viable in the long term
- Avoidance of the Moorabool River and Cowies Creek Conservation Area in the WGGA
- Designing and locating external infrastructure development to avoid and minimise impacts to MNES and native vegetation
- Preparing management plans for the protection and ongoing management of Striped Legless Lizard and Golden Sun Moth within the NGGA Conservation Area and for the Growling Grass Frog and areas of potential habitat for Adamson's Blown-grass within the Cowies Creek Conservation Area

Mitigation measures will also be implemented under the conservation framework to further reduce impacts to biodiversity. This includes:

- Continuing to implement standard mitigation measures to minimise the indirect impacts of the development on MNES in accordance with the requirements of the Geelong Planning Scheme, as updated from time to time, and generally in accordance with the Framework Plan
- Implementing additional specific mitigation measures to minimise the indirect impacts of the development on the NGGA Conservation Area, Cowies Creek Conservation Area, and MNES associated with waterways, riparian areas and wetlands

Offsetting impacts to MNES is the final step in the offset mitigation hierarchy. Although impacts have been avoided, minimised, and mitigated as much as possible under the conservation framework, there are some remaining residual impacts that will occur as a result of the proposed development under the Plan. Offsetting of these impacts under the conservation framework includes:

- Establishing the NGGA Conservation Area to protect and manage native vegetation and habitat for Striped Legless Lizard and Golden Sun Moth in perpetuity
- Establishing offset sites in strategic locations outside the Growth Areas to protect and manage habitat for MNES including Natural Temperate Grassland, Striped Legless Lizard and Golden Sun Moth

By applying the avoid, mitigate, and offset hierarchy to protect biodiversity within and around the Growth Areas, the City is ensuring impacts to biodiversity are reduced and key environmental values are protected.

Air quality, water resources, fire, hazards and risks

The Plan includes commitments to mitigate indirect impacts to biodiversity as a result of the Plan (as discussed above). These mitigation measures will help mitigate indirect impacts to current and future residents of the Growth Areas.

A number of impacts and risks are specifically associated with climate change. The Plan is considered to addresses significant vulnerabilities of climate change, particularly for biodiversity. This is because the Plan:

- Supports representativeness and replication of biodiversity by protecting and managing conservation areas within the Growth Areas and providing strategic offsets outside the Growth Areas
- Provides avoidance within the Growth Areas which focuses on the larger and more viable areas of biodiversity and applies a strategic offsetting approach outside of the Growth Areas
- Is not expected to disrupt habitat connectivity within the Strategic Assessment Area, and will contribute to this principle by avoiding and protecting connected areas of habitat within the Growth Areas
- Includes a number of measures to address potential indirect impacts (threats) under the Plan
- Incorporates adaptive management to ensure that outcomes are achieved efficiently and effectively

The way in which the Plan addresses climate change is discussed in detail in Part 5, Chapter 29.5 of the SAR.

In addition to mitigation measures under the Plan, further mitigation measures and management for the environment will be required as part of the Victorian planning system during the Plan's implementation. This includes:

- The Planning Policy Framework (PPF) which provides overarching policy to guide land use, subdivision and development in Victoria. Several policies under the PPF are relevant to the environmental management for the Growth Areas, including:
  - Clause 12.01 – aims to protect and enhance Victoria's biodiversity
  - Clause 12.03 – aims to protect and enhance river corridors, waterways, and wetlands
  - Clause 13.02 – aims to manage fire risks without unacceptable impacts to biodiversity
  - Clause 13.04 – aims to manage soil degradation and contaminated land
  - Clause 14.02 – aims to protect water quality
  - Clause 19.03 – aims to sustainably manage water through integrated water management
- Native Vegetation Precinct Plans (NVPPs) which provide for the strategic management of native vegetation within a precinct or other defined area. NVPPs identify the native vegetation to be retained, the native vegetation that can be removed, and the offset requirements for the native vegetation that can be removed
- Planning permits for subdivision and development that are consistent with the Greater Geelong Planning Scheme and generally in accordance with the relevant PSP that applies to the land. The planning permits process involves:
  - Preparation of technical studies and reports that support the application and inform the planning decision, including plans to address the potential impacts (environmental and socio-economic) of the development
  - Referral of the application to specialist referral authorities for advice and comment where required – these may object to the permit or specify conditions to be included on a permit to address potential impacts
  - An opportunity for stakeholders to raise concerns and make submissions through a notification process
  - Inclusion of conditions on permits to address the potential impacts of the development

Implementation through the Victorian planning system, in combination with commitments under the Plan, will help ensure there are no long-term negative impacts to air quality and water resources, and that existing or potential risks or hazards are adequately managed for current, future and nearby residents of the Growth Areas.

Access to natural spaces and visual amenity

Native vegetation within and surrounding the Growth Areas will be retained and protected as part of the Plan's conservation framework (as discussed above). These areas will provide increased visual amenity to future residents and visitors of the Growth Areas. Additionally, some of these natural spaces will be accessible to people. For example, Cowies Creek Conservation Area will include walking paths, cycling paths and picnic areas in combination with protection and management of the riparian areas. Access to these natural spaces will provide residents and visitors with areas to exercise and enjoy nature.

Community open spaces, including recreation reserves and local parks, will be integrated into the layout of the development areas, providing residents and visitors with access to these spaces for leisure and recreation, and adding visual amenity. Tree canopy cover will also be maximised in the Growth Areas to reduce urban heat, while also increasing visual amenity for the community. Optimising visual amenity may help attract new residents and businesses, and facilitate future investment opportunities and tourism in Geelong (The City of Greater Geelong, 2021b).

Conclusion

Protection and management of biodiversity is a key component of implementing the Plan that will help ensure environmental values are maintained and improved. Mitigation measures during implementation will ensure air and water quality, and the level of hazard or risk are not negatively impacted by the Plan.

Development and conservation under the Plan may also provide increased visual amenity and access to natural resources that could lead to positive socio-economic impacts for current, future and nearby residents of the Growth Areas.

26.3.7 THEIR HEALTH AND WELLBEING

Mental health

Mental health or behavioural problems in the Geelong region are modelled to occur in 11.7 per cent of males, and 15.2 per cent of females. This is higher than the Victorian state average for both males and females. Approximately 15.8 per cent of the population of Greater Geelong have experienced high or very high levels of psychological distress. Between 2010 and 2014, the Geelong region had a rate of suicide higher than the Victorian average (approximately 11.5 deaths per 100,000 population) (Geelong Region Alliance, 2019).

Community engagement is an important component of mental and physical health. Geelong has high rates of volunteering when compared to the Victorian average. Volunteering is more prevalent in older age groups, and females are more likely to volunteer with males (Geelong Region Alliance, 2019).

Physical health

Physical health is influenced by a large variety of factors. Healthy behaviours and disease vary in the Geelong region. When compared with the Victorian average, the Geelong region has (Geelong Region Alliance, 2019):

- Fewer smokers
- Better healthy eating habits
- More people getting a sufficient amount of exercise
- Higher levels of alcohol consumption

Impacts of the Plan

Impacts to mental and physical health as a result of the Plan are difficult to accurately predict and there may not be any significant impacts. However, the environment is an important component of both the mental and physical health of the community. The Plan aims to protect and avoid key environmental values, mitigate negative impacts, and provide aesthetic value and access the natural spaces (as discussed above). This may therefore positively impact the health and well-being of current, future and nearby residents of the Growth Areas.

26.3.8 THEIR PERSONAL AND PROPERTY RIGHTS

LAND USE CHANGE

Within the broader Geelong region, current land use includes primary production (62 per cent), national parks, natural water reserves, and conservation areas (24 per cent), and urban land (14 per cent) (Geelong Region Alliance, 2019).

The Strategic Assessment Area primarily includes land which has been developed for agricultural purposes. The NGGA is primarily used for pastoral and cropping activities, associated with rural residential housing. The WGGA includes a mix of existing land uses, including agriculture, recreation reserves, Council-managed reserves, rural and medium density housing, and educational facilities. While the WGGA does not contain any formal conservation reserves, there are a number of reserves managed by the City – including the Moorabool River Reserve (EHP, 2021).

IMPACTS OF THE PLAN

Land use change

To facilitate development and conservation under the Plan, the current composition of land use within the Growth Areas will change. The Urban Growth Zone (UGZ) under the Victorian planning system has been applied to the Growth Areas to manage the transition of non-urban land identified for urban growth into urban land. Within the UGZ, a PSP must be prepared before non-urban land can be converted into urban land. The PSP will detail the specific land-uses within portions of the Growth Areas.

Current land use consists of primary production with residents mostly living on rural properties. These residents and landowners within the Growth Areas will therefore be subject to changed land-use. Most of the current landowners will sell their rural properties to developers and the land will become urban land or conservation areas. This may have negative impacts to the current residents and landowners that live in a rural production environment and may not want to live in or be part of a more developed urban area. There will however be positive socio-economic impacts to new residents as the change in land use will provide them with new opportunities to live, work and play.

Although the change in land use may cause a negative impact to current landowners, they will also experience positive economic impacts due to the value of their land increasing and the opportunity to sell their land to developers.

26.4 CONSULTATION AND PROCEDURAL FAIRNESS

This section provides an overview of the relevant consultation processes that have taken place for the Growth Areas and those that have or will take place as part of the strategic assessment process and implementation of the Plan. It also explains how the strategic assessment process supports procedural fairness.

26.4.1 CONSULTATION

A number of consultation processes were involved in the identification and planning of the Growth Areas and development of the Framework Plan. Consultation has also been undertaken, or will be undertaken, during the strategic assessment process and during the Plan's implementation. The following sections provide an overview of the relevant consultation processes.

G21 AND IDENTIFICATION OF THE GROWTH AREAS

The G21 process and identification of the Growth Areas is discussed in Section 26.3.2

Development of the G21 documents involved consultation with State Government, peak bodies and environmental, community and business organisations of the region (Geelong Region Alliance, 2007). The G21 Region Plan was the primary document developed for the G21region alliance and involved an extensive consultation process which included (Geelong Region Alliance, 2007):

- More than 35 consultation forums to receive advice and opinions from various regional interest groups. The overall attendance of these forums almost reached 1,000 participants
- Releasing a first draft of the G21 Region Plan for stakeholder review and public comment
- Updating and revising G21 Region Plan based on the feedback received during consultation

FRAMEWORK PLAN

The Framework Plan for the Growth Areas is discussed in Section 26.3.2

Development of the Framework Plan involved in-depth consultation with the community and stakeholders. This included (The City of Greater Geelong, 2021b):

- 'Open House' community information sessions including:
  - A session to invite landowners to meet the project team and learn more about the project
  - Following the completion of technical studies another session took place to invite landowners to learn about the outcomes of draft technical studies that would inform the Framework Plan
  - Three concurrent sessions with landowners in in central Geelong, Corio and Batesford to discuss the draft future urban structure with the project team
- A 'Vision and Principles Workshop' with key stakeholders and landowners to develop the framework plan vision and set the principles for the future landscape in the Growth Areas
- 'Enquiry by Design' workshops where stakeholders and landowners discussed and developed a draft future urban structure for the Growth Areas
- A community feedback period (45 days) via online and written surveys. The community engagement undertaken as part of this process included:
  - Four open houses across the Geelong region that included more than 250 participants
  - Project brochures were sent to landowners
  - Multiple advertisements in the local newspaper
  - Circulation of 'community update' newsletters
  - Project information video posted to the City's Facebook and YouTube
  - 79 submissions were received relating to social, economic, and environmental concerns, and opposition or support of the Growth Areas
- Preparation of the Framework Plan included responding to community submissions

STRATEGIC ASSESSMENT PROCESS

Engagement to date

Consultation has been undertaken during the development of the Plan as part of the strategic assessment process. This included:

- An opportunity for stakeholder and community feedback on the draft ToR for the Strategic Assessment
- A number of stakeholder sessions between March and October 2022 with DCCEEW, DELWP, and landholders to consult on:
  - The Structured Decision Making project for the NGGA
  - Potential funding mechanisms to deliver the conservation package

Future engagement

As part of the strategic assessment process under the EPBC Act there is a compulsory public consultation process where the strategic assessment documents (the SAR and the Plan) are published for public comment. Stakeholders and community members can submit submissions providing comments, concerns, questions or support as part of this process. The final strategic assessment documents are then prepared, taking any submissions into consideration. An additional submissions report will also be prepared that will detail how each of the submissions were addressed.

The City will undertake engagement in the lead up to and post public comment. Key stakeholder groups for consultation include:

- Corangamite Catchment Management Authority
- Environment groups
- Landholders
- The Australian Government Department of Climate Change, Energy, the Environment, and Water (DCCEEW)
- The Victorian Government Department of Environment, Land, Water and Planning (DELWP)
- The Wadawurrung Traditional Owners Aboriginal Corporation

The level and type of engagement with these groups will vary in accordance with their role in the Project.

Additionally, further consultation will be undertaken as part of the Plan's implementation. The Plan includes a commitment to develop a Stakeholder Engagement Strategy to guide engagement with key stakeholders on the implementation of the Plan (Commitment 16).

FUTURE PSP PROCESSES

Background and context

PSPs are high-level strategic plans that set out the preferred spatial location of land uses and infrastructure within each precinct, including details of the future urban structure of the precinct. This helps to stage development within an area and guide provision of subdivision permits, building permits and infrastructure delivery. Although PSPs provide a level of certainty for development, they are intended to be flexible to allow for site specific considerations.

The Framework Plan proposes the preparation of nine PSPs for the Growth Areas, of which six will be covered by the Strategic Assessment Area. The PSPs will be prepared sequentially as parts of the Growth Areas are released for development in accordance with a development release plan.

The City will prepare PSPs in consideration of the Framework Plan and the *Precinct Structure Planning Guidelines: New Communities in Victoria* (Victorian Planning Authority, 2021).

Consultation process

Consultation forms part of the PSP process which involves the following key steps:

- Early consultation with stakeholders to develop a vision for the precinct
- Preparation of technical studies and reports to understand key issues and constraints for the precinct, and to inform planning and management responses to be addressed in the PSP
- An opportunity for stakeholders to raise concerns and make submissions through public exhibition
- An independent planning panel hearing to consider and resolve key technical, planning and stakeholder issues
- Approval of the PSP and incorporation into the Geelong Planning Scheme through a planning scheme amendment

26.4.2 PROCEDURAL FAIRNESS

DEFINING PROCEDURAL FAIRNESS

Procedural fairness (also referred to as 'natural justice') requires fair and proper procedure to be followed when making a decision, to ensure a fair hearing and unbiased decision making. It typically applies to decisions that may negatively affect an interest of a person or corporation (Ombudsman Western Australia, 2019). Procedural fairness involves three main principles (Ombudsman Western Australia, 2019; James Cook University Australia, 2022):

- The right to be heard (also known as 'the hearing rule'): an opportunity is provided for the party to present information before a decision is reached that might adversely affect them
- The right to be treated without bias: any information presented should be considered without bias and the decision maker should be impartial and act without bias
- The decision is made based on relevant evidence: Any final decisions made should only consider evidence that is credible, reliable and sufficient to answer the critical questions. Irrelevant information or suspicion should not inform the decision

HOW THE STRATEGIC ASSESSMENT PROCESS PROVIDES PROCEDURAL FAIRNESS

The consultation process that forms part of the strategic assessment process under Part 10 of the EPBC Act (described in Section 26.4.1) provides potentially affected parties with procedural fairness. The way in which the consultation process supports each of the three main principles of procedural fairness is explained below.

The right to be heard

As part of the public comment period, submissions can be made by potentially affected parties before a final decision is made. These submissions need to be considered when preparing the final strategic assessment documents. A submissions report is also be prepared as part of this process, so that the potentially affected parties, other stakeholders and the Minister can understand how each of the submissions were addressed.

The right to be treated without bias

Any submissions received during the consultation process are considered without bias. The parties that are proposing or preparing the Plan must also disclose any conflicts of interest so that the decision maker (the Minister) is aware of any potential conflicts of interest when making the decision. The Minister must also make a decision without bias and disclose any potential conflicts of interest.

The decision is made based on relevant evidence

The Minister will make a decision on the Plan based on the relevant evidence provided as part of the strategic assessment process, including any submissions from potentially affected parties. This decision is made purely on the relevant, evidence-based information presented to the Minister and does not consider irrelevant information, suspicion, bias or unsubstantiated information.

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biosis

OPENLINES
Environmental consulting

MAY 2023

DRAFT NWGGA STRATEGIC ASSESSMENT REPORT

PUBLIC EXHIBITION VERSION

PART 4: IMPACT ASSESSMENT

ATTACHMENT A - DETAILED CATEGORISATION AND PRELIMINARY ASSESSMENT FOR PROTECTED MATTERS

ATTACHMENT B - BACKGROUND INFORMATION FOR THE COMBINED FAUNA ASSESSMENT: BIRDS

ATTACHMENT C - BACKGROUND INFORMATION FOR THE COMBINED FAUNA ASSESSMENT: FISH

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A. Detailed categorisation and preliminary assessment for protected matters

This attachment contains the detailed results of the categorisation processes described in Section 18.2 of Chapter 18.

Specifically, this attachment outlines:

- The categorisation and assessment of threatened species, including:
  - The results of Step 2 of the categorisation methodology in which criteria are applied to remove species which will clearly not be impacted from the full list of identified potentially relevant species (see Table A-1),
  - The results of Step 3 of the categorisation methodology, which outlines the preliminary assessment of each threatened species which remained after the application of Step 2 (see Table A-2)
- The categorisation and preliminary assessment of threatened ecological communities (see Table A-3)
- The categorisation and preliminary assessment of FPAL species and communities (see Table A-4 and Table A-5)
- The categorisation and preliminary assessment of migratory species (see Table A-6 and Table A-7)

THREATENED SPECIES CATEGORISATION

Table A-1: Threatened species categorisation results

Scientific	Common	EPBC Act Listing	Records		Likelihood		Potentially relevant
			VBA	EHP	EHP	PMST	
Flora							
Amphibromus fluitans	Floating Swamp Wallaby-grass	Vulnerable	Yes	No	Unlikely	Known	Yes
Caladenia ornata	Ornate Pink Fingers	Vulnerable	Yes	No	N/A	Known	Yes
Caladenia pumila	Dwarf Spider-orchid	Critically Endangered	Yes	No	Unlikely	Known	Yes
Dianella amoena	Matted Flax-lily	Endangered	Yes	No	Low	Known	Yes
Diuris basaltica	Small Golden Moths Orchid	Endangered	Yes	No	Unlikely	May	Yes
Diuris fragrantissima	Sunshine Diuris	Endangered	No	No	N/A	May	No
Dodonaea procumbens	Trailing Hop-bush	Vulnerable	No	No	Unlikely	Likely	Yes
Eucalyptus crenulata	Buxton Gum	Endangered	Yes	No	N/A	N/A	Yes
Euphrasia collina subsp. muelleri	Purple Eyebright	Endangered	Yes	No	Unlikely	N/A	Yes
Glycine latrobeana	Clover Glycine	Vulnerable	Yes	No	Moderate	Known	Yes
Ixodia achillaeoides subsp. arenicola	Sand Ixodia	Vulnerable	No	No	N/A	May	No
Lachnagrostis adamsonii	Adamson's Blown-grass	Endangered	Yes	No	Moderate	Known	Yes
Lepidium aschersonii	Spiny Pepper-cress	Vulnerable	Yes	No	N/A	Likely	Yes
Lepidium hyssopifolium	Basalt Pepper-cress	Endangered	No	No	Low	Likely	Yes
Leucochrysum albicans subsp. tricolor	Grassland Paper-daisy	Endangered	Yes	No	Unlikely	Known	Yes
Pimelea spinescens subsp. spinescens	Spiny Rice-flower	Critically Endangered	Yes	No	Low	Known	Yes
Prasophyllum spicatum	Dense Leek-orchid	Vulnerable	Yes	No	Unlikely	Likely	Yes
Prasophyllum suaveolens	Fragrant Leek-orchid	Critically Endangered	Yes	No	Unlikely	N/A	Yes
Prasophyllum validum	Sturdy Leek-orchid	Vulnerable	No	No	N/A	May	No

Scientific	Common	EPBC Act Listing	Records		Likelihood		Potentially relevant
			VBA	EHP	EHP	PMST	
Pterostylis chlorogramma	Green-striped Greenhood	Vulnerable	Yes	No	Unlikely	Known	Yes
Pterostylis cucullata	Leafy Greenhood	Vulnerable	No	No	Unlikely	Likely	Yes
Rutidosis leptorhynchoides	Button Wrinklewort	Endangered	Yes	No	Low	Known	Yes
Senecio macrocarpus	Large-fruit Fireweed	Vulnerable	Yes	No	Low	Known	Yes
Senecio psilocarpus	Swamp Fireweed	Vulnerable	No	No	Unlikely	Likely	Yes
Thelymitra epipactoides	Metallic Sun-orchid	Endangered	No	No	Unlikely	May	No
Thelymitra matthewsii	Spiral Sun-orchid	Vulnerable	No	No	Unlikely	May	No
Xerochrysum palustre	Swamp Paper Daisy	Vulnerable	Yes	No	Unlikely	Known	Yes
Mammals							
Antechinus minimus maritimus	Swamp Antechinus	Vulnerable	No	No	Unlikely	Likely	Yes
Balaenoptera musculus	Blue Whale	Endangered, migratory	No	No	N/A	Likely	Yes
Dasyurus maculatus maculatus	Spot-tailed Quoll	Endangered	No	No	Unlikely	May	No
Eubalaena australis	Southern Right Whale	Endangered, Cetacean, migratory	Yes	No	Unlikely	Known	Yes
Isoodon obesulus obesulus	Southern Brown Bandicoot	Endangered	Yes	No	Unlikely	Likely	Yes
Megaptera novaeangliae	Humpback Whale	Vulnerable, Cetacean, migratory	Yes	No	Unlikely	Known	Yes
Mirounga leonina	Southern Elephant Seal	Vulnerable	Yes	No	Unlikely	N/A	Yes
Perameles gunnii	Eastern Barred Bandicoot (Tasmania)	Vulnerable	Yes	No	Unlikely	Known	Yes
Petauroides volans	Greater Glider	Endangered	No	No	N/A	May	No
Petaurus australis australis	Yellow-bellied glider	Vulnerable	No	No	N/A	Likely	Yes
Potorous tridactylus tridactylus	Long-nosed Potoroo (SE Mainland)	Vulnerable	No	No	N/A	May	No
Pseudomys novaehollandiae	New Holland Mouse	Vulnerable	No	No	N/A	May	No
Pteropus poliocephalus	Grey-headed Flying-fox	Vulnerable	Yes	No	Low	Known	Yes

Scientific	Common	EPBC Act Listing	Records		Likelihood		Potentially relevant
			VBA	EHP	EHP	PMST	
Birds							
Anthochaera phrygia	Regent Honeyeater	Critically Endangered	Yes	No	Unlikely	Known	Yes
Botaurus poiciloptilus	Australasian Bittern	Endangered	Yes	No	Unlikely	Known	Yes
Calidris canutus	Red Knot, Knot	Endangered, marine, migratory	Yes	No	Low	Known	Yes
Calidris ferruginea	Curlew Sandpiper	Critically Endangered, marine, migratory	Yes	No	Low	Known	Yes
Calidris tenuirostris	Great Knot	Critically Endangered, marine, migratory	Yes	No	Unlikely	Known	Yes
Callocephalon fimbriatum	Gang-Gang Cockatoo	Endangered	Yes	No	N/A	Known	Yes
Charadrius leschenaultii	Greater Sand Plover	Vulnerable, marine, migratory	Yes	No	Unlikely	Likely	Yes
Charadrius mongolus	Lesser Sand Plover	Endangered, marine, migratory	Yes	No	Unlikely	Known	Yes
Diomedea antipodensis	Antipodean Albatross	Vulnerable, marine, migratory	No	No	N/A	Likely	Yes
Diomedea epomophora	Southern Royal Albatross	Vulnerable, marine, migratory	No	No	Unlikely	Likely	Yes
Diomedea exulans	Wandering Albatross	Vulnerable, marine, migratory	Yes	No	Unlikely	Likely	Yes
Diomedea sanfordi	Northern Royal Albatross	Endangered, marine, migratory	No	No	N/A	Likely	Yes
Falco hypoleucos	Grey Falcon	Vulnerable	No	No	Low	Likely	Yes
Grantiella picta	Painted Honeyeater	Vulnerable	Yes	No	Unlikely	Known	Yes
Halobaena caerulea	Blue Petrel	Vulnerable	Yes	No	N/A	May	Yes
Hirundapus caudacutus	White-throated Needletail	Vulnerable, marine, migratory	Yes	No	Low	Known	Yes
Lathamus discolor	Swift Parrot	Critically Endangered, marine	Yes	No	Low	Known	Yes
Limosa lapponica baueri	Western Alaskan Bar-tailed Godwit	Vulnerable	Yes	No	Unlikely	Known	Yes
Macronectes giganteus	Southern Giant-Petrel	Endangered, marine, migratory	Yes	No	Unlikely	May	Yes
Macronectes halli	Northern Giant Petrel	Vulnerable, marine, migratory	Yes	No	Unlikely	May	Yes
Neophema chrysogaster	Orange-bellied Parrot	Critically Endangered, Marine	Yes	No	Unlikely	Known	Yes

Scientific	Common	EPBC Act Listing	Records		Likelihood		Potentially relevant
			VBA	EHP	EHP	PMST	
Neophema chrysostoma	Blue-winged Parrot	Vulnerable	Yes	No	N/A	Known	Yes
Numenius madagascariensis	Eastern Curlew	Critically Endangered, marine, migratory	Yes	No	Unlikely	Known	Yes
Pachyptila turtur subantarctica	Fairy Prion	Vulnerable	Yes	No	Unlikely	Known	Yes
Pedionomus torquatus	Plains-wanderer	Critically Endangered	Yes	No	Unlikely	Known	Yes
Phoebetria fusca	Sooty Albatross	Vulnerable, marine, migratory	No	No	Unlikely	Likely	Yes
Polytelis swainsonii	Superb Parrot	Vulnerable	Yes	No	N/A	N/A	Yes
Pterodroma leucoptera leucoptera	Gould's Petrel	Endangered	No	No	Unlikely	May	No
Pterodroma mollis	Soft-plumaged Petrel	Vulnerable	No	No	N/A	May	No
Rostratula australis	Australian Painted Snipe	Endangered, marine	Yes	No	Low	Known	Yes
Sternula nereis nereis	Australian Fairy Tern	Vulnerable	No	No	Unlikely	Known	Yes
Thalassarche bulleri	Buller's Albatross	Vulnerable, marine, migratory	No	No	Unlikely	May	No
Thalassarche bulleri platei	Northern Buller's Albatross	Vulnerable, marine	No	No	Unlikely	May	No
Thalassarche carteri	Indian Yellow-nosed Albatross	Vulnerable, marine, migratory	Yes	No	Unlikely	Likely	Yes
Thalassarche cauta	Shy Albatross	Endangered, marine, migratory	Yes	No	Unlikely	Likely	Yes
Thalassarche chrysostoma	Grey-headed Albatross	Endangered, marine, migratory	No	No	Unlikely	May	No
Thalassarche impavida	Campbell Albatross	Vulnerable, marine, migratory	No	No	N/A	Likely	Yes
Thalassarche melanophris	Black-browed Albatross	Vulnerable, marine, migratory	Yes	No	Unlikely	May	Yes
Thalassarche salvini	Salvin's Albatross	Vulnerable, marine, migratory	No	No	Unlikely	Likely	Yes
Thalassarche steadi	White-capped Albatross	Vulnerable, marine, migratory	No	No	N/A	Likely	Yes
Thinornis cucullatus cucullatus	Eastern Hooded Plover	Vulnerable, Marine	Yes	No	N/A	Known	Yes
Reptiles							
Aprasia parapulchella	Pink-tailed Worm-lizard	Vulnerable	No	No	Unlikely	May	No

Scientific	Common	EPBC Act Listing	Records		Likelihood		Potentially relevant
			VBA	EHP	EHP	PMST	
Caretta caretta	Loggerhead Turtle	Endangered, marine, migratory	No	No	Unlikely	Known	Yes
Chelonia mydas	Green Turtle	Vulnerable, marine, migratory	No	No	Unlikely	May	No
Delma impar	Striped Legless Lizard	Vulnerable	Yes	Yes	High	Known	Yes
Dermochelys coriacea	Leatherback Turtle	Endangered, marine, migratory	Yes	No	Unlikely	Known	Yes
Lepidochelys olivacea	Pacific (Olive) Ridley	Endangered	Yes	No	N/A	N/A	Yes
Tympanocryptis pinguicolla	Victorian Grassland Earless Dragon	Endangered	Yes	No	Unlikely	Known	Yes
Amphibians							
Litoria raniformis	Growling Grass Frog	Vulnerable	Yes	Yes	High	Known	Yes
Fish							
Carcharodon carcharias	Great White Shark	Vulnerable, migratory	No	No	N/A	Known	Yes
Galeorhinus galeus	School Shark		No	No	N/A	May	No
Galaxiella toourtkoourt (previously *Galaxiella pusilla*)	Eastern Dwarf Galaxias	Vulnerable	No	No	N/A	Likely	Yes
Maccullochella peelii	Murray Cod	Vulnerable	Yes	No	Unlikely	N/A	Yes
Macquaria australasica	Macquarie Perch	Endangered	Yes	No	Low	N/A	Yes
Nannoperca obscura	Yarra Pygmy Perch	Vulnerable	Yes	No	Low	Likely	Yes
Prototroctes maraena	Australian Grayling	Vulnerable	Yes	No	Moderate	Known	Yes
Insects							
Synemon plana	Golden Sun Moth	Critically Endangered	Yes	Yes	High	Known	Yes

Table A-2: Preliminary assessment for threatened species

Scientific name	Common name	Listing status	Requires further assessment	Justification
Flora				
Amphibromus fluitans	Floating Swamp Wallaby-grass	Vulnerable	No	*Amphibromus fluitans* (River Swamp Wallaby-grass) is an aquatic or semi-aquatic perennial plant that may inhabit man-made or natural water bodies such as lagoons, swamps, billabongs, and dams (DEWHA, 2008a). The species grows permanent waterbodies with seasonally fluctuating water levels (TSSC, 2012) The species is known from South Australia, southern NSW, Victoria, Tasmania and New Zealand. Numerous populations occur in northern Victoria near the Murray River and its tributaries. It is also known from several localities in Gippsland (including Rosedale, Meeniyan, and Wonthaggi) Melbourne, Ballarat, and the Portland-Casterton areas (DEWHA, 2008a). Insufficient data is available on population locations and trends, although the species is known from numerous populations in northern Victoria and from several localities in southern Victoria (DCCEEW, 2022). The species is threatened by changes to hydrology, particularly the draining of swamps and conversion of wetlands to dams, weed invasion and grazing by stock (DEWHA, 2008a). There are four records of the species within the Study Area, all associated with Little River approximately 18.5 km to the north. There are no records of the species within the Strategic Assessment Area. The species is unlikely to be directly impacted by the Plan. The absence of species records within or near the Strategic Assessment Area suggest the species is unlikely to be present. Further, the species occurs in association with permanent waterbodies. No such areas will be developed under the Plan. The species is also unlikely to be impacted indirectly as a result of development within the Growth Areas for the following reasons: • The records within the Study Area are in a different catchment to the Growth Areas and there are no known records downstream of development • Other potential indirect impacts from development, such as those associated with weeds or human disturbance, are unlikely to exacerbate existing threats to the species given the agricultural landscape context and the distance of the nearest records to proposed development
Caladenia ornata	Ornate Pink Fingers	Vulnerable	No	*Caladenia ornata* (Ornate Pink Fingers) is a plant that occurs in woodlands, heathy woodlands, heathlands and seasonally in moist sand and clay loams. The species occurs in South Australia and Victoria. As of 2008, it was known from 19 populations containing approximately 500 individuals (DEWHA, 2008b).

Scientific name	Common name	Listing status	Requires further assessment	Justification
				The species is threatened by weed invasion, habitat disturbance, trampling and grazing by feral rabbits and macropods, along with extinction due to limited habitat, low plant numbers, and inappropriate fire regimes (DEWHA, 2008b). There are no records of the species within or near the Strategic Assessment Area. The environmental features of the Strategic Assessment Area (which primarily consists of grasslands on heavy clay soils) are generally not suitable for this species (which occurs in woodlands and heathlands on lighter soils). Direct impacts are therefore considered unlikely. One record occurs within the Study Area (observed 1996) approximately 17.5 km from the Growth Areas. The potential indirect impacts of development, such as those associated with weeds, habitat disturbance and fire, are unlikely to exacerbate threats to the species given the species is located in an existing protected area managed for conservation purposes (Brisbane Ranges National Park) and the distance of the nearest records to proposed development.
Caladenia pumila	Dwarf Spider-orchid	Critically Endangered	No	*Caladenia pumila* (Dwarf Spider Orchid) is an orchid occurring within the Victorian Volcanic Plains Bioregion. The species was previously known from one location at Bannockburn in Victoria with records observed in 1926. The Dwarf Spider Orchid was considered extinct until it was rediscovered in Inverleigh Nature Reserve near Bannockburn in 2009. As of 2013, there were two known plants at this site, and the species AOO was estimated to be ~1 km (DoE, 2013a). More recent records (up to 2018) are available for the species, all of which are at Inverleigh Nature Reserve on the VBA database. There is limited understanding of the species ecology and habitat requirements. The species is threatened by habitat degradation, trampling by people, browsing, illegal collection, a lack of genetic diversity and competition with native species (DoE, 2013a). There are 12 records of the species within the Study Area. Two records (both dated 1926) are approximately 9.5 km from the Growth Areas in a developed agricultural area and are unlikely to be extant in this location today. The remaining 10 records are dated 2009-2018 in Inverleigh Nature Reserve, approximately 20 km from the Growth Areas. There are no records of the species within or near the Strategic Assessment Area. The species is thought to be sensitive to habitat degradation. It is noted that most of the Strategic Assessment Area is highly modified due to historical and current farming practices and development. Given the absence of records within the Strategic Assessment Area, and the distance of the Strategic Assessment Area from known occurrences of the species, and the level of disturbance within the Strategic Assessment Area, it is considered unlikely that the species is present within the Strategic Assessment Area. Subsequently, direct impacts are considered unlikely. Potential indirect impacts from development, such as those associated with habitat degradation, trampling by people or illegal collection are unlikely to exacerbate existing threats to the species given the population is

Scientific name	Common name	Listing status	Requires further assessment	Justification
				within an existing protected area managed for conservation purposes, and the distance of the nearest records to proposed development.
Dianella amoena	Matted Flax-lily	Endangered	No	*Dianella amoena* (Matted Flax-lily) a small, tufted lily that has a wide distribution from eastern to south-western Victoria (Carter, 2010a). The species grows in grassland and grassy woodland habitats, on well drained to seasonally wet sandy loams to heavy clay soils. Sites may lack a tree canopy and contain a high cover of non-native species. The surrounding location of most sites has been severely altered post-European settlement (Carter, 2010a). As of 2010, there were thought to be around 2,500 remaining plants in total. Populations are small and highly fragmented. The species is threatened by habitat destruction or disturbance, weed invasion and population fragmentation (Carter, 2010a). Targeted surveys were undertaken for the Matted Flax-lily within the Growth Areas. No individuals of the species were identified. Further, habitat within the surveyed areas was considered marginal, and it was considered highly unlikely that the species would occur within the surveyed areas of the Growth Areas (EHP, 2021). The unsurveyed areas of the Growth Areas are assumed to support habitat for the same threatened species which were recorded within the Growth Areas (see Section 13.3.2 of Part 3 for details). Given that these areas are more modified or degraded than the surveyed areas of the Growth Areas, and the species was not recorded during targeted surveys, potential direct impacts to Matted Flax-Lily within the unsurveyed areas are unlikely. The broader Strategic Assessment Area has not been surveyed and will be subject to development within the external infrastructure footprints. The Plan includes a Measure to undertake targeted surveys within the external infrastructure footprints for all protected matters with the potential to occur. Any potential direct impacts to the species within these areas will be addressed following field surveys. There are 25 records within the Study Area, the closest of which is a cluster of records occurring 8.9 km from the Growth Areas at Little River. The potential indirect impacts of development, such as those associated with weeds and habitat disturbance, are unlikely to exacerbate threats to the species given the agricultural landscape context and the distance of the nearest records to proposed development.
Diuris basaltica	Small Golden Moths Orchid	Endangered	No	*Diuris basaltica* (Small Golden Moths Orchid) is a small orchid that inhabits herb-rich native grasslands dominated by Kangaroo Grass. Habitat is dominated by tussock-forming perennial grasses, with wildflowers and herbs dispersed throughout (Backhouse and Lester, 2010).. Small Golden Moths Orchid is endemic to an area of 50 km from Sydenham to Lara in Victoria in the Victorian Volcanic Plains bioregion (Backhouse and Lester, 2010). The Strategic Assessment Area is to the west of this area.

Scientific name	Common name	Listing status	Requires further assessment	Justification
				The species was considered extinct in the late 1990s, although subsequent surveys re-discovered small populations. The species is currently known from only three locations near Melbourne at Laverton, Derrimut and Rockbank (Backhouse and Lester, 2010). Habitat loss is the major cause of decline. The species is also threatened by disturbance, grazing and predation, weed invasion, and altered fire regimes (Backhouse and Lester, 2010). There is a 1998 record of the species to the east of the Strategic Assessment Area, within the North Shore locality adjacent to Rollerama Drain. This site is in a heavily developed environment and is approximately 4 km from the nearest Growth Area. It is unlikely that this population is extant as the site, given the age of the record, the developed and disturbed characteristics of the site, and that the location was not recognised in the species' Recovery Plan (Backhouse and Lester, 2010). There are no records of the species within or near the Strategic Assessment Area. The species is thought to be sensitive to habitat degradation. It is noted that most of the Strategic Assessment Area is highly modified due to historical and current farming practices and development. Given the level of disturbance within the Strategic Assessment Area, it is considered unlikely that the species is present within the Strategic Assessment Area. Overall, direct impacts are considered unlikely. There are otherwise no records of the species within the broader Study Area. Suitable potential habitat is limited within a largely agricultural landscape. Potential indirect impacts to the species are therefore considered unlikely.
Dodonaea procumbens	Trailing Hop-bush	Vulnerable	No	*Dodonaea procumbens* (Trailing Hop-bush), is a small prostrate shrub which occupies low lying woodlands, and low open forests, heathland and grasslands. The species may occur on disturbed and exposed sites including road verges and cuttings, along with rocky outcrops (Carter, 2010c). Trailing Hop-bush is distributed across south-eastern Australia, in Victoria, New South Wales and South Australia. In Victoria, the species mainly occurs in in the western half of the state. The Geelong region is not identified as a site of known occurrence of the species within the species' Recovery Plan (Carter, 2010c). As of 2010, there were thought to be about 50 remaining populations, most of which were small. The species is threatened by disturbance/destruction, weed invasion, grazing, and altered fire regimes (Carter, 2010c). There are also no existing records within the Strategic Assessment Area or the broader Study Area. Suitable potential habitat is limited within a largely agricultural landscape. Given the lack of records and limited potential habitat, it is considered unlikely that the species occurs within the Study Area. Therefore, direct and indirect impacts to the species are considered unlikely.

Scientific name	Common name	Listing status	Requires further assessment	Justification
Eucalyptus crenulata	Buxton Gum	Endangered	No	*Eucalyptus crenulata* (Buxton Gum) is a small tree endemic to south central Victoria. The species is likely to have been naturally rare with a highly restricted distribution prior to European settlement. The species is cold-adapted and was likely more widespread in colder periods in the past climate of southern Australia (White, Murphy and Downe, 2006; TSSC, 2016g). In its natural range, it is currently rare in both abundance and distribution, occupying a total of less than 10 ha across two populations with less than 700 plants. The two wild populations are located 64 km apart at Buxton and Yering and are separated by the Great Dividing Range (TSSC, 2016g). The Study Area is outside of the natural range of the species. The species is an attractive tree which is commonly grown as an ornamental across south-eastern Australia and is naturalised at a number of locations outside its natural range. There are far more individuals in cultivation than in the wild (TSSC, 2016g). The Buxton population occurs in open forest dominated by *Eucalyptus ovata* on a poorly drained hollow. The Yering population occurs in a partially cleared, and significantly altered floodplain in low lying wet/swampy habitats. The species is threatened by habitat loss and disturbance, invasive species, trampling and soil compaction from cattle grazing, infection with *Phytophthora cinnamomi*, and inappropriate fire regimes (TSSC, 2016g). There are two records within the Study Area, the closest occurring 12.7 km west of the Growth Areas. These records are not in the vicinity of either Buxton or Yering (which occur to the east of Melbourne). These records are likely to be either cultivated or naturalised individuals outside of the species' natural range. The species has not been recorded within the Strategic Assessment Area. Mapping of pre-1750 vegetation communities (DELWP, 2022a) indicates that the Strategic Assessment Area is predicted to be comprised almost entirely of grassland communities. It is considered unlikely that this species would naturally occur within the Strategic Assessment Area. Direct impacts are therefore considered unlikely. Potential indirect impacts to natural populations of the species are also considered unlikely as the Study Area is outside of the natural range of the species.
Euphrasia collina subsp. muelleri	Purple Eyebright	Endangered	No	*Euphrasia collina subsp. muelleri* (Purple Eyebright) is a perennial herb which inhabits open grassland, grassy woodland, heath in perched swamps, and heathy woodland (TSSC, 2016h). Purple Eyebright was historically widespread across south-eastern Australia, from northern NSW through Victoria to SA. The species has become extinct throughout a substantial proportion of its range (TSSC, 2016h). In 2006, the species was known to occur at 11 widely separated localities in Victoria. Of these 11 localities, 3 were considered possibly destroyed or extinct. Of the 8 extant populations, 3 had uncertain taxonomy (TSSC, 2016h). None of these locations are in the vicinity of the Study Area.

Scientific name	Common name	Listing status	Requires further assessment	Justification
				Further, the species' Recovery Plan maps the former and current distribution of the species (Murphy and Downe, 2006). The Study Area is not in proximity to identified current locations of the species. There are estimated to be fewer than 1,500 pants, of which 1,300 occur in one population (Deep Lead) (TSSC, 2016h). The species is threatened by altered fire regimes, habitat clearing, habitat disturbance and modification, weed invasion, and grazing by stock and rabbits (TSSC, 2016h). There are two records of the species within the Study Area (observed in 1770, and 1853), occurring approximately 8.6 km away from the Growth Areas. Given the age of these records and that this locality is not recognised as a current location of the species by either the Recovery Plan or the Conservation Advice, it is unlikely that this population is extant (Murphy and Downe, 2006; TSSC, 2016h). There are otherwise no existing records within the broader Study Area. Suitable potential habitat is limited within a largely agricultural landscape. It is therefore considered unlikely that the species would occur within the Strategic Assessment Area or the wider Study Area. Potential direct and indirect impacts to the species are considered unlikely.
Glycine latrobeana	Clover Glycine	Vulnerable	No	*Glycine latrobeana* (Clover Glycine) is a herb which inhabits grassland and grassy woodland habitat, and occasionally dry forests and heathlands. It occurs from sea level to 1,200 m altitude and is usually found on clay soils but can occur on a range of soil types (Carter and Sutter, 2010). It is endemic to south-eastern Australia. The species has a wide distribution from Port Pirie, through most of Victoria, to Tasmania and SA. In Victoria, the species occurs in the Naracoorte Coastal Plain, the Australian Alps, the Southeastern Highlands, the South East Coastal Plain, Victorian Midlands, and the Victorian Volcanic Plains bioregion. There are about 140 populations, of which 65 occur in Victoria (Carter and Sutter, 2010). The species is hard to locate and is generally only detected in fruit or flower (DCCEEW, 2022). Clover Glycine is threatened by weed invasion, inappropriate fire regimes, grazing by native and introduced herbivores, and human-induced disturbance (Carter and Sutter, 2010). Targeted surveys for Clover Glycine were conducted within the Growth Areas. No specimens were identified during survey. Given the presence of known threatening processes within the Growth Areas, it is considered highly unlikely that this species would occur within the surveyed areas of the Growth Areas (EHP, 2021). Direct impacts to the species in these areas are considered unlikely. The unsurveyed areas of the Growth Areas are assumed to support habitat for the same threatened species which were recorded within the Growth Areas (see Section 13.3.2 of Part 3 for details). Given that these areas are more modified or degraded than the surveyed areas of the Growth Areas, and the species was not recorded during targeted surveys, potential direct impacts to Clover Glycine within the unsurveyed areas are unlikely.

Scientific name	Common name	Listing status	Requires further assessment	Justification
				The broader Strategic Assessment Area has not been surveyed and will be subject to development within the external infrastructure footprints. The Plan includes a Measure to undertake targeted surveys within the external infrastructure footprints for all protected matters with the potential to occur. Any potential direct impacts to the species within these areas will be addressed following field surveys. There are twelve records of the species within the Study Area, two of which pre-date 1900. The remaining eight records date between 2001 and 2017. The closest recent record occurs approximately 13.7 km away from the Growth Areas. Potential indirect impacts from development, such as those associated with weeds and disturbance, are unlikely to exacerbate existing threats to the species given the agricultural landscape context and the distance of the nearest records to proposed development.
Lachnagrostis adamsonii	Adamson's Blown-grass	Endangered	Yes	*Lachnagrostis adamsonii* (Adamson's Blown-grass) is a grass which is confined to slow moving creeks, depressions and drainage lines which may become waterlogged or inundated seasonally (Murphy, 2010). The species is endemic to south-western Victoria. It occurs in an area of 15,000 km² from Clifton Springs to near Coleraine in the Victorian Volcanic Plains and Victorian Midlands bioregions. It is highly likely that many historical populations of the species were lost due to extensive native vegetation loss within this area (Murphy, 2010). In the 1990s, extensive surveying identified the species at 68 locations. However, the current number of populations is believed to be substantially fewer. The total number of plants is unknown. Estimates suggest there are <50,000 plants. Populations occupy small areas of less than 1 ha (Murphy, 2010). The species' Recovery Plan has identified the following threats: alterations to hydrology, invasion and competition from weeds, disturbance and destruction of plants and habitat, and grazing (Murphy, 2010). The species' 2010 Recovery Plan identified 16 important populations of the species. One important population occurs within the Strategic Assessment Area located at Warners Road near Cowies Creek. This population consists of up to 500 plants and is considered to be the largest population at the eastern edge of the species range (Murphy, 2010). Site surveys in 2019 and 2020 within WGGA did not record Adamson's Blown-grass along Cowies Creek. However, the species has been assumed present in Cowies Creek based on the presence of historical records and suitable habitat (EHP, 2021). Further detailed assessment is needed to understand the potential for direct, indirect and cumulative impacts. Refer to Section 20.1 of Part 4 for the detailed impact assessment of Adamson's Blown-grass.

Scientific name	Common name	Listing status	Requires further assessment	Justification
Lepidium aschersonii	Spiny Pepper-cress	Vulnerable	No	*Lepidium aschersonii* (Spiny Pepper-cress) is a perennial herb that inhabits periodically wet sites including depressions and the margins of marshes and shallow lakes. The species is endemic to mainland Australia and is distributed patchily from NSW to Western Australia (Carter, 2010b). As of 2010, there were 18 known sites in Victoria from 2 geographically separate locations. Almost all sites occur 100 – 200 km west of Melbourne in the area bordered by Mortlake, Cressy, Colac and Ararat, with an outlier near Benambra (Carter, 2010b). Threats to the species include weed invasion, grazing by domestic stock, altered hydrology, habitat destruction, and roadworks (Carter, 2010b). The species has not been recorded within the Growth Areas, and the Growth Areas are unlikely to provide suitable wetland habitat for the species. Modelling of wetland occurrence by DELWP (DELWP, 2022b) has identified two wetland areas in the NGGA. The first of these corresponds to a wastewater treatment plant adjacent to Anakie Road. The second of these appears to be related to two small farm dams (from aerial observations) located in the NGGA Conservation Area. This area was mapped as Plains Grassland (EVC 132) by (EHP, 2021). Overall, direct impacts are considered unlikely. There are seven records of the species within the Study Area. Of these, three occur within the Barwon River catchment downstream of the Growth Areas, while the remaining four occur within the Thompson Creek catchment (which is not hydrologically linked to the Growth Areas). Of the three records within the Barwon River catchment, two occur on the western edge of the Lake Connewarre complex (located in the Lake Connewarre Wildlife Reserve). The remaining record occurs approximately 9.4 km downstream from the Growth Areas, along the Barwon River in the locality of Marshall. This record has an accuracy of 10 km and is more likely to be associated with the records from the Lake Connewarre Complex. The four records within the Thompson Creek catchment are within or adjacent to the Breamlea Flora and Fauna Reserve. The records which occur within the Lake Connewarre Wildlife Reserve and the Breamlea Flora and Fauna Reserve may comprise important populations of the species, as the records occur within protected areas and therefore have a greater potential for long-term viability and recovery. Potential indirect impacts to the records within the Lake Connewarre Complex associated with altered hydrology are considered unlikely. The records occur in an off stream wetland within the Lake Connewarre complex which is unlikely to receive regular flows directly from the Barwon River. As a result, any potential indirect impacts via downstream pathways would be very diffuse or negligible.

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Lepidium hyssopifolium	Basalt Pepper-cress	Endangered	No	*Lepidium hyssopifolium* (Basalt Pepper-cress) is a perennial herb which now occurs primarily in heavily modified environments among exotic pasture and weed species. Known sites occur on roadsides or the fringes of agricultural land. Original habitat is unknown, though was likely eucalypt or *Allocasuarina* woodland characterised by a grassy understory and native temperate grasslands (Tumino, 2010). It is endemic to south-eastern Australia. The species has a patchy distribution from south-east NSW, Victoria, and Tasmania. In Victoria, the species occurs west of Melbourne in the Victorian Volcanic Plains and Victorian Midlands bioregions. As of 2010, there were seven populations of the species within Victoria, containing ~500 plants (Tumino, 2010). Microsite conditions are likely to be important for the persistence of the species. Some level of disturbance may be important for seed germination. Seedling survival then relies on the availability of open spaces with reduced competition from other plants, rather than areas with thick groundcover (Tumino, 2010). Threats to the species include competition and invasion from weeds, grazing and trampling, loss of overstory trees, habitat disturbance or destruction, and erosion (Tumino, 2010). There are no existing records of this species within the Strategic Assessment Area or the broader Study Area. Surveys within the Growth Areas concluded that potential habitat for the Basalt Peppercress was poor or limited (EHP, 2021). This is likely due to the existing level of disturbance and threatening processes associated with agricultural practices and development in these areas. It is noted that similar disturbance regimes occur within the Strategic Assessment Area outside of the surveyed areas, alongside the surveyed areas, and so this assessment is also considered applicable to these areas. Given the absence of records for the species within the Study Area and the presence of existing threatening processes, it is considered unlikely that the species would be present within the Strategic Assessment Area. Subsequently, direct impacts are considered unlikely. Potential indirect impacts to the species due to development (such as weed invasion and habitat disturbance) are considered unlikely, given the absence of records and the agricultural landscape context where such threats are pre-existing.
Leucochrysum albicans subsp. tricolor	Hoary Sunray	Endangered	No	*Leucochrysum albicans susp. tricolor* (Hoary Sunray) is a perennial everlasting daisy which inhabits grassland, woodland and forest habitats. All known Victorian occurrences are in grassland or grassy woodlands, often in the spaces between grass tussocks (DAWE, 2021a). The species is endemic to south-eastern Australia. It occurs in three geographically separate areas, NSW/ACT, Victoria, and Tasmania. In Victoria, the species occurs in the Victorian Volcanic Plains bioregion between Colac in the south, Inverleigh in the east, Ballarat and Ararat in the north, and Hamilton in the west (DAWE, 2021a). The Strategic Assessment Area is outside of the known distribution of the species in Victoria (note that

Scientific name	Common name	Listing status	Requires further assessment	Justification
				Inverleigh, the easternmost known occurrence of the species in Victoria, occurs approximately 20 km west of the Strategic Assessment Area). Threats to the species may include habitat loss and destruction, weed invasion, poor reservation status, lack of appropriate biomass, inappropriate fire regimes, grazing by livestock, climate change (specifically drought) and small population sizes (DAWE, 2021a). There are 15 records of the species within the Study Area, ranging in date from 1853 to 2014. The 1853 record is the closest record to the development (occurring 9.5 km away from the Growth Areas) has no contemporary records nearby. It is not clear if this population is extant. The remaining records are clustered approximately 18.1 km from the Growth Areas, in the vicinity of Inverleigh. It is considered unlikely that this species would be present within the Strategic Assessment Area, as the Strategic Assessment Area is outside of the known distribution of the species within Victoria. Direct impacts are therefore considered unlikely. Potential indirect impacts from development, such as those associated with weed invasion, are unlikely to exacerbate existing threats to the species given the urban and agricultural landscape context of the records and the distance of the nearest records to proposed development.
Pimelea spinescens subsp. spinescens	Spiny Rice-flower	Critically Endangered	Yes	*Pimelea spinescens subsp. spinescens* (Spiny Rice-flower) is a small spreading shrub which inhabits grasslands including native temperate grasslands, grassy woodlands and open shrublands (DEWHA, 2009c) in areas that have received low levels of disturbance (SWIFFT, 2022d). The Spiny Rice-flower is endemic to Victoria. It occurs predominantly in the Victorian Volcanic Plain, with a small number of populations occurring in the Victorian Midlands and Riverina IBRA Bioregions (TSSC, 2016j). The Growth Areas are towards the south-eastern extent of the species distribution. Populations are now substantially fragmented and depleted due to land clearing (TSSC, 2016j). Populations are often isolated with restricted gene flow (DEWHA, 2009b). Populations are typically small and often occur in small remnant patches of habitat less than 1 ha in size (TSSC, 2016j). As of 2008, the population size was estimated to be between 30,000 – 50,000 plants in 120 populations (DSE, 2008). The 2016 Conservation Advice notes that based on the state-wide database, there may be 88,000 plants occurring in 208 – 275 sites. However, the record database for the Spiny Rice-flower includes multiple old and imprecise records, so this population estimate may be over-estimating the occurrence of the species (TSSC, 2016j). The species' Conservation Advice (TSSC, 2016j), Recovery Plan (Carter and Walsh, 2006) and Significant Impact Guidelines (DEWHA, 2009c) have identified the following threats: habitat loss and fragmentation,

Scientific name	Common name	Listing status	Requires further assessment	Justification
				inappropriate fire regimes, weed invasion, grazing by feral herbivores and livestock, and small and declining populations with limited gene flow. Targeted surveys were undertaken within both Growth Areas for the Spiny Rice-flower. No individuals of the species were identified during these surveys (EHP, 2021). Further, assessment of habitat condition within the surveyed areas of the Growth Areas indicated that there is a low likelihood that the surveyed areas of the Growth Areas would support a population of the Spiny Rice-flower. This is due to the level of disturbance at surveyed sites and existing threats such as weed invasion and lack of suitable habitat features such as inter-tussock spaces (EHP, 2021). It is noted that the species is recognised to be most likely to occur in areas with low levels of disturbance (SWIFFT, 2022d). The unsurveyed areas of the Growth Areas are assumed to support habitat for the same threatened species which were recorded within the Growth Areas (see Section 13.3.2 of Part 3 for details). Given that these areas are more modified or degraded than the surveyed areas of the Growth Areas, and the species was not recorded during targeted surveys, potential direct impacts to Spiny Rice-flower within the unsurveyed areas are unlikely. The broader Strategic Assessment Area has not been surveyed and will be subject to development within the external infrastructure footprints. The Plan includes a Measure to undertake targeted surveys within the external infrastructure footprints for all protected matters with the potential to occur. Any potential direct impacts to the species within these areas will be addressed following field surveys. There are 648 records of the species within the Study Area, with the closest approximately 1 km from the NGGA. Remaining records occur in three broad areas, including: approximately 12 km west of the Growth Areas near Bannockburn, between Lara and the north-eastern boundary of the Study Area, and at Lake Borrie Spit, over 18 km east of the NGGA. Potential indirect impacts to the species as a result of development may be possible, given the proximity of records to the Growth Areas and the density of records in the Study Area (representing 14.4 per cent of records in Victoria). Further detailed assessment is required to understand potential impacts. Refer to Section 20.2 of Part 4 for the detailed impact assessment of the Spiny Rice-flower.
Prasophyllum spicatum	Dense Leek-orchid	Vulnerable	No	*Prasophyllum spicatum* (Dense Leek-orchid) is a perennial, terrestrial orchid which inhabits coastal and near-coastal heathland and heathy woodland. The species is endemic to south-eastern Australia. It is distributed from Gippsland in Victoria to south-east SA. There is a wide disjunction between south Gippsland and south-west Victorian populations. It is currently known from eight populations with 80 plants, although this may underestimate the actual number of plants. None of the currently known populations are in the vicinity of Geelong. Threats include habitat disturbance, grazing by native and/or introduced predators, and altered fire

Scientific name	Common name	Listing status	Requires further assessment	Justification
				regimes. It is likely that conditions for pollinator and fungal activity have been adversely affected at most sites (Duncan, 2010a). The Strategic Assessment Area is not a coastal or near-coastal environment and does not support heathland or heathy woodland. It is considered unlikely that the species would be present within the Strategic Assessment Area. Direct impacts are therefore considered unlikely. There are six clustered records of the species within the Study Area (observed between 1925 – 1934), the closest of which occurs 14.6 km away from the Growth Areas. Given the age of the records and that no contemporary populations of the species are known to occur in the vicinity of Geelong (Duncan, 2010a), it is unlikely that this population is extant. There are otherwise no existing records within the broader Study Area. Suitable potential habitat is limited within a largely agricultural landscape. Potential indirect impacts to the species are also considered unlikely.
Prasophyllum suaveolens	Fragrant Leek-orchid	Critically Endangered	No	*Prasophyllum suaveolens* (Fragrant Leek-orchid) is an orchid which inhabits grasslands, and open grassy woodland. The habitat is usually dominated by tussock-forming perennial grasses, along with wildflowers and herbs. The species is endemic to the basalt plains of south-western Victoria. Historically the species was widespread across the basalt plains, and was recorded from Werribee, St Albans, Albion, Laverton, Lara, Tottenham and Merri Creek, and from near Creswick. As of 2010, eight populations were known, containing an estimated 1,500 plants. Threats to the species include weed invasion, habitat disturbance, fire and grazing by rabbits and stock (TSSC, 2016l). There is one record of the species within the Study Area (dated 1924) which occurs within Lara approximately 5.6 km east of the Growth Areas. This record occurs in a developed area and is unlikely to be extant. There are no records of the species within the Strategic Assessment Area. Site surveys completed within the Growth Areas indicated that there is poor or limited habitat for the species (EHP, 2021). These results combined with the lack of records and existing threatening processes suggest it is unlikely that the species would be present within the Strategic Assessment Area. Direct impacts are therefore considered unlikely. Potential indirect impacts from development, such as those associated with weed invasion and habitat disturbance, are unlikely to exacerbate existing threats to the species given the urban and agricultural landscape context and the distance of the nearest records to proposed development.
Pterostylis chlorogramma	Green-striped Greenhood	Vulnerable	No	*Pterostylis chlorogramma* (Green-striped Greenhood) is a terrestrial herb which inhabits mixed Box-Stringybark forest with a shrubby understory. The species is restricted to gaps in the shrubby understory, or on road/track verges. The species is endemic to Victoria. It has a wide, though disjunct distribution from Yarram to Edenhope. The Green-striped Greenhood occurs in the Southeast Highlands, South East Coastal Plain, and Naracoorte Coastal Plain bioregions. The species is known from nine populations, containing approximately

Scientific name	Common name	Listing status	Requires further assessment	Justification
				1,000 plants. Threats to the species include weed invasion, grazing by native and introduced herbivores, destruction or disturbance and extinction related to small population sizes (Duncan, Pritchard and Coates, 2010). The Strategic Assessment Area is located within the Victorian Volcanic Plain bioregion. This is outside the range of the Green-striped Greenhood. Direct impacts are therefore considered unlikely. There is one record of the species within the Study Area (dated 2009), which occurs approximately 14.6 km away from the Growth Areas. This record is located on private land within the Brisbane Ranges, in a steep landscape covered with remnant vegetation. While the record is not located within the Brisbane Ranges National Park boundaries, the private land tenure and largely inaccessible nature of the landscape would afford the species protection from potential indirect impacts such as habitat disturbance. Other potential impacts from development such as weed invasion are unlikely to exacerbate existing threats to the species given the agricultural landscape context within which the Brisbane Ranges are located, and the distance of the nearest records to proposed development.
Pterostylis cucullata	Leafy Greenhood	Vulnerable	No	*Pterostylis cucullata* (Leafy Greenhood) is a herbaceous perennial orchid which is endemic to south-eastern Australia, occurring in SA, Victoria, and Tasmania. The species (including both subspecies) is known from around 110 populations comprising an estimated 50,000 plants. Approximately 92 of the known populations occur in Victoria (Duncan, 2010b). There are two subspecies, *Pterostylis cucullata* subsp. *sylvicola*, and *Pterostylis cucullata* subsp. *cucullata.* The two subspecies occupy different habitats and have different ranges (Duncan, 2010b). Subsp. *cucullata* occurs in coastal scrub on stabilised sand dunes, with an open understorey and herbaceous groundcover on sandy loam soils. In Victoria, this subspecies occurs between Nelson and Bairnsdale (Duncan, 2010b). The proposed development occurs within the broad distributional range of subsp. *cucullata*. In Victoria, subsp. *sylvicola* occurs in the eastern highlands, on montane riverbanks or alluvial terraces under various Eucalypt species, with scattered shrubs and herbaceous and grassy groundcover (Duncan, 2010b). The proposed development is outside the known distribution of subsp. *sylvicola.* Threats to the species include habitat loss and disturbance, weed invasion, grazing by introduced herbivores, grazing and trampling by stock, and frequent fires (Duncan, 2010b). The Strategic Assessment Area does not support coastal habitat suitable for subsp. *cucullata* and is outside of the range of subsp. *sylvicola.* It is considered unlikely that the species would be present within the Strategic Assessment Area. Direct impacts are therefore considered unlikely.

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				There are no existing records within the broader Study Area. Suitable potential habitat for the species is limited due to the inland location of the project and distance from suitable coastal environments. Potential indirect impacts to the species are considered unlikely.
Rutidosis leptorhynchoides	Button Wrinklewort	Endangered	No	*Rutidosis leptorhynchoides* (Button Wrinklewort) is a perennial forb producing flowering stems during spring and summer. Within Victoria, the species grows in open strands of plains grassland and grassy woodlands. Button Wrinklewort is distributed in southeast Australia with disjunct populations in the ACT/NSW and Victoria. Within Victoria, the species is now restricted to a small refuge on the outskirts of Melbourne, Bannockburn, Rokewood, Wickliffe and between Beaufort and Ararat (OEH, 2012). As of 2012, there were 29 known natural populations, 11 of which occurred in Victoria. The total natural population at this time was estimated at 213,270 plants. In addition to the natural occurrences of the species, in 2012, there were five planted populations of the species in Victoria which contained approximately 1,300 plants (OEH, 2012). Targeted surveys for the Button Wrinklewort were conducted within the two Growth Areas. No individuals of the species were identified during these surveys. Further, assessment of habitat condition within the surveyed areas of the Growth Areas indicated that any potential habitat for the species would be marginal due to the presence of identified threats to the species in these areas (including physical disturbance, weeds, heavy grazing and unsuitable fire regimes) (EHP, 2021). It is noted that, in Victoria, the Button Wrinklewort occurs in sites which have been subject to little or no disturbance (OEH, 2012; SWIFFT, 2022a). Overall, it was considered highly unlikely that the species would be present within the surveyed areas of the Growth Areas (EHP, 2021). The unsurveyed areas of the Growth Areas are assumed to support habitat for the same threatened species which were recorded within the Growth Areas (see Section 13.3.2 of Part 3 for details). Given that these areas are more modified or degraded than the surveyed areas of the Growth Areas, and the species was not recorded during targeted surveys, potential direct impacts to Button Wrinklewort within the unsurveyed areas are unlikely. The broader Strategic Assessment Area has not been surveyed and will be subject to development within the external infrastructure footprints. The Plan includes a Measure to undertake targeted surveys within the external infrastructure footprints for all protected matters with the potential to occur. Any potential direct impacts to the species within these areas will be addressed following field surveys. There are a total of 313 records of the species within Victoria on the VBA. Of these, 81 records of the species occur within the Study Area. While the closest record occurs approximately 4.6 km away from the Growth Areas, this record was made in 1923 in an area which has since been developed. The nearest records with a better likelihood of persisting today are occur 9 km away from the Growth Areas and separated by significant areas of urban and infrastructure development.

Scientific name	Common name	Listing status	Requires further assessment	Justification
				Potential indirect impacts from development, such as those associated with weed invasion and habitat disturbance, are unlikely to exacerbate existing threats to the species given the urban and agricultural landscape context and the distance of the potentially extant records to proposed development.
Senecio macrocarpus	Large-fruit Fireweed	Vulnerable	No	*Senecio macrocarpus* (Large-fruit Fireweed) is a perennial daisy with yellow florets growing up to 70 cm in height. The species occurs in a variety of habitats including sedgelands, grasslands, shrublands and woodlands. The Large-fruit Fireweed is endemic to southeast Australia, occurring in Victoria, South Australia and formerly in Tasmania. In Victoria, the species is recorded widely, with records in the Murray Darling Depression, Victorian Volcanic Plain, Victorian Midlands and South Eastern Highlands bioregions (Sinclair, 2010). As of 2010, there were thought to be 14 populations containing an estimated 36,000 plants. Almost all of these plants (35,000) occurred in a single population in South Australia. 10 populations occurred in Victoria containing less than 1,000 plants (Sinclair, 2010). The main threats to the species include ongoing disturbance to and/or destruction of habitat, competition, weed invasion, and potentially climate change (Sinclair, 2010). Targeted surveys for the Large-fruit Fireweed were conducted within the two Growth Areas. No individuals of the species were identified during these surveys. Further, assessment of habitat condition within the surveyed areas of the Growth Areas indicated that any potential habitat for the species would be marginal due to low densities or absence of co-occurring species (such as Kangaroo Grass) and existing threats (including current or historical clearing and weed invasion). Subsequently, it was considered highly unlikely that the species would occur within the assessed areas of the Growth Areas (EHP, 2021). The unsurveyed areas of the Growth Areas are assumed to support habitat for threatened species which were recorded within the Growth Areas (see Section 13.3.2 of Part 3 for details). Given that these areas are more modified or degraded than the surveyed areas of the Growth Areas, and the species was not recorded during targeted surveys, potential direct impacts to Large Fruit Fireweed are unlikely. The broader Strategic Assessment Area has not been surveyed and will be subject to development within the external infrastructure footprints. The Plan includes a Measure to undertake targeted surveys within the external infrastructure footprints for all protected matters with the potential to occur. Any potential direct impacts to the species within these areas will be addressed following field surveys. There are 115 records of the species within the Study Area. All of these records are separated from the Growth Areas by significant urban and infrastructure development and are generally more than 8 km away. Potential indirect impacts from development, such as those associated with weed invasion and habitat disturbance, are unlikely to exacerbate existing threats to the species given the urban and agricultural landscape context and the distance of the records to proposed development.

Scientific name	Common name	Listing status	Requires further assessment	Justification
Senecio psilocarpus	Swamp Fireweed	Vulnerable	No	*Senecio psilocarpus* (Swamp Fireweed) is a native perennial herb, flowering between November and March. The species occurs on high-quality herb-rich wetlands on plains. Wetland sites are typically inundated during winter and then become almost dry during summer (DEWHA, 2008c). Swamp Fireweed has a scattered distributed across western Victoria and southeast South Australia, where it is known from approximately 10 sites. Within Victoria, most populations occur in areas of less than 0.4 ha. Threats to the species are not well understood, but include grazing pressure by introduced herbivores and stock, weed invasion, trampling and changes to hydrology (DEWHA, 2008c). The species has not been recorded within the Growth Areas, and the Growth Areas are unlikely to provide suitable wetland habitat for the species. Modelling of wetland occurrence by DELWP (DELWP, 2022b) has identified two wetland areas in the NGGA. The first of these corresponds to a wastewater treatment plant adjacent to Anakie Road. The second of these appears to be related to two small farm dams (from aerial observations) located in the NGGA Conservation Area. This area was mapped as Plains Grassland (EVC 132) by (EHP, 2021). Overall, direct impacts are considered unlikely. There are no existing records within the broader Study Area. Suitable potential habitat is limited within a largely agricultural landscape. Potential indirect impacts to the species are also considered unlikely.
Xerochrysum palustre	Swamp Paper Daisy	Vulnerable	No	*Xerochrysum palustre* (Swamp Everlasting) is a perennial herb growing 30-100 cm tall with large yellow flowers. The species grows in wetlands including sedge-swamps and shallow freshwater marshes. It also grows in seasonally wet areas of native grassland and heath communities (DAWE, 2021d). Swamp Everlasting is endemic to southeast Australia and is widely distributed from south-east NSW, Victoria and north east Tasmania. In Victoria, the species has a wide though patchy distribution from Bairnsdale to the Cobberas and Nunniong Plateau. The species is likely to have been historically abundant in ephemeral wetlands prior to their conversion for agriculture, particularly across southern Victoria (DAWE, 2021d). Population estimates are approximate as the rhizomatous habitat makes estimating difficult. There are thought to be over 12,000 plants in Victoria, over 15,000 in NSW, and fewer than 5,000 in Tasmania (DAWE, 2021d). Threats to the species include climate change, habitat loss, disturbance and modifications including changed hydrology, impacts from invasive species including browsing by introduced herbivores and competition with weeds, grazing from overabundant native fauna and genetic threats due to small and fragmented populations (DAWE, 2021d). The species has not been recorded within the Growth Areas, and the Growth Areas are unlikely to provide suitable wetland habitat for the species. Modelling of wetland occurrence by DELWP (DELWP, 2022b) has identified two wetland areas in the NGGA. The first of these corresponds to a wastewater treatment plant adjacent to Anakie Road. The second of these appears to be related to two small farm dams (from aerial

Scientific name	Common name	Listing status	Requires further assessment	Justification
				observations) located in the NGGA Conservation Area. This area was mapped as Plains Grassland (EVC 132) by (EHP, 2021). Overall, direct impacts are considered unlikely. There is one record of the species within the Study Area (dated 1995), occurring approximately 14 km south-east of the Growth Areas. This record is separated from the Growth Areas by significant areas of urban and infrastructure development. Potential indirect impacts from development, such as those associated with weed invasion, habitat disturbance, or change to hydrology, are unlikely to exacerbate existing threats to the species given the urban and agricultural landscape context, the age of the record and the distance of the record to proposed development.
Mammals				
Antechinus minimus maritimus	Swamp Antechinus	Vulnerable	No	*Antechinus minimus maritimus* (Swamp Antechinus) is a small, insectivorous marsupial with a highly fragmented distribution in coastal areas of Victoria and far south-eastern South Australia (TSSC, 2016a). It is noted that the Strategic Assessment Area is outside of the known distribution of this species in Victoria (SWIFFT, 2022e). Habitat for the species consists of dense wet heathlands, tussock grasslands, sedgelands, damp gullies, swamps, and some shrubby woodlands. The species requires mature dense vegetation with thick groundcover, and population sizes are highly susceptible to variations in rainfall (TSSC, 2016a). The species is highly susceptible to habitat loss and fragmentation with much of its habitat either cleared or drained with severe consequences. Small remnant habitat sizes place the species at risk of local extinction (TSSC, 2016a). The species has not been recorded within the Strategic Assessment Area. Further, the Strategic Assessment Area does not support suitable habitat for this species. Direct impacts are therefore considered unlikely. There are also no existing records within the broader Study Area. Suitable potential habitat is limited within a largely agricultural landscape. Potential indirect impacts to the species are therefore considered unlikely.
Balaenoptera musculus	Blue Whale	Endangered, migratory	No	*Balaenoptera musculus* (Blue Whale) occurs in all waters surrounding Australia and migrates between low-latitude breeding grounds where both mating and calving take place during the winter and high-latitude feeding grounds during the summer. The population globally and nationally is unknown. Threats to the species include whaling, climate change, noise interference, habitat modification, vessel disturbance, and overharvesting of prey (DoE, 2015b). The species has not been recorded within the marine environment of the Study Area and will not be affected by development under the Plan.

Scientific name	Common name	Listing status	Requires further assessment	Justification
Eubalaena australis	Southern Right Whale	Endangered, Cetacean, migratory	No	*Eubalaena australis* (Southern Right Whale) only occurs in the Southern Hemisphere. In Australian coastal waters, the species is found along the southern coastline from Perth to Sydney, and Tasmania. Calving takes places very close to the Australian coast, generally in waters less than 10 metres deep. Female-calf pairs generally stay within the calving ground for 2-3 months. Females demonstrate calving site fidelity. Estimates suggest that the global population exceeds 12,000 whales, and approximately 3,500 occur in Australia. Threats to the species include entanglement, vessel disturbance, whaling, climate change, noise interference, habitat modification, and overharvesting prey (DSEWPaC, 2012b). There are two records of the species within the marine environment of the Study Area, approximately 17.7 km away from the Growth Areas at Kirk Point. The species is a marine species with a global distribution and will not be affected by proposed development under the Plan.
Isoodon obesulus obesulus	Southern Brown Bandicoot	Endangered	No	*Isoodon obesulus obesulus* (Southern Brown Bandicoot) is a medium size marsupial which inhabits dense vegetation, wetland fringes and heathland. They are secretive and do not venture far from cover. The species forages in leaf litter for insects, fungi, plant root nodules and bulbs. The species home ranges are usually between 0.5 - 5 ha. The species occurs across NSW, Victoria and SA. Within Victoria, records are clustered in the East Gippsland Lowlands, Gippsland Plain, Otway Plain, Warrnambool Plain, Greater Grampians, Glenelg Plains and Wilsons Promontory bioregions. Populations in Victoria are experiencing decline, including south-east Melbourne, west Gippsland, Mornington Peninsula and Western Port. All populations appear to be at low or very low densities (TSSC, 2016m). In Victoria there is an estimated 14,700 - 264,000 individuals in east Gippsland, "very low hundreds" in Western Port and "very low thousands" in between Wilsons Promontory and Melbourne (TSSC, 2016m). The species is highly susceptible to habitat loss and fragmentation with evidence of population loss in cleared areas. The species is also threatened by predation by foxes and cats, frequent and extensive burning, and habitat degradation (TSSC, 2016m). The species has not been recorded within the Strategic Assessment Area. Further, suitable habitat for the species is not present within the Strategic Assessment Area. Direct impacts are therefore considered unlikely. There are four records of the species within the Study Area. The closest record occurs 8.6 km to the south of the Growth Areas along the Barwon River riparian corridor. However, the record was made in 1964 and the environment is now highly urbanised. The remaining two records occur further south (between 15 km and 18 km) within an agricultural setting and both observations are also now dated (made in 1971 and 1981). It is unlikely that indirect impacts will affect the species given the lack of recent records within the Study Area and the generally unsuitable nature of the environment.
Mirounga leonina	Southern Elephant Seal	Vulnerable	No	*Mirounga leonina* (Southern Elephant Seal) has a nearly circumpolar Southern Hemisphere distribution, with most breeding colonies occurring on sub-Antarctic islands. In Australia, the species mainly breeds on Macquarie Island and Heard Island. Some individuals disperse north to the mainland Australian coast, and

Scientific name	Common name	Listing status	Requires further assessment	Justification
				some disperse south to Antarctica. The species spends most of its life at sea and can disperse thousands of kilometres from breeding colony sites. Global population is estimated at 650,000 in the mid-1990's, and currently classified as Least Concern by IUCN. Threats include climate change, fisheries bycatch and entanglement, prey depletion due to overfishing, and marine pollution (TSSC, 2016i). There are ten records of the species within the marine environment of the Study Area. The species is a marine species with a global distribution and will not be affected by development under the Plan.
Perameles gunnii	Eastern Barred Bandicoot (Mainland)	Endangered	No	*Perameles gunnii* (Eastern Barred Bandicoot (Mainland)) is a ground-dwelling marsupial that inhabits native perennial tussock grasslands and grassy woodlands with dense cover for nesting, adjacent to open areas for feeding. The species is endemic to south-eastern Australia. All wild subpopulations have been presumed to be extinct since 2002. However, reintroductions have been attempted at eight sites within its former range and three sites outside of the historical range. These subpopulations are all enclosed by predator-barrier fences. Threats to the species include invasive species, small population size, habitat loss, disturbance or modification, climate change, and disease (DAWE, 2021b). The species has not been recorded within the Strategic Assessment Area. Further, suitable habitat for the species is not present within the Strategic Assessment Area. Direct impacts are therefore considered unlikely. There are 36 historical records of the species within the Study Area (the most recent occurring in 1980). It is unlikely that any of these records are extant. One reintroduction site occurs within the Study Area, at Mount Rothwell Biodiversity Interpretation Centre adjacent to You Yangs Regional Park approximately 14 km from the Growth Areas. This population will not be affected indirectly as a result of development under the Plan, given the population is highly managed and located some distance from the Growth Areas.
Petaurus australis australis	Yellow-bellied glider	Vulnerable	No	*Petaurus australis australis* (Yellow-bellied glider) is a medium sized marsupial which has a widespread though patchy distribution from south-eastern Queensland through NSW and VIC to near the SA-VIC border. In Victoria, 75 per cent of the species records are in the eastern portion of the state from the east coast, to Melbourne and Port Phillip bay. The Yellow-bellied glider occurs in eucalypt dominated woodlands and forests, including both dry and wet sclerophyll forests. Habitat suitability is determined by forest age and floristics- the species demonstrates a preference for large patches of mature old growth forest which provide trees for foraging and shelter. There is no reliable estimate of the population size of the species, it is considered likely that there are less than 100,000 mature individuals. Threats to the species include habitat loss, disturbance and modification, climate change, predation and habitat degradation by introduced species, and fencing of agricultural land (DAWE, 2022b). The species has not been recorded within the Strategic Assessment Area. Further, suitable habitat for the species is not present within the Strategic Assessment Area. Direct impacts are therefore considered unlikely.

Scientific name	Common name	Listing status	Requires further assessment	Justification
				There are also no existing records within the broader Study Area. Suitable potential habitat is limited within a largely agricultural landscape. Potential indirect impacts to the species are therefore considered unlikely.
Pteropus poliocephalus	Grey-headed Flying-fox	Vulnerable	No	*Pteropus poliocephalus* (Grey-headed Flying-fox) is a bat endemic to Australia, with a distribution ranging from central QLD to SA extending from the coast inland to the western slopes of NSW. The species is highly mobile and adaptable to changes in habitat. It is found in a wide range of vegetation communities, including rainforests, open forests, closed and open woodlands, Melaleuca swamps, and Banksia woodlands. Roost sites are typically located near water sources, such as lakes, rivers, or the coast. The species is considered to be a single mobile population, estimated between 320,000 and 435,000 individuals. Threats to the species include habitat loss, camp disturbance, mortality in commercial fruit crops, heat stress, entanglement in netting and barb wire fencing, climate change, bushfires, electrocution on power lines, and public misunderstanding of disease (DAWE, 2021f). The species has not been recorded within the Strategic Assessment Area. Further, suitable habitat for the species is not present within the Strategic Assessment Area. Direct impacts are therefore considered unlikely. There are 29 records of the species within the Study Area, the closest of which occurs 5.4 km from the Growth Areas. The Geelong, Eastern Park nationally important Grey-headed Flying-Fox camp occurs within the Study Area, approximately 7.7 km from the Growth Areas. Development within the Growth Areas is unlikely to impact the species indirectly or exacerbate any existing threats to the species within the region.
Birds				
Anthochaera phrygia	Regent Honeyeater	Critically Endangered	No	*Anthochaera phrygia* (Regent Honeyeater) is a bird which generally inhabits box-ironbark eucalypt woodland and dry sclerophyll forest as well as riparian vegetation. Its diet consists of nectar, invertebrates and their exudates, and occasionally fruit. Breeding territories include the nest-tree and surrounding feeding areas with nesting occurring in the canopy of mature trees with rough bark. It is endemic to mainland south-eastern Australia with a distribution that extends from south-east QLD to central VIC. The species primarily occurs along the inland slopes of the Great Dividing Range, in areas of low to moderate relief with moist, fertile soils. There are four known key breeding areas: three in NSW and one in VIC. The species comprises a single population, estimated at 1500 individuals in 2010. Threats include small population size, habitat loss and fragmentation, habitat degradation, and competition with other nectivorous birds and honeybees (DoE, 2016). The species has not been recorded within the Strategic Assessment Area. Further, suitable habitat for the species is not present within the Strategic Assessment Area. Direct impacts are therefore considered unlikely. There are five historical records of the species (dated 1895 – 1993) within the Study Area. Potential indirect impacts from development, such as those associated with weeds, are unlikely to affect the species – especially given the lack of recent records and limited suitable habitat for the species.

Scientific name	Common name	Listing status	Requires further assessment	Justification
Botaurus poiciloptilus	Australasian Bittern	Endangered	Yes	*Botaurus poiciloptilus* (Australasian Bittern) is a bird which occurs mainly in freshwater wetlands, and more rarely in estuaries or tidal environments. Wetlands with tall, dense vegetation are favoured. Foraging occurs in still, shallow water, or from vegetation platforms over deeper water (TSSC, 2011a). Nesting occurs in deep, densely vegetated freshwater swamps and pools (TSSC, 2019a). The Australasian Bittern occurs in New Zealand, New Caledonia, and Australia. In Australia the species occurs in south-eastern Australia, including southern Queensland, NSW, Victoria, SA, and Tasmania. It also occurs in the south-west of WA. In Victoria, the species is recorded mostly in the southern coastal areas and in the Murray River region of central northern Victoria (TSSC, 2019a). The Australasian Bittern occurs as two sub-populations: one in south-eastern Australia and the other in south-western Australia (TSSC, 2019a). In 2011, the total Australian population was estimated at 1,000 mature individuals (Garnett, Szabo and Dutson, 2011) Threats to the species include habitat loss, habitat degradation, climate change, inappropriate placement of infrastructure (such as fence lines and powerlines), water quality impacts, disturbance, and introduced animals (TSSC, 2019a). There are no records or potential habitat for the species within the Growth Areas and the likelihood of the species relying on the Strategic Assessment Area for any key stages of its life cycle is considered to be very low. Direct impacts are considered to be unlikely. There are 179 records of the species, with numerous records occurring downstream in the Lake Connewarre Complex. The Australasian Bittern is identified as part of the Ramsar listing criteria for this site (DELWP, 2020). Multiple records also occur along the coastline near Port Wilson. Potential indirect impacts to the species as a result of development may be possible, predominantly related to potential downstream impacts from changes to hydrology. Further detailed assessment is required to understand potential impacts. Refer to Section 19.4 of Part 4 for the detailed impact assessment of the Australasian Bittern.
Calidris canutus	Red Knot	Endangered, marine, migratory	Yes	*Calidris canutus* (Red Knot) is a migratory shorebird which breeds in the Arctic and migrates to Australia during the non-breeding period. The species occurs around the entire coastline of Australia. However, it is less numerous in south-western Australia and very large numbers occur in north-west Australia (TSSC, 2016b). The species mainly inhabits coastal environments and saline wetlands near the coast where it is common in all the main suitable habitats. The Red Knot is rarely observed in or around freshwater swamps or inland aquatic habitats. Foraging generally occurs in soft substrate near the water edge on intertidal mudflats or sand flats exposed by low tide or nearby lakes, sewerage ponds, and flood waters during high tide. It roosts in open areas close to foraging areas (TSSC, 2016b).

Scientific name	Common name	Listing status	Requires further assessment	Justification
				The global population of the Red Knot was estimated at 1,090,000 in 2008. It is estimated that 68,000 individuals occur in Australia. There are six recognised subspecies of the Red Knot, of which three have been recorded in Australia (one occurring almost exclusively in the north-west, one occurring mostly in the east, and one as a vagrant) (TSSC, 2016b). There are no records or potential habitat for the species within the Growth Areas and the likelihood of the species relying on the Strategic Assessment Area for any key stages of its life cycle is considered to be very low. Direct impacts are considered to be unlikely. There are 552 records of the species within the Study Area, scattered along the coastline of Port Phillip and downstream associated with the Lake Connewarre Complex (part of the Port Philip Bay (Western Shoreline) and Bellarine Peninsula Ramsar site). The Red Knot is identified as part of the Ramsar listing criteria for this site (DELWP, 2020). Potential indirect impacts to the species as a result of development may be possible, predominantly related to potential downstream impacts from changes to hydrology. Further detailed assessment is required to understand potential impacts. Refer to Section 19.4 of Part 4 for the detailed impact assessment of the Red Knot.
Calidris ferruginea	Curlew Sandpiper	Critically Endangered, marine, migratory	Yes	*Calidris ferruginea* (Curlew Sandpiper) is a migratory shorebird. The species visits Australia during the non-breeding season, where it primarily occurs along the coastline and occasionally inland. The species has been recorded in all states (TSSC, 2015a). The Curlew Sandpiper uses a range of freshwater and brackish coastal, estuarine, and inland waterbodies. It forages on mudflats and nearby shallow water. Roosting generally occurs in open environments with damp substrate The species' diet primarily consists of invertebrates, but it will also eat seeds (TSSC, 2015a). Threats to the species include ongoing human disturbance, habitat loss and degradation, changes to water regimes, and invasive plants (TSSC, 2015a). There are no records or potential habitat for the species within the Growth Areas and the likelihood of the species relying on the Strategic Assessment Area for any key stages of its life cycle is considered to be very low. Direct impacts are considered to be unlikely. There are 2,941 records of the species within the Study Area. Records occur along the coastline of Port Phillip and downstream associated with the Lake Connewarre. The Curlew Sandpiper is identified as part of the Ramsar listing criteria for the Port Philip Bay (Western Shoreline) and Bellarine Peninsula Ramsar site. The site is also known to regularly support over 1 per cent of the total population of the Curlew Sandpiper (DELWP, 2020).

Scientific name	Common name	Listing status	Requires further assessment	Justification
				Potential indirect impacts to the species as a result of development may be possible, predominantly related to potential downstream impacts from changes to hydrology. Further detailed assessment is required to understand potential impacts. Refer to Section 19.4 of Part 4 for the detailed impact assessment of the Curlew Sandpiper.
Calidris tenuirostris	Great Knot	Critically Endangered, marine, migratory	Yes	*Calidris tenuirostris* (Great Knot) is a migratory shorebird that breeds in the Northern Hemisphere and migrates south during the non-breeding period with most of the population in Australia (TSSC, 2016c). It occurs along the entirety of the Australian coast with a few records scattered inland. The greatest numbers have been recorded in northern WA, and the NT. The species is much less common in south-west Australia, SA, Victoria and Tasmania (TSSC, 2016c). Within Australia, the species prefers sheltered coastal habitats with large intertidal mudflats or sandflats, including inlets, bays, harbours, estuaries and lagoons. It is occasionally found in other coastal environments. Roosting occurs in open areas, often at the water's edge or on shallow water close to foraging areas (TSSC, 2016c). The number of individuals using the East Asian-Australasian Flyway is approximately 425,000 (Hansen *et al.*, 2016). Threats to the species include habitat loss and degradation, pollution, disturbance, diseases, direct mortality, and climate change impacts (TSSC, 2016c). There are no records or potential habitat for the species within the Growth Areas and the likelihood of the species relying on the Strategic Assessment Area for any key stages of its life cycle is considered to be very low. Direct impacts are considered to be unlikely. There are 87 records of the species within the Study Area, scattered along the coastline of Port Phillip and downstream associated with the Lake Connewarre Complex (part of the Port Philip Bay (Western Shoreline) and Bellarine Peninsula Ramsar site). The Great Knot is identified as part of the Ramsar listing criteria for this site (DELWP, 2020). Potential indirect impacts to the species as a result of development may be possible, predominantly related to potential downstream impacts from changes to hydrology. Further detailed assessment is required to understand potential impacts. Refer to Section 19.4 of Part 4 for the detailed impact assessment of the Great Knot.
Callocephalon fimbriatum	Gang-Gang Cockatoo	Endangered	No	*Callocephalon fimbriatum* (Gang-Gang Cockatoo) is a small, stocky cockatoo endemic to south-eastern Australia. The species occurs in NSW, ACT, and Victoria. In Victoria, the Gang-gang cockatoo is widespread throughout southern and north-east regions. Records occur in east Melbourne, Mornington Peninsula, and south-western Gippsland. The total population of mature individuals was estimated at 25,200 in 2021 (DAWE, 2022a).

Scientific name	Common name	Listing status	Requires further assessment	Justification
				The species primarily occurs within temperate eucalypt forests and woodlands. In the summer, Gang-Gang Cockatoos inhabit mature, wet sclerophyll forests, along with more open eucalypt assemblages, subalpine snow gum woodland, temperate rainforests, and regenerating forests. In winter, the species inhabits woodlands at drier, lower altitudes- often occurring in more open eucalypt assemblages, along with suburban city areas. Foraging is mainly arboreal, and rarely occurs at shrub or ground level. The species feeds on flower buds, seed pods, and other plant matter from a wide range of native and introduced species (DAWE, 2022a). Threats to the species include inappropriate fire regimes, climate change (including warmer weather and altered rainfall), competition for nest follows with other species, nest predation by the Common Brushtail Possum, Psittacine beak and feather disease, and habitat loss and degradation (DAWE, 2022a). The species has not been recorded within the Growth Areas. Given that the species is strongly associated with woodlands and forests, nesting in tree hollows and foraging mainly arboreally, it is considered unlikely that the species would utilise grassland habitat of the Growth Areas. Direct impacts are therefore considered unlikely. There are 514 records of the species within the Study Area, most of which occur near to the Barwon River in the centre of Geelong in urban areas. Urban-based threats are already present within this environment. It is considered unlikely that development under the Plan would exacerbate existing landscape threats to the species which are present in these environments.
Charadrius leschenaultii	Greater Sand Plover	Vulnerable, marine, migratory	Yes	*Charadrius leschenaultii* (Greater Sand Plover) is a shorebird that breeds in the Northern Hemisphere and migrates south during non-breeding periods. The species is widespread across Australia and is most common in northern Australia (TSSC, 2016d). In Australia, the species is almost entirely coastal. It inhabits sheltered beaches, intertidal mudflats, sandbanks, salt marshes, estuaries, coral reefs, rocky islands or platforms, tidal lagoons and dunes near the coast. Foraging typically occurs in wet sand or mud, and roost on sand-spits or high on banks near beaches (TSSC, 2016d). The most recent estimate of the East Asian-Australasia Flyway population of the Greater Sand Plover is between 200,000 – 300,000 individuals (Hansen *et al.*, 2016). Only the subspecies *C. l. leschenaultii* occurs in Australia. Almost three quarters of this subspecies migrates to Australia when not breeding (TSSC, 2016d). Threats to the species within Australia include human disturbance, pollution and changes to the water regime, and invasive plants (TSSC, 2016d). There are no records or potential habitat for the species within the Growth Areas and the likelihood of the species relying on the Strategic Assessment Area for any key stages of its life cycle is considered to be very low. Direct impacts are considered to be unlikely.

Scientific name	Common name	Listing status	Requires further assessment	Justification
				There are 15 records of the species within the Study Area, scattered along the coastline of Port Phillip and downstream associated with the Lake Connewarre Complex (part of the Port Philip Bay (Western Shoreline) and Bellarine Peninsula Ramsar site). The Greater Sand Plover is identified as part of the Ramsar listing criteria for the Ramsar site (DELWP, 2020). Potential indirect impacts to the species as a result of development may be possible, predominantly related to potential downstream impacts from changes to hydrology. Further detailed assessment is required to understand potential impacts. Refer to Section 19.4 of Part 4 for the detailed impact assessment of the Greater Sand Plover.
Charadrius mongolus	Lesser Sand Plover	Endangered, marine, migratory	Yes	*Charadrius mongolus* (Lesser Sand Plover) is a shorebird that breeds in the Northern Hemisphere and migrates south during non-breeding periods. Within Australia, the Lesser Sand Plover has been recorded in all states, although it mostly occurs in northern and eastern Australia (TSSC, 2016e). In Australia, the species is almost strictly coastal and prefers sandy beaches, mudflats of coastal bays and estuaries, sand flats and dunes near the coast, and occasionally mangrove mudflats. Foraging mostly occurs at intertidal sandflats and mudflats in estuaries or beaches or in shallow ponds. Occasional foraging may occur in other coastal and aquatic habitats. Roosting occurs on beaches, banks, spits and banks of sand or shells (TSSC, 2016e). The most recent population estimate of the species present in the East Asian-Australasian Flyway is 180,000 – 275,000 (Hansen *et al.*, 2016). Four of the five subspecies occur in the East Asian-Australasian Flyway, of these, two occur in Australia during the non-breeding season including *Charadrius mongolus* subsp. *mongolus*, and *Charadrius mongolus* subsp. *stegmanni* (TSSC, 2016e). Threats to the species in Australia include human disturbance, pollution and changes to the water regime, and invasive plants (TSSC, 2016e). There are no records or potential habitat for the species within the Growth Areas and the likelihood of the species relying on the Strategic Assessment Area for any key stages of its life cycle is considered to be very low. Direct impacts are considered to be unlikely. There are 58 records of the species within the Study Area, associated with Port Phillip (including the coastline of the bay in addition to the body of the bay itself). The Lesser Sand Plover is identified as part of the Ramsar listing criteria for the Port Phillip Bay (Western Shoreline) & Bellarine Peninsula Ramsar Site (DELWP, 2020). Potential indirect impacts to the species as a result of development may be possible, predominantly related to potential downstream impacts from changes to hydrology. Further detailed assessment is required to understand potential impacts. Refer to Section 19.4 of Part 4 for the detailed impact assessment of the Lesser Sand Plover.

Scientific name	Common name	Listing status	Requires further assessment	Justification
Diomedea antipodensis	Antipodean Albatross	Vulnerable, marine, migratory	No	*Diomedea antipodensis* (Antipodean Albatross) is considered a foraging species in that the bird forages, but does not breed, within areas under Australian jurisdiction. The species is endemic to New Zealand but forages widely off the coast of NSW. The albatross is marine, pelagic, and aerial. During non-breeding periods, the species rests and sleeps on the ocean. Its diet primarily consists of cephalopods, fish, and crustaceans. The population is estimated at 25,260. Main threats to the species include incidental catch (due to longline fishing, trawl fishing, and trolling operations and intentional shooting (DCCEEW, 2022). The species has not been recorded within the Study Area and will not be affected by development under the Plan.
Diomedea epomophora	Southern Royal Albatross	Vulnerable, marine, migratory	No	*Diomedea epomophora* (Southern Royal Albatross) is endemic to New Zealand with 99 per cent breeding on Campbell Island and the remaining 1 per cent in the Auckland Islands. In Australia, the albatross is distributed along the southern coastline (DCCEEW, 2022). The species does not breed in Australia. Its diet primarily consists of cephalopods, fish, and tunicates (ACAP, 2004). The Campbell population is estimated at 7,800 breeding pairs between 2004- 2008. Threats to the species may include incidental catch and invasive native species (BirdLife International, 2022b). The species has not been recorded within the Study Area and will not be affected by development under the Plan.
Diomedea exulans	Wandering Albatross	Vulnerable, marine, migratory	No	*Diomedea exulans* (Wandering Albatross) is solitary or gregarious at sea and breeds in colonies. In Australia, the species breeds on Macquarie Island and forages in the Australian portions of the Southern Ocean. The albatross is marine, pelagic, and aerial. Its diet primarily consists of squid and fish followed by crustaceans and carrion (DCCEEW, 2022). There are an estimated 20,100 birds globally. Threats to the species may include incidental catch, predation by invasive species, and shifts in the oceanic habitat (BirdLife International, 2022c). There are 15 historical records of the species within the Study Area (observed 1951 – 1979). The species will not be affected by development under the Plan.
Diomedea sanfordi	Northern Royal Albatross	Endangered, marine, migratory	No	*Diomedea sanfordi* (Northern Royal Albatross) is marine, pelagic, and aerial and inhabits subantarctic, subtropical, and occasionally Antarctic waters. Its diet primarily consists of cephalopods, fish, crustaceans, and salps (i.e., pelagic tunicates). In Australia, the albatross has been sighted in Australian waters off south-eastern Australia. There is a total population of approximately 20,000 individuals. Threats to the species include mortality related to longline fishing and collisions, loss of food stock, ingestion, or marine debris and pollution (DCCEEW, 2022). The species has not been recorded within the Study Area and will not be affected by development under the Plan.

Scientific name	Common name	Listing status	Requires further assessment	Justification
Falco hypoleucos	Grey Falcon	Vulnerable	No	*Falco hypoleucos* (Grey Falcon) is endemic to mainland Australia and occurs in arid and semi-arid Australia. In Victoria, the species appears to be absent from south of the Great Dividing Range. Habitat for the species consists of timbered lowland plains, particularly acacia shrublands that are crossed by tree-lined water courses. While breeding, the species' diet consists almost exclusively of birds, including doves, pigeons, small parrots and cockatoos, and finches. Nesting generally occurs in the tallest trees along watercourses, particularly Red River Gum and Coolibah. The estimated number of mature individuals is less than 1,000. Threats to the species include predation by cats, climate change impacts, demographic and genetic stochastic events, habitat loss and fragmentation, nest shortage, disturbance, direct mortality, and harvesting (TSSC, 2020b). The species has not been recorded within the Strategic Assessment Area. Further, suitable habitat for the species is not present within the Strategic Assessment Area. Direct impacts are therefore considered unlikely. There are also no existing records within the broader Study Area. Potential for occurrence is limited. Indirect impacts to the species are considered unlikely.
Grantiella picta	Painted Honeyeater	Vulnerable	No	*Grantiella picta* (Painted Honeyeater) is sparsely distributed from south-eastern Australia to north-western Queensland and eastern Northern Territory. Breeding occurs on the inland slopes of the Great Dividing Range between the Grampians, VIC and Roma, QLD. The species has a specialised diet consisting of primarily mistletoe fruits as well as nectar and arthropods. The honeyeater exhibits a preference for woodlands with a high composition of mature trees since these host more mistletoes. Nesting also occurs primarily in areas with a high concentration of mistletoes. The population was estimated at <10,000 individuals in 2011. Threats to the species include habitat loss, competition with the aggressive noisy miner, predation by invasive species, deliberate destruction of mistletoe, exacerbation of tree decline, collision with road vehicles, and nest predation (DoE, 2015d). The species has not been recorded within the Strategic Assessment Area. Further, suitable habitat for the species is not present within the Strategic Assessment Area. Direct impacts are therefore considered unlikely. There are 36 records of the species within the Study Area, associated with the limited areas of remnant woodland. The closest record occurs 8 km from the Growth Areas. The potential indirect impacts of development are unlikely to affect the species or exacerbate threats given the sparsity of suitable habitat within the landscape and the distance of the nearest records to proposed development.
Halobaena caerulea	Blue Petrel	Vulnerable	No	*Halobaena caerulea* (Blue Petrel) breeds on numerous subantarctic islands. In Australia, breeding is restricted to offshore stacks near Macquarie Island. The main factor that is the cause of the species' Vulnerable listing is its small EOO due to its limited breeding habitat. The species forages in Antarctica and subantarctic waters for pelagic crustaceans, fish, cephalopods and insects. The population at Macquarie Island (Australian population)

Scientific name	Common name	Listing status	Requires further assessment	Justification
				estimated to be 500-600 pairs in 1979. In 2011, the global population was estimated to be 80,000 individuals. Threats to the species include nest destruction by invasive species (TSSC, 2015b). There is one historical record of the species within the Study Area (dated 1980), occurring approximately 18 km from the Growth Areas. The species will not be affected by development under the Plan.
Hirundapus caudacutus	White-throated Needletail	Vulnerable, marine, migratory	No	*Hirundapus caudacutus* (White-throated Needletail) is a large swift with a breeding distribution in Asia and a non-breeding distribution in Australasia, primarily in Australia (DAWE, 2021b). In Australia, the species is widespread in eastern and south-eastern Australia. The swift is mostly aerial, generally recorded above wooded areas. Roosting occurs in trees among dense foliage in the canopy or in hollows. Its diet consists of a wide variety of insects, including beetles, cicadas, flying ants, bees, wasps, flies, termites, moths, locusts, and grasshoppers. The global and national population has not been estimated. Threats to the species include collision with wind turbines, overhead wires, windows, and lighthouses. Habitat loss, particularly in roosting or foraging areas, may lead to population decline (TSSC, 2019b). This species is primarily an aerial species and is unlikely to utilise habitat within the Strategic Assessment Area. Direct impacts are therefore considered unlikely. There are 107 records of the species scattered across the Study Area. The Growth Areas and surrounds are likely to represent more marginal foraging habitat for the species. Development under the Plan is unlikely to affect the species or contribute to any recognised threats.
Lathamus discolor	Swift Parrot	Critically Endangered, marine	No	*Lathamus discolor* (Swift Parrot) is endemic to south-eastern Australia. The species breeds in Tasmania during the summer and migrates to mainland Australia during the winter. During the non-breeding season, foraging occurs in inland box-ironbark and grassy woodlands, and coastal swamp mahogany and spotted gum woodland or, alternatively, in coastal forest from eastern Victoria to the central coast of NSW. In Victoria, the species is primarily found in the dry forest and woodlands of the box-ironbark region on the inland slopes of the Great Dividing Range. The total population is less than 2,000 individuals. Threats to the species include land clearing. In urban areas, the bird is susceptible to mortality due to collision with wire netting, mesh fences, windows, and cars (TSSC, 2016n). The species has not been recorded within the Strategic Assessment Area. Further, suitable habitat for the species is not present within the Strategic Assessment Area. Direct impacts are therefore considered unlikely. There are 215 records of the species scattered across the Study Area, with a number concentrated on the limited areas of remnant woodland located some distance from the Growth Areas. The Growth Areas and surrounds provide very limited foraging habitat. Development under the Plan is unlikely to affect the species or contribute to any recognised threats.

Scientific name	Common name	Listing status	Requires further assessment	Justification
Limosa lapponica baueri	Western Alaskan Bar-tailed Godwit	Vulnerable	Yes	*Limosa lapponica baueri* (Western Alaskan Bar-tailed Godwit) breeds in the Northern Hemisphere then migrates south. In Australia, it mainly occurs along the north and east coasts (TSSC, 2016o). In Australia, the subspecies typically forages in coastal habitats such as large intertidal sand flats, banks, mudflats, estuaries, inlets, harbours, coastal lagoons, and bays. Roosting generally occurs on sandy beaches, sandbars, spits and also in near-coastal saltmarsh. The species is thought to have high site fidelity outside of the breeding season (TSSC, 2016o). The global population of *Limosa lapponica* (at a species level) has been estimated to be between 1,100,000 – 1,200,000 individuals, of which it is estimated that 325,000 occur within the East Asian-Australasian Flyway. Based on the hypothesised distribution of different subspecies of *Limosa lapponica*, it is thought that the East Asian-Australasian Flyway population of *L. lapponica baueri* is 155,000 individuals (of which 61,000 individuals are thought to occur in Australia, while the remaining 94,000 individuals occur in New Zealand) (TSSC, 2016o). In Australia, the species is threatened by ongoing human disturbance, habitat loss and degradation from pollution, changes to the water regime, and invasive plants (TSSC, 2016o). There are no records or potential habitat for the species within the Growth Areas and the likelihood of the species relying on the Strategic Assessment Area for any key stages of its life cycle is considered to be very low. Direct impacts are considered to be unlikely. There are 151 records of the species within the Study Area. Records are located along the shoreline of Port Phillip and in associated with the Lake Connewarre Complex. The Western Alaskan Bar-tailed Godwit is identified as part of the Ramsar listing criteria for the Port Phillip Bay (Western Shoreline) & Bellarine Peninsula Ramsar Site (DELWP, 2020). Potential indirect impacts to the species as a result of development may be possible, predominantly related to potential downstream impacts from changes to hydrology. Further detailed assessment is required to understand potential impacts. Refer to Section 19.4 of Part 4 for the detailed impact assessment of the Western Alaskan Bar-tailed Godwit.
Macronectes giganteus	Southern Giant-Petrel	Endangered, marine, migratory	No	*Macronectes giganteus* (Southern Giant-Petrel) is a marine bird with a widespread distribution throughout the Southern Ocean. The species is often found in both pelagic and inshore waters. Breeding occurs on the Antarctic Continent, Antarctic Peninsula and islands, on subantartic islands and in South America. Nesting occurs in exposed areas of open vegetation. The bird is both an opportunist scavenger and predator. Its diet consists of live birds, penguin carcasses, seal and whale carrion, cephalopods, euphausiids, and other crustaceans. The global population is estimated at 62,000 individuals, with a trend of rapid decline. In Australian jurisdictions, the population was estimated at 7090 breeding pairs as of 2001 (note breeding occurs

Scientific name	Common name	Listing status	Requires further assessment	Justification
				on islands under Australian jurisdiction). Threats to the species include mortality due to longline fishing and trawling, and disturbance of breeding sites (DCCEEW, 2022). There are 27 historical records of the species within the near coastal areas of the Study Area (observed between 1958 – 1988). The species will not be affected by development under the Plan.
Macronectes halli	Northern Giant Petrel	Vulnerable, marine, migratory	No	*Macronectes halli* (Northern Giant-Petrel) is a marine bird distributed across the Antarctic Polar Front. In Australia, the species is commonly found in offshore and inshore waters from Fremantle, WA to Sydney, NSW. The bird primarily occurs in sub-Antarctic and Antarctic waters. Breeding occurs on sub-Antarctic islands. Its diet consists of seal, whale, penguin carrion, seal placentae, birds, cephalopods, fish, euphausiids, and other crustaceans. The global breeding population is likely 10,700 pairs. In Australian jurisdictions, approximately 1,500 pairs breed at Macquarie Island. Estimates suggest the global population may be increasing, although there is a lack of comprehensive survey data. Threats to the species include mortality related to longline fishing, trawling, and disturbance of breeding sites (DCCEEW, 2022). There are 10 records of the species within the near coastal areas of the Study Area. The species will not be affected by development under the Plan.
Neophema chrysogaster	Orange-bellied Parrot	Critically Endangered, Marine	Yes	*Neophema chrysogaster* (Orange-bellied Parrot) is endemic to south-eastern Australia. The species migrates between distinct breeding and non-breeding ranges. Breeding occurs in south-west Tasmania and overwintering occurs on the south-east coast of mainland Australia. Non-breeding birds are found along the coast of Victoria and South Australia, and occasionally in NSW(although sightings in NSW are now very rare) (DELWP, 2016). During the non-breeding season, the species forages in low shrubs or prostrate vegetation 10 km of the coast. When migrating, the Orange-bellied Parrot is found in locations associated with saltmarshes and adjacent pastures that are close to free-standing water bodes. It is likely that the species requires a range of winter feeding locations in different catchments, at different elevations and with a variety of food plant species to sustain them throughout winter. Roosting occurs in dense shrubs within a few kilometres of foraging sites (DELWP, 2016). Until 1920 the Orange-bellied Parrot was reported as common or locally abundant. The species has experienced a significant reduction in abundance since that time (TSSC, 2006). 70 adult Orange-bellied Parrots were recorded returning to breeding grounds in Melaleuca (in Tasmania) at the beginning of the 2021/22 breeding season. As of May 2022, there are over 500 Orange-bellied Parrots in captivity (Birdlife Australia, 2022). Threats to the species include degradation and loss of habitat, loss of genetic diversity and inbreeding, disease, stochastic environmental events, climate change, predators and competitors, barriers to migration,

Scientific name	Common name	Listing status	Requires further assessment	Justification
				consumption of toxic food and plants, hybridisation with Blue-winged Parrots, and negative effects of management activities (DELWP, 2016). There are no records or potential habitat for the species within the Strategic Assessment Area. Direct impacts are considered to be unlikely. There are 844 records of the species within the Study Area (the most recent observed in 2020), the closest of which occurs approximately 4.5 km away from the Growth Areas. A large number of records occur along the northern shoreline of Port Phillip Bay. Records also occur at the Lake Connewarre Complex. The Bellarine Peninsula at Port Phillip Bay is a commonly used over-wintering site for the species (TSSC, 2006). Further, the species is identified as part of the Ramsar listing for the Port Phillip Bay (Western Shoreline) & Bellarine Peninsula Ramsar site (DELWP, 2020). Further detailed assessment is required to understand the potential for indirect impacts to the species associated with development under the Plan. Refer to Section 19.4 of Part 4 for the detailed impact assessment of the Orange-bellied Parrot.
Neophema chrysostoma	Blue-winged Parrot	Vulnerable	Yes	The Blue-winged Parrot is a partial migrant, with variable numbers of the species migrating across the Bass Strait to Tasmania in winter. Breeding has been recorded to occur on mainland Australia south of the Great Dividing Range in southern Victoria, occasionally in the far south-east of South Australia, and in a range of locations in Tasmania. During the non-breeding period, the birds are recorded from northern Victoria, eastern South Australia, south-eastern Queensland and western NSW (DCCEEW, 2023). The species occurs in a range of habitats, including coastal, sub-coastal and inland areas. The species favours grasslands and grassy woodlands, and often occur near wetlands both near the coast and further inland. The species occurs in altered habitats, such as airfields, paddocks and golf courses, and forages mainly near or on the ground on seeds from a wide variety of native and introduced grasses, shrubs and herbs (DCCEEW, 2023). Many aspects of the movements of the Blue-winged Parrot are poorly understood, with detailed information about migratory movements not known. It is known that, prior to migrating from Tasmania, the species congregates on saltmarshes and agricultural land prior to departing north. On the mainland, mobile flocks occur in saltmarsh and pasture in coastal Victoria (DCCEEW, 2023). The proposed definition of habitat critical to the survival of the species includes (DCCEEW, 2023): • Foraging and staging habitats in coastal, sub-coastal and inland areas, through to semi-arid zones, including grasslands, grassy woodlands, semi-arid chenopod shrubland with native and introduced grasses, herbs and shrubs • Wetlands both near the coast and in semi-arid zones used for foraging and staging

Scientific name	Common name	Listing status	Requires further assessment	Justification
				• Eucalypt forests and woodlands within the breeding range in Tasmania, coastal south-eastern South Australia and southern Victoria • Live and dead trees and stumps with suitable hollows for breeding There is uncertainty regarding the key threats which are resulting in the decline of the Blue-winged Parrot. Possible threats to the species include habitat loss, habitat degradation, weed invasion, climate change, inappropriate fire regimes, predation (by sugar gliders in Tasmania, and cats and foxes across its range), competition for tree hollows for nesting, and disease (DCCEEW, 2023). To understand the importance of the Study Area in the context of the species' distribution, the density of species' records across its range was examined on the Atlas of Living Australia (ALA) database. The locality of the Study Area contains some of the highest densities of mainland records of the Blue-winged Parrot recorded in the ALA database. Given the region's abundant wetland environments and its proximity to the Bass Strait, it is considered likely that the migrating proportion of the species population may congregate in this locality prior to migration to Tasmania. Records of this species from the VBA database have been considered. Records are scattered throughout the Study Area. Most records occurring within the Port Phillip Bay (Western Shoreline) and Bellarine Peninsula Ramsar site, including the locality of Limeburners Bay and the Lake Connewarre wetland complex, both of which are downstream from the Growth Areas. Records also occur within areas of remnant woodland and in grassland/agricultural environments in the Study Area. No records occur within the Growth Areas or the Strategic Assessment Area. Given the high density of species' records within the Study Area, the occurrence of the species within wetland habitats downstream of the Growth Areas, and the potential for the species to utilise grassland environments for foraging habitat, and the potential for the Plan to impact either directly or indirectly upon these environments, this species requires further assessment. Refer to Chapter 19 of Part 4 for the detailed impact assessment of the Blue-winged Parrot.
Numenius madagascariensis	Eastern Curlew	Critically Endangered, marine, migratory	Yes	*Numenius madagascariensis* (Eastern Curlew) is the largest migratory shorebird using the East Asian - Australasian Flyway. In Australia, the bird is found during the non-breeding season in coastal habitats across all states. In Victoria, large populations are recorded in Corner Inlet and Western Port Bay with smaller populations in Port Phillip Bay and other scattered coastal localities (DoE, 2015f). The species typically forages in sheltered intertidal sandflats or mudflats, or near mangroves, salt flats or saltmarshes. Roosting generally occurs during high tides on sandy spits, sandbars, and islets. It is rarely found on near-coastal lakes or in grassy areas (DoE, 2015f).

Scientific name	Common name	Listing status	Requires further assessment	Justification
				The global population has been estimated at 38,000 individuals, of which 28,000 occur in Australia. However, the Conservation Advice notes that this estimate is out of date given the ongoing population declines (DoE, 2015f). Threats to the species include ongoing human disturbance, habitat loss and degradation from pollution, changes in the water regime, and invasive plants (DoE, 2015f). There are no records or potential habitat for the species within the Growth Areas and the likelihood of the species relying on the Strategic Assessment Area for any key stages of its life cycle is considered to be very low. Direct impacts are considered to be unlikely. There are 217 records of the species within the Study Area scattered along the coastline of Port Phillip and associated with Lake Connewarre Complex. The species is identified as part of the Ramsar listing criteria for the Port Philip Bay (Western Shoreline) and Bellarine Peninsula Ramsar site (DELWP, 2020). Potential indirect impacts to the species as a result of development may be possible, predominantly related to potential downstream impacts from changes to hydrology. Further detailed assessment is required to understand potential impacts. Refer to Section 19.4 of Part 4 for the detailed impact assessment of the Eastern Curlew.
Pachyptila turtur subantarctica	Fairy Prion	Vulnerable	No	*Pachyptila turtur subantarctica* (Fairy Prion) is a marine bird with a circumpolar distribution. During non-breeding periods, the species is found in subtropical waters. In Australia, the bird occurs along the coast from WA to QLD including Tasmania. Breeding occurs solely on Macquarie Island. The species is estimated at 250-1000 mature individuals. Threats to the species include competition with Blue Petrels, predation by invasive species, flooding, and soil erosion (TSSC, 2015c). There is one record of the species within the Strategic Assessment Area (along Cowies Creek) dated from 1981. 19 other records occur within the Study Area, most of which occur prior to 1990. Three of the 19 records occur post 1990 (two in 2017 and one in 2019). These records are located in the south of the Study Area, near Barwon Heads. There are no records or potential habitat for the species within the Growth Areas and the likelihood of the species relying on the Strategic Assessment Area for any key stages of its life cycle is considered to be very low. Direct impacts are considered to be unlikely. The species is a marine species with a wide distribution. The Study Area is unlikely to regularly support the species. The Plan is unlikely to exacerbate threats for this species, and it is considered that the species is unlikely to be affected by development under the Plan.
Pedionomus torquatus	Plains-wanderer	Critically Endangered	No	*Pedionomus torquatus* (Plains-wanderer) is a ground-dwelling bird endemic to Australia. The species is found in QLD, NSW, VIC, and SA. In Victoria, the species was historically more widely distributed, with historical

Scientific name	Common name	Listing status	Requires further assessment	Justification
				records in the south, central and western parts of the state. More recently, the species is mostly recorded in north-central Victoria (DoE, 2015g, 2015e). The species inhabits sparse, treeless, lowland native grasslands, which usually occur on hard red-brown clay soils. Grassland structure is more important than floristic composition for suitable habitat, with grasslands comprising approximately 50 per cent bare ground. Nesting occurs in native grasses and herbs. Its diet consists of a mixture of seeds, invertebrates, and leaves (DoE, 2015g, 2015e). The population is estimated to vary between 5,500 - 7,000 to around 2,000 birds. There has been a decline in the Victorian Stronghold by >90% (BirdLife International, 2022a). Threats to the species include habitat loss and fragmentation from agricultural expansion, inappropriate grazing regimes and inappropriate habitat management (DoE, 2015g, 2015e). The species has not been recorded within the Strategic Assessment Area. Further, suitable habitat is not present within the Strategic Assessment Area. Direct impacts are therefore considered unlikely. There are nine records of the species within the Study Area, with only one being contemporary (from 2013), and located over 15 km from the Growth Areas. The Study Area is unlikely to regularly support the species, given that the species mainly occurs in northern-central Victoria. The species is unlikely to be affected by development under the Plan.
Phoebetria fusca	Sooty Albatross	Vulnerable, marine, migratory	No	*Phoebetria fusca* (Sooty Albatross) is pelagic species distributed in the South Atlantic and southern Indian Oceans. The species inhabits subantarctic and subtropical marine waters. Breeding generally occurs on small, isolated, and subantarctic islands. Its diet consists of fish, crustaceans, offal, and cephalopods. The global population was estimated to be 100,000 individuals, with 15,700 breeding pairs in 1998. Threats to the species include drowning in longline fishing gear, hook and plastic ingestion, collisions with fishing trawlers, disease, and breeding failures (DCCEEW, 2022). The species has not been recorded within the Study Area and will not be affected by development under the Plan.
Polytelis swainsonii	Superb Parrot	Vulnerable	No	*Polytelis swainsonii* (Superb Parrot) is a medium sized, green parrot with a long tail. The core range is west of the Great Dividing Range in NSW from Canberra, Goulburn and as far west as Nyngan and Swan Hill. Within Victoria the species is mostly confined to Barmah forest, with sightings south to Shepparton and east to Wangaratta and Corryong. The species nests in large, living or dead trees with hollow branches, and typically near a watercourse. The species uses at least six species of eucalyptus, though has a particular reliance on *Eucalyptus blakelyi* (Blakely's Red Gum). The species mostly feeds on the ground on a variety of native and introduced seeds. The population was estimated at 6,500 mature birds in 2000. Major threats to the species

Scientific name	Common name	Listing status	Requires further assessment	Justification
				include loss and degradation of habitat, competition for nest hollows, road kills, illegal removal of wild birds, disease, and climate change (TSSC, 2016k). The species has not been recorded within the Strategic Assessment Area. Further, suitable habitat for the species is not present within the Strategic Assessment Area. Direct impacts are therefore considered unlikely. There is one record of the species within the Study Area (dated 1999, with an accuracy of 10 km), which occurs approximately 17.1 km from the Growth Areas near Little River. The Study Area is generally unsuitable for the species. Development under the Plan is unlikely to affect the Superb Parrot.
Rostratula australis	Australian Painted Snipe	Endangered, marine	Yes	*Rostratula australis* (Australian Painted Snipe) is a wading bird that is only found in Australia and mainly occurs in the Murray Darling Basin. It is widespread across Australia (DSEWPaC, 2013b; DCCEEW, 2022). Relatively little is known about the ecology of this species, as it has few records, unpredictable movements, cryptic habits, and often occurs in reasonably inaccessible areas (DoEE, 2019). The species inhabits ephemeral and permanent shallow freshwater wetlands, and occasionally in brackish wetlands. It favours a dense cover of grass and reeds (DSEWPaC, 2013b). The species breeds all year round depending on available suitable wetland conditions (DCCEEW, 2022). Breeding habitat requirements may be quite specific (DoEE, 2019). There are a number of population estimates for the species, ranging between 1,500 and 5,000 mature individuals. Population estimates are considered unreliable due to the species' cryptic nature, inaccessible habitat and limited numbers of surveys (DoEE, 2019). The species Conservation Advice (DSEWPaC, 2013b) and draft Recovery Plan (DoEE, 2019) have identified the following threats: loss and degradation of wetlands, inappropriate hydrological regimes, declines in water quality, grazing and trampling of wetlands by livestock, climate change, invasive flora and fauna, human disturbance, inappropriate fire regimes, and low genetic diversity. There are no records or potential habitat for the species within the Growth Areas and the likelihood of the species relying on the Strategic Assessment Area for any key stages of its life cycle is considered to be very low. Direct impacts are considered to be unlikely. There are 15 records of the species within the Study Area, several records downstream of development associated with the Lake Connewarre Complex. Potential indirect impacts to the species may be possible, predominantly related to potential downstream impacts from changes to hydrology. Further detailed assessment is required to understand potential impacts. Refer to Section 19.4 of Part 4 for the detailed impact assessment of the Australian Painted Snipe.
Sternula nereis nereis	Australian Fairy Tern	Vulnerable	Yes	*Sternula nereis nereis* (Australian Fairy Tern) is the Australian subspecies of the Fairy Tern. It occurs along the coasts of southern Australia from the Montebello Islands of the Pilbara in Western Australia to Botany Bay NSW, with a gap in distribution across the Great Australian Bight (DAWE, 2020).

Scientific name	Common name	Listing status	Requires further assessment	Justification
				The Australian Fairy Tern uses a variety of habitats including offshore, estuarine or lacustrine (lake) islands, coastal wetlands, beaches and sand spits. Nesting habitat consists of a shallow scrape in the sand which may be lined with vegetation or small shells. In Victoria, the species uses seagrass covered beaches for nesting (DAWE, 2020). The species extent of occurrence is approximately 380,000 km^2 and the area of occupancy is estimated to be 1,150 km^2 (DSEWPaC, 2011a). The population of the Australian Fairy Tern is estimated at 7,450, of which approximately 100 – 150 occur in Victoria. The number of nesting colonies has declined, particularly around the Victorian coastline. There have been few records documenting successful breeding attempts over the last decade within Western Port Ramsar site and Port Phillip Bay. Gippsland Lakes Ramsar site continues to host breeding Australian Fairy Terns (DAWE, 2020). There are no records or potential habitat for the species within the Growth Areas and the likelihood of the species relying on the Strategic Assessment Area for any key stages of its life cycle is considered to be very low. Direct impacts are considered to be unlikely. There are 1,096 records of the Australian Fairy Tern within the Study Area concentrated along the Port Phillip coastline and the Lake Connewarre Complex. The species is identified as part of the Ramsar listing criteria for the Port Phillip Bay (Western Shoreline) & Bellarine Peninsula Ramsar Site. The Ramsar site is also known to regularly support over 1 per cent of the total population of the Australian Fairy Tern (DELWP, 2020). Potential indirect impacts to the species may be possible, predominantly related to potential downstream impacts from changes to hydrology. Further detailed assessment is required to understand potential impacts. Refer to Section 19.4 of Part 4 for the detailed impact assessment of the Australian Painted Snipe.
Thalassarche carteri	Indian Yellow-nosed Albatross	Vulnerable, marine, migratory	No	*Thalassarche carteri* (Indian Yellow-nosed Albatross) is a marine bird that occurs in the southern Indian Ocean. In Australia, the species occurs primarily along the coast in WA, located in subtropical and warmer subantarctic waters. Breeding occurs on islands of the southern Indian Ocean. Its diet primarily consists of cephalopods and fish. The current global population is estimated at 160,000 - 180,000 individuals, with 36,500 breeding pairs. Threats to the species include drowning in longline fishing gear, and collision with cables and warps (DCCEEW, 2022). There are a small number of historical records from 1979 within the near coastal areas of the Study Area. The species will not be affected by development under the Plan.
Thalassarche cauta	Shy Albatross	Endangered, marine, migratory	No	*Thalassarche cauta* (Shy Albatross) is the only albatross species endemic to Australia. The species predominantly occurs in waters adjacent to Tasmania and SA with breeding colonies on three small islands off of Tasmania. The pelagic bird inhabits sub-Antarctic and subtropical marine waters and is occasionally found in continental shelf waters, bays, and harbours. Its diet primarily consists of cephalopods and fish, followed by tunicates and crustaceans. The total population was estimated at about 30,000 individuals in 2017-2018 (DCCEEW, 2022).

Scientific name	Common name	Listing status	Requires further assessment	Justification
				Threats to the species include fishing activities, climate change, disease, interspecies competition, marine pollution, human disturbance, and harvesting from the wild (TSSC, 2020a). There are a number of records associated with coastal areas in the south of the Study Area. The species will not be affected by development under the Plan.
Thalassarche impavida	Campbell Albatross	Vulnerable, marine, migratory	No	*Thalassarche impavida* (Campbell Albatross) is a marine bird that occurs in Antarctic, sub-Antarctic waters, and sub-tropical South Pacific Ocean. In Australia, the bird is often found foraging over the oceanic continental slopes off TAS, VIC, and NSW. The species does not breed in Australia. In both breeding and non-breeding periods, the albatross is a specialised shelf feeder and scavenger with a diet of krill and fish and occasionally cephalopods, salps, and jellyfish. The global population was estimated at 19,000 - 26,000 breeding pairs on Campbell Island. Threats to the species include drowning in longline fishing gear, and collision with cables and warps used on fishing trawlers (DCCEEW, 2022). The species has not been recorded within the Study Area and will not be affected by development under the Plan.
Thalassarche melanophris	Black-browed Albatross	Vulnerable, marine, migratory	No	*Thalassarche melanophris* (Black-browed Albatross) is a marine bird with a circumpolar distribution in Antarctic, sub-Antarctic, and temperate waters and occasionally tropical waters. Breeding occurs on sub-Antarctic and peri-Antarctic islands and, in Australia, on four geographically isolated locations. Its diet primarily consists of a combination of fish, molluscs (mostly cephalopods), and crustaceans (mostly krill) and occasionally carrion, jellyfish, and salps. During the non-breeding period, the species is found at the continental shelf and shelf-break of SA, VIC, TAS, and NSW. The global population is estimated between 1,000,000 and 2,500,000 birds. It is estimated that less than 1% of this population breeds within Australian jurisdiction. Threats to the species include longline fishing, trawl fishing, dependency on fishery discards, parasites and associated disease, incidental mortality with coastal fisheries, reduced food stocks, reduced breeding success, and erosion of colony sites by European Rabbits (DAWE, 2005). There are a number of records associated with coastal areas in the south of the Study Area. The species will not be affected by development under the Plan.
Thalassarche salvini	Salvin's Albatross	Vulnerable, marine, migratory	No	The Salvin's Albatross is a marine bird found in sub-Antarctic and sub-tropical waters. In Australian waters, the bird is distributed off the coast of QLD, NSW, VIC, SA, and TAS. The species does not breed in Australia. Its diet primarily consists of inshore cephalopods and fish, feeding primarily in shelf waters. The global population is estimated between 350,000 and 380,000 individuals. Threats to the species include incidental catch during longline fishing operations, loss of food stock, ingestion or being caught in oil spills, marine debris, and pollution, and commercial fishing (DCCEEW, 2022).

Scientific name	Common name	Listing status	Requires further assessment	Justification
				The species has not been recorded within the Study Area and will not be affected by development under the Plan.
Thalassarche steadi	White-capped Albatross	Vulnerable, marine, migratory	No	*Thalassarche steadi* (White-capped Albatross) is a marine bird found in sub-Antarctic and sub-tropical waters. In Australian waters, the bird is distributed off the coast of south-east Australia. The species does not breed in Australia. Its diet likely consists of inshore cephalopods and fish; however, this has not been confirmed. The global population was estimated at 70,000 - 85,000 breeding pairs in 2003, though other estimates place the global population as high as 150,000 - 375,000. Threats to the species include pig predation at nests, mortality due to longline fishing gear, collision with trawl warps, reduced food stock, ingestion or being caught in marine debris, oil spills, pollution, and commercial fishing (DCCEEW, 2022). The species has not been recorded within the Study Area and will not be affected by development under the Plan.
Thinornis cucullatus cucullatus	Eastern Hooded Plover	Vulnerable, Marine	No	*Thinornis cucullatus cucullatus* (Eastern Hooded Plover) is a wading bird endemic to southern Australia, distributed in coastal areas from Jervis Bay to Fowlers Bay and Tasmania along with offshore islands such as Kangaroo Island and King Island. Important stretches of coast for the species in Victoria include Warrnambool to Portland, the Mornington Peninsula, and Bass Coast. The Eastern Hooded Plover occurs on or near sandy beaches. The species forages on the beach, including on the water edge, the base of fore-dunes, and on lagoons and saltpans. The majority of birds (95 per cent) move over distances less than 20 km, and the species has breeding territories of ~37 ha, displaying high site fidelity. In Victoria, the species occurs in low densities with an estimated 570 individuals. Threats to the species include the crushing of eggs, chicks and nesting birds by human activity including domestic dogs, predation by invasive species, oil spills and marine debris, infrastructure near to or on beaches, extreme weather events, and future threats from sea level rise (DoE, 2014). The Eastern Hooded Plover is a predominantly coastal species. While some records of the species occur within the Study Area, these records are primarily to the south of the Study Area, associated with the southern coastal environment. While part of the coastal area in the south of the Study Area is downstream of the Strategic Assessment Area (where the Lake Connewarre Complex discharges into the ocean), indirect impacts to this region are considered unlikely under the Plan. This is because of the distance of this environment from the Strategic Assessment Area combined with mitigation measures to control runoff from the Strategic Assessment Area It is noted that the Eastern Hooded Plover is identified as part of the Ramsar listing criteria for the Port Phillip Bay (Western Shoreline) & Bellarine Peninsula Ramsar Site (DELWP, 2020). However, the Ramsar site covers a large area, extending outside of the Study Area into coastal environments. It is considered more likely that habitat for the Eastern Hooded Plover would be supported by these areas of the Ramsar site outside of the Study Area.

Scientific name	Common name	Listing status	Requires further assessment	Justification
Reptiles				
Caretta caretta	Loggerhead Turtle	Endangered, marine, migratory	No	*Caretta caretta* (Loggerhead Turtle) is a marine turtle occurring in Australian waters. Marine turtles are migratory and depend upon dispersed habitats (both marine and terrestrial) throughout their life cycle. There are two distinct stocks of Loggerhead Turtles that nest in Australia, one in Queensland, and one in Western Australia. The species forages in all coastal states, though is considered uncommon in South Australia, Victoria and Tasmania (DoEE, 2017a). In 2003, it was estimated that there are 500 nesting females per year in Eastern Australia (DCCEEW, 2022). Threats to marine turtles in Australia include climate change, marine debris, chemical and terrestrial discharge, international take, terrestrial predation, bycatch, light pollution, habitat modification, indigenous take, vessel disturbance, noise interference, recreational activities and diseases and pathogens (DoEE, 2017a). There are no records of the species within the marine environment of the Study Area. The species will not be affected by development under the Plan.
Delma impar	Striped Legless Lizard	Vulnerable	Yes	*Delma impar* (Striped Legless Lizard) is a small reptile with very reduced hind limbs and lacking forelimbs. It has considerable colour variation, with a pale grey-brown dorsal and cream ventral, and dark brown or black stripes along the length of the tail and body (TSSC, 2016f). The species was formerly distributed through temperate lowland grasslands in the ACT, south-western and southern NSW, central and southern Victoria, and south-east SA. Its distribution has declined. Within Victoria, the range of the species appears to have contracted to the southern part of the state (DCCEEW, 2022). The species is a grassland specialist and is found only in native grassland and nearby grassy woodlands and exotic pasture. Occupied sites have grassy groundcover, a mixture of native and exotic perennial and annual species, and annual tussock-forming grasses. There is a higher probability of encountering the species in sites with high structural complexity (Howland *et al.*, 2016; TSSC, 2016f; DCCEEW, 2022). The total number of individuals is unknown. As of 2014, the species' population was thought to be in excess of 1,000 individuals (DCCEEW, 2022). There are four distinct genetic lineages: South Australia & Victorian Wimmera; south-western Victoria (including Melbourne and Geelong); eastern Victoria; and a lineage covering the ACT and Monaro Plains in NSW. These lineages have a high level of genetic divergence and should be considered as separate Evolutionarily Significant Units (TSSC, 2016f). Threats to the species include the loss, modification, degradation and fragmentation of habitat, invasive species, and inappropriate fire regimes (TSSC, 2016f). The species has been recorded within the NGGA. Further detailed assessment is needed to understand the potential for direct, indirect and cumulative impacts. Refer to Section 19.3 of Part 4 for the detailed impact assessment of the Striped Legless Lizard.

Scientific name	Common name	Listing status	Requires further assessment	Justification
Dermochelys coriacea	Leatherback Turtle	Endangered, marine, migratory	No	*Dermochelys coriacea* (Leatherback Turtle) is a marine turtle occurring in Australian waters. Marine turtles are migratory and depend upon dispersed habitats (both marine and terrestrial) throughout their life cycle. The leatherback turtle spends most of its life in the open ocean, and forages on plankton and jellyfish in the water column. The species is commonly found foraging along the east coast and bass strait, and the southern waters of Australia are one of five identified foraging sites for Leatherback Turtles. Threats to marine turtles in Australia include climate change, marine debris, chemical and terrestrial discharge, international take, terrestrial predation, bycatch, light pollution, habitat modification, indigenous take, vessel disturbance, noise interference, recreational activities and diseases and pathogens (DoEE, 2017a). Australia is not known as a major nesting area for the species. However, nesting may occur on the Cobourg Peninsula, in Western Australia, and previously in Queensland and in northern NSW near Ballina (although there have been no records of nesting in QLD and NSW since 1996) (DoEE, 2017a). There are two records within the Study Area, approximately 7 km to the east of the Growth Areas within the marine environment. The species is a marine species with a global tropical and temperate distribution and will not be affected by development under the Plan.
Lepidochelys olivacea	Pacific (Olive) Ridley	Endangered	No	*Lepidochelys olivacea* (Olive Ridley Turtle) is a marine turtle occurring in Australian waters. Marine turtles are migratory and depend upon dispersed habitats (both marine and terrestrial) throughout their life cycle. There are two stocks of Olive Ridley Turtles in Australia, one which nests in the Northern Territory and one which nests on western Cape York. While there is limited understanding of the species' dispersal, it is believed to remain on the Australian continental shelf into waters near Indonesia. Mapped habitat for the species occurs in northern Australia, and there is no mapped habitat for the species along the Victorian coast. Threats to marine turtles in Australia include climate change, marine debris, chemical and terrestrial discharge, international take, terrestrial predation, bycatch, light pollution, habitat modification, indigenous take, vessel disturbance, noise interference, recreational activities and diseases and pathogens (DoEE, 2017a). There is one record (from 1974) within the Study Area, approximately 15 km to the east of the Growth Areas within the marine environment. The validity of the record is questionable given its age and the fact that Victoria is outside the usual range of the species. The species will not be affected by development under the Plan.
Tympanocryptis pinguicolla	Victorian Grassland Earless Dragon	Endangered	No	*Tympanocryptis pinguicolla* (Victorian Grassland Earless Dragon) is a small lizard occurring in Victoria. The species had previously been grouped with grassland earless dragons from the ACT and NSW. There are now four distinct species recognised including the Victorian Grassland Earless Dragon (Melville *et al.*, 2019). The species is likely to be found in natural temperate grasslands that are well drained and undisturbed. There is likely to be a preference for shorter grasslands with an open structure and it may also persist in native grasslands that are species poor or degraded if suitable structures for shelter are present. Threats to the species

Scientific name	Common name	Listing status	Requires further assessment	Justification
				include the loss and fragmentation of habitat, invasive species, changed grazing regimes, the use of agricultural chemicals, and rock removal (Robertson and Evans, 2009). The species has experienced a severe decrease in geographic range from its historical distribution. The last recorded sighting in Victoria that is listed on the VBA is from 1969, with five unconfirmed sightings between 1988 and 1990. Until recently, the species was considered likely to be extinct in Victoria (EHP, 2021). The Study Area may provide habitat for the Victorian Grassland Earless Dragon. Targeted surveys were not undertaken for this species during field investigations of the Growth Areas as the species was presumed to be extinct in Victoria at the time (EHP, 2021). The change in taxonomy and pending listing as critically endangered under the EPBC Act now warrant targeted surveys for the species and a thorough assessment of the extent and suitability of habitat for the Victorian grassland earless dragon. Targeted Victorian Grassland Earless Dragon field investigations are now planned for the coming 2023/2024 summer within the likely distribution of the species. This work will inform the need for a detailed assessment of potential impacts. The outcomes of these surveys and any associated assessment will be presented in the final Strategic Assessment Report.
Amphibians				
Litoria raniformis	Growling Grass Frog	Vulnerable	Yes	*Litoria raniformis* (Growling Grass Frog) is a large frog, olive green to bright emerald green in colour with large golden-bronze blotches (Clemann and Gillespie, 2012). The species is endemic to south-east Australia. It was historically one of the most common frogs in that region but has suffered substantial declines in abundance and range (Clemann and Gillespie, 2012). The species appears to occur in two distinct biogeographical groups. One group occurs in the north and west of its range in NSW, and parts of Victoria and South Australia bordering the Murray River. The second group (which includes the Strategic Assessment Area) occurs in moister environments in much of Victoria, south-eastern NSW, far south-eastern South Australia, and Tasmania (DEWHA, 2009d; Clemann and Gillespie, 2012). There is limited information available regarding the estimated total size of each group, or the number of discrete populations or metapopulations within each group. Where the species occurs within the Strategic Assessment Area and surrounding regions, it is mostly aquatic and occurs in a variety of both permanent and ephemeral wetlands (Heard, Scroggie and Clemann, 2010). The GGF Significant Impact Guidelines (DEWHA, 2009d) identify the threats most relevant to decision making under the EPBC Act. These include loss and degradation of habitat, fragmentation and isolation of populations caused by construction of barriers to movement and introduced predators and diseases. The species' Recovery Plan (Clemann and Gillespie, 2012) also identifies increased exposure of frogs to harmful levels of ultraviolet-B radiation (due to anthropogenic depletion of the ozone layer) as an additional threat.

Scientific name	Common name	Listing status	Requires further assessment	Justification
				The species was recorded in the WGGA during recent site surveys (EHP, 2021) and is widely recorded throughout the riparian and coastal parts of the Study Area. The species is also identified as part of the Ramsar listing criteria for the Ramsar site (DELWP, 2020). Further detailed assessment is needed to understand the potential for direct, indirect and cumulative impacts. Refer to Section 19.2 of Part 4 for the detailed impact assessment of the Growling Grass Frog.
Fish				
Carcharodon carcharias	Great White Shark	Vulnerable, migratory	No	*Carcharodon carcharias* (White Shark) is a long lived shark found in the temperate and sub-tropical regions of the southern and northern hemispheres. The species primarily occurs in continental and insular shelf waters, but also may inhabit the open ocean. The species is commonly found in the vicinity of islands and near colonies of seals. The distribution of the White Shark within Australia ranges from central Queensland, around the southern coastline, to the North West Cape in Western Australia (DSEWPaC, 2013a). The population globally and within Australia is not well known and was thought to be less than 10,000 mature individuals in 1996 (DCCEEW, 2022). Threats to the species include mortality related to bycatch or illegal fishing, or mortality due to shark control activities. Other threats may include habitat modification, climate change, and ecotourism (DSEWPaC, 2013a). There are no records of the species within the marine environment of the Study Area. The species will not be affected by development under the Plan.
Galaxiella toourtkoourt (previously *Galaxiella pusilla)*	Dwarf Galaxias	Vulnerable	Yes	*Galaxiella toourtkoourt* is a tiny freshwater fish, with females recorded to 42 mm and males 34 mm. The species was previously known as *Galaxiella pusilla,* though genetic studies have identified substantial differences between populations in western Victoria and south Australia (the west region), to eastern Victoria. The western region has been re-described as *Galaxiella toourtkoourt* (Coleman, Hoffman and Raaik, 2015). *G. toourtkoourt* is distributed from the upper Barwon River (near Barwon Downs) in Victoria west to Cortina Lakes in SA. The species is typically found in swamps, wetlands, shallow lakes, billabongs, small creeks and earthen drains (Coleman, Hoffman and Raaik, 2015) Threats to the species may include the degradation and loss of habitat, alterations to flow regimes, climate change, introduced aquatic species, and illegal collection (Saddlier, Jackson and Hammer, 2010). Site surveys indicated the presence of suitable habitat for the Eastern Dwarf Galaxias within the Moorabool River and Cowies Creek (EHP, 2021). There are no VBA records of the Eastern Dwarf Galaxias within the Study Area. However, the species is known to occur within the upper Barwon River catchment near Barwon Downs, and in the Moorabool River near Batesford (EHP, 2021). It is noted that Batesford is within the Study Area and is near the Strategic Assessment

Scientific name	Common name	Listing status	Requires further assessment	Justification
				Area. It is possible that there are records of the species in this area which have not been entered into the VBA database. The Corangamite CMA is proposing to remove in-stream barriers associated with Batesford quarry within the next few years which may allow the Eastern Dwarf Galaxias to access upstream habitat within the Moorabool River. With the removal of these barriers, future planning within WGGA should assume the presence of the Eastern Dwarf Galaxias (EHP, 2021). There will be no development within the Moorabool River or Cowies Creek under the Plan, and as such, there is no potential for direct impacts to the species. However, potential indirect impacts to the species as a result of development may be possible. Further detailed assessment is required to understand potential impacts. Refer to Section 19.4 of Part 4 for the detailed impact assessment of the Dwarf Galaxias.
Maccullochella peelii	Murray Cod	Vulnerable	No	*Maccullochella peelii* (Murray Cod) is one of the largest freshwater fish in the world and is endemic to the Murray-Darling River system, occurring in SA, Victoria, NSW, ACT, and Queensland. The species still occurs throughout most of its historic range, although there have been some localised extinctions in upper tributaries. The species occurs in flowing and standing waters, from small clear streams to large, turbid, meandering slow-flowing rivers, creeks, lakes and billabongs. The main river channel and larger tributaries of the Murray-Darling Basin are considered important habitat, and the species is considered a 'main channel specialist' (TSSC, 2010). There is insufficient information available to confidently quantify the population size. However, the Victorian population numbers are much lower than pre-European levels (DCCEEW, 2022). Threats include flow regulation, habitat degradation, lowered water quality, barriers, alien species, commercial fishing, recreational fishing, illegal fishing, stocking and translocations, genetic issues, diseases, and climate change (TSSC, 2010). There is one record of the species (from 1873) within the Study Area, approximately 2 km to the east of the Growth Areas. The age of the record and lack of other records indicates the species is not present. The species will not be affected by development under the Plan.
Macquaria australasica	Macquarie Perch	Endangered	No	*Macquaria australasica* (Macquarie Perch) is a moderate-sized freshwater fish reaching a length of 465 mm and a weight of 3.5 kg. Populations are found across the Murray-Darling Basin, although often small and geographically separated. In Victoria, populations are known to occur in the upper reaches of the Goulburn, Broken, Ovens and Mitta Mitta catchments. Threats to the species include competition and predation by invasive fish species, increased sedimentation, barriers to fish movement and altered flow regimes (DoE, 2013b). There are 6 records of the species within the Study Area. However, none of these are contemporary with the most recent being from 1981. These occur in the Moorabool and Barwon Rivers, noting that this is not part of

Scientific name	Common name	Listing status	Requires further assessment	Justification
				the species' natural distribution. The age of the records and lack of other records indicates the species is unlikely to be present. The species is unlikely to be affected by development under the Plan.
Nannoperca obscura	Yarra Pygmy Perch	Vulnerable	Yes	*Nannoperca obscura* (Yarra Pygmy Perch) is a small olive green and yellow-white fish up to 75 mm. The species is distributed from the Bunyip River basin in West Gippsland, through southern Victoria and south-east SA, and west near to the mouth of the Murray River (Saddlier and Hammer, 2010). The range of the species coincides with Victoria's volcanic region (DCCEEW, 2022). The species occurs in slow-flowing or still water, which is characterised by large amounts of aquatic vegetation, including lakes, ponds and slow-flowing rivers (Saddlier and Hammer, 2010). Within its range, the species has a patchy and highly fragmented distribution. The fragmented nature of habitat, and habitat variability between seasons and years, makes the species vulnerable to local extinctions. Reduced flooding and loss of habitat linkages reduces the capacity of the species to recolonise habitats (Saddlier and Hammer, 2010). As of 2010, the species had been recorded from 42 sites across Victoria and South Australia, of these, four were thought to be extinct (Saddlier and Hammer, 2010). As few surveys have been recently conducted in Victoria, current population status and trends are unknown (DELWP, 2015b). Threats to the species include degradation and loss of habitat, alteration to flow regimes, climate change, introduced aquatic species, and illegal collection (Saddlier and Hammer, 2010). There are 82 records of the species (the most recent from 2014) within the Study Area. These occur in multiple locations along the Moorabool River (upstream and downstream of the Strategic Assessment Area), along the Barwon River, within Waurn Ponds Creek, within the Lake Connewarre Complex, and along Thompson Creek. It is reported that there are records of the species immediately adjacent to WGGA in the Moorabool River (EHP, 2021). However, there are no records in this locality on the VBA database. It is possible that there are records of the species in this area which have not been entered into the VBA database. There will be no development within the Moorabool River under the Plan, and as such, there is no potential for direct impacts to the species. However, potential indirect impacts to the species as a result of development may be possible. Further detailed assessment is required to understand potential impacts. Refer to Section 19.4 of Part 4 for the detailed impact assessment of the Yarra Pygmy Perch.
Prototroctes maraena	Australian Grayling	Vulnerable	Yes	*Prototroctes maraena* (Australian Grayling) is a small to medium fish occurring in waterways of south-eastern Australia. Historically, it was known to occur in freshwater, estuarine and marine reaches of coastal catchments greater than 200 m above sea level in NSW, Victoria, Tasmania and South Australia. Its current distribution has declined from its historical distribution (TSSC, 2021).

Scientific name	Common name	Listing status	Requires further assessment	Justification
				The Australian Grayling spends larval stages in marine water, and adult life in fresh water. The species migrates downstream in lower freshwater reaches of rivers to spawn. It is thought to be able to quickly re-populate in the correct conditions following periods of poor environmental conditions (TSSC, 2021). The species is considered to occur as a single population in Victoria. There are no reliable national population estimates for the species. Due to the species' capacity to lay large quantities of eggs, it has been suggested that the population can undergo large fluctuations (TSSC, 2021). The species Conservation Advice and Recovery Plan has identified the following threats (Backhouse, O'Conner and Jackson, 2008; TSSC, 2021): habitat loss and fragmentation (including fish passage barriers, altered hydrology and poor water quality, and changes to coastal morphology), introduced fish species, climate change, disease, and fishing. Site surveys indicated the presence of suitable habitat for the Australian Grayling within the Moorabool River within WGGA. While the species was not detected at this location during surveys, it is recognised that the species is present within the wider Moorabool River catchment (EHP, 2021). Specifically, there are 55 records of the species within the Study Area (the most recent from 1998). The majority of these records occur within the Barwon River downstream of the Growth Areas. The Corangamite Catchment Management Authority are proposing to remove barriers along the Moorabool River which currently prevent fish from accessing habitat upstream to the WGGA within the next 2 to 3 years. With the removal of these barriers, future planning within the WGGA should assume the presence of the Australian Grayling (EHP, 2021). There will be no development within the Moorabool River under the Plan, and as such, there is no potential for direct impacts to the species. However, potential indirect impacts to the species as a result of development may be possible. Further detailed assessment is required to understand potential impacts. Refer to Section 19.4 of Part 4 for the detailed impact assessment of the Australian Grayling.
Insects				
Synemon plana	Golden Sun Moth	Vulnerable	Yes	*Synemon plana* (Golden Sun Moth) is a day-flying moth with a wingspan of about 34 mm. The species is found in grassland habitat in south-eastern Australia, occurring from central NSW between Parkes and Bathurst, through the ACT, down to central and western Victoria and just across the border to eastern South Australia. The Extent of Occurrence and Area of Occupation are currently understood to be 145,322 km² and 1,596 km² respectively (DAWE, 2021c). The species' distribution is fragmented, and it is likely that sites separated by over 200 m are geographically isolated. As of 2021, the species is known from 164 sites, of which 104 occur in Victoria (DAWE, 2021c).

Scientific name	Common name	Listing status	Requires further assessment	Justification
				Habitat for the species includes sites which contain (or have previously contained) native grassland, open grassy woodlands, and secondary grasslands that retain a component of larval food species. It was previously thought that the Golden Sun Moth occurred exclusively in grassland habitats dominated by species from the genus *Rytidosperma*, or Wallaby Grass. However, the species is also known to occur in degraded areas that retain some native larval food species or have been invaded by the introduced Needlegrass species such as Chilean Needle-grass *Nassella neesiana*, which is also a known food plant (DAWE, 2021c). While the species can occur in degraded sites which have been invaded by non-native species, it is important to note that the natural habitat of the Golden Sun Moth is native grasslands which include Wallaby-grass *Rytidosperma* and Spear-grass *Austrostipa* species ((SWIFFT, 2022b). Further, the species' Conservation Advice refers to important (or high quality) habitat as those which contain native grassland with *Rytidosperma* and/or Spear-grass *Austrostipa* species, low weed cover, inter-tussock spaces, and suitable land management (DAWE, 2021c). Threats to the species include the loss, fragmentation and degradation of habitat, invasive species, inappropriate fire regimes, climate change and installation of artificial structures (DAWE, 2021c). The species has been recorded within the NGGA (EHP, 2021). Further detailed assessment is needed to understand the potential for direct, indirect and cumulative impacts. Refer to Section 19.1 of Part 4 for the detailed impact assessment of the Golden Sun Moth.

THREATENED ECOLOGICAL COMMUNITY CATEGORISATION

Table A-3: Categorisation of Commonwealth-listed threatened ecological communities

TEC name	EPBC listing	Requires further assessment	Justification
Assemblages of Species Associated with Open-Coast Salt-Wedge Estuaries of Western and Central Victoria Ecological Community	Endangered	No	This community is an assemblage of native flora, fauna and microorganisms which occur in salt-wedge estuarine environments. Salt-wedge estuaries occur where rapidly flowing rivers discharge into the ocean and where tidal currents are weak. In these environments, sea water occurs as a wedge-shaped bottom layer which has minimal mixing with the upper layer of freshwater (DoEE, 2018a). This community is associated with open coastal environments, typically with small tides (<2 m) and high wave energies. It occurs along the western and central coastlines of Victoria (DoEE, 2018a). Key biota within this community includes macrophytes, phytoplankton, protists and zooplankton, which occur within the water column, on associate substrates, or on submerged or intermittently submerged vegetation along the edges of the estuarine environment (DoEE, 2018a). This vegetation community is not present within the Strategic Assessment Area. As an open coast community, it has potential to be present at the southernmost extremity of the Study Area in the region where the Lake Connewarre Complex discharges into the ocean. It is considered highly unlikely that the Plan would result in indirect impacts to this community. This is due to the distance of this environment from the Strategic Assessment Area, and the mitigation measures under the Plan to minimise indirect impacts to water flow and quality to downstream areas.
Grassy Eucalypt Woodland of the Victorian Volcanic Plain	Critically Endangered	No	This community occurs in south-west Victoria, from Melbourne in the east to the Hamilton region in the west. It is a eucalypt woodland which is confined to Quaternary basaltic soils, on flat plains, gently undulating slopes or stony rises. The canopy is usually dominated by River Red Gum (*Eucalyptus camaldulensis*), although other eucalypt species may be dominant in some environments. The understorey comprises a diverse ground layer of grasses and herbs, with few shrubs. The community may also occur as a derived grassland, where trees have been removed yet the groundcover remains intact (DEWHA, 2009a). This vegetation community was not detected within either Growth Area during site surveys (EHP, 2021). Further, mapping of pre-1750 vegetation communities (DELWP, 2022a) indicates that the Strategic Assessment Area is predicted to be comprised almost entirely of grassland communities. Given that this community was not observed during site surveys, and that the Strategic Assessment Area is predicted to support grassland communities, it is considered unlikely that this community would occur within the Strategic Assessment Area (or that any potential occurrences of the community would be minor).

TEC name	EPBC listing	Requires further assessment	Justification
			While it is possible that this community may exist within the wider Study Area, the potential for indirect impacts under the Plan is considered to be unlikely given that the community is not a water-based or riparian community and therefore is unlikely to occur in downstream areas of the Strategic Assessment Area.
Grey Box (*Eucalyptus microcarpa*) Grassy Woodlands and Derived Native Grasslands of South-eastern Australia	Endangered	No	This community comprises a tree canopy which is typically dominated by Grey Box (*Eucalyptus macrocarpa*), with other trees also potentially present. The understorey is a diverse ground layer of grasses and herbs, with occasional shrubs. The community may also occur as a derived grassland, where trees have been removed yet the groundcover remains intact (DEWHA, 2010a). It occurs on the drier edge of the temperate grassy eucalypt woodland belt. The community occurs from central NSW, through northern Victoria into SA. Disjunct occurrences are also found west of Melbourne and near Adelaide (DEWHA, 2010a). This vegetation community was not detected within either Growth Area during site surveys. Further, no Grey Box individuals were detected (EHP, 2021). Given that the Strategic Assessment Area is modelled to have historically comprised of a native grassland community (DELWP, 2022a), it is considered unlikely that grassland communities within the Strategic Assessment Area would constitute derived grasslands of this vegetation community. While it is possible that this community may exist within the wider Study Area, the potential for indirect impacts under the Plan is considered to be unlikely given that the community is not a water-based or riparian community and therefore is unlikely to occur in downstream areas of the Strategic Assessment Area. Further, is noted that this community is not predicted to occur within a 10 km radius of the two Growth Areas (EHP, 2021). This further reduces the potential for indirect impacts to this community.
Natural Damp Grassland of the Victorian Coastal Plains	Critically Endangered	No	This is a type of grassland community whose occurrence is restricted to the South East Coastal Plain IBRA bioregion of Victoria. It is likely that the community historically occurred on the floodplains of the lower reaches of rivers in south-west Victoria prior to European settlement (DoE, 2015a). Most occurrences of the community are in the Gippsland Plain subregion, with some occurrences in the Otway Plain subregion. In the region surrounding Geelong, the distribution is poorly known and has not been thoroughly surveyed or studied. The community may occur along the lower reaches of the Barwon River, at a site within the Connewarre Wildlife Reserve, although further surveys are required to confirm its presence at this location. As part of a protected area, this site is currently managed for conservation purposes (DoE, 2015a). The community ranges from grassland to open grassy woodland with scattered trees and shrubs. It is found on heavy, poorly drained soils which are often damp and sometimes waterlogged. The grassland

TEC name	EPBC listing	Requires further assessment	Justification
			is typically dominated by Kangaroo Grass *(Themeda triandra*) or Tussock Grass (*Poa labillardierei*). The community also supports a range of other species including herbs and forbs. Species composition varies depending on moisture and seasonal conditions (DoE, 2015a). Threats to this community include weed invasion, inappropriate biomass management regimes (including slashing, mowing, grazing and fire regimes), disturbance from infrastructure maintenance, fertiliser residues, changes to hydrology, clearing, and fragmentation (DoE, 2015a). This vegetation community is not present within the Strategic Assessment Area, as the Strategic Assessment Area is not a coastal plain environment. Further, the Strategic Assessment Area is not located within the South East Coastal Plain IBRA bioregion. It is possible that the community may be present along the lower reaches of the Barwon River. This area is downstream of the Strategic Assessment Area. However, it is considered unlikely that the Plan would impact upon this community in this location. This because the main potential impact pathway to the community due to the Plan is through changes to water flow and quality. The Plan includes a commitment which will suitably mitigate this impact, through undertaking technical studies to understand key risks to water flow and quality, preparing guidelines based on the result of these studies, and undertaking planning scheme amendments to implement the guidelines. This commitment is supported by a range of existing measures in the planning system to minimise impacts to water flow and quality. Overall, it is considered unlikely that implementation of the Plan would result in impacts to this community.
Natural Temperate Grassland of the Victorian Volcanic Plain	Critically Endangered	Yes	This community is a complex and variable ecological community, with species composition and appearance varying based on environmental conditions and seasonal variations. The vegetation of Natural Temperate Grassland is mostly limited to a ground layer of grasses and herbs. Large trees are absent to sparse (TSSC, 2008). The TEC is dominated by a layer of native tussock-forming perennial grasses. The spaces between tussock grasses are interspersed with a variety of herbs (DEWHA, 2008d). The community has a very restricted geographic distribution and is limited to the basalt plains of Victoria, extending from Melbourne west to Hamilton. It has declined in extent and community integrity (DEWHA, 2008d). This community was identified within NGGA during site surveys and has potential for direct and indirect impacts (EHP, 2021). Further detailed assessment is required. Refer to Chapter 21 of Part 4 for the detailed impact assessment of Natural Temperate Grassland.

TEC name	EPBC listing	Requires further assessment	Justification
Seasonal Herbaceous Wetlands (Freshwater) of the Temperate Lowland Plains	Critically Endangered	No	This community occurs in the temperate zone of mainland south-eastern Australia, including south-eastern SA, Victoria, and southern NSW. It is found on flat plains or gentle slopes below 500 m elevation (DSEWPaC, 2012a). The community comprises temporary freshwater wetlands which are seasonally inundated, typically filling after rains in winter and spring, and then drying out. Rainfall is the main water source for the community. The community occurs on fertile and poorly drained soils, on isolated depressions or drainage lines. Many occurrences of this community are very small (less than 1 hectare in size) (DSEWPaC, 2012a). Species composition of the community varies with these seasonal patterns and local site conditions. The community is dominated by a ground layer of wetland herbs, forbs and graminoid species, and trees are usually absent. The wetland usually has a sharp boundary in soil, topography or vegetation that distinguishes it from neighbouring vegetation communities, with few to no wetland specialist species in the adjacent communities. The community often occurs in association with natural temperate grasslands and grassy woodlands (DSEWPaC, 2012a) It is noted that modifications to other types of wetlands can result in this ecological community being present where it was previously absent. These modified wetlands are considered to be included as part of this threatened ecological community (DSEWPaC, 2012a) No vegetation likely to be part of this community was recorded during surveys. Further, no wetlands were recorded during surveys that are likely to meet the definition of this TEC (EHP, 2021). Modelling of wetland occurrence by DELWP (DELWP, 2022b) has not identified any other wetland areas within the Growth Areas which are likely to constitute this TEC. There are two wetlands modelled to occur within the NGGA. The first of these corresponds to a wastewater treatment plant adjacent to Anakie Road. The second of these appears to be related to two small farm dams (from aerial observations) located in the NGGA Conservation Area. This area was mapped as Plains Grassland (EVC 132) by (EHP, 2021). The TEC may occur approximately 4.6 km south of the WGGA near the intersection of McCanns Lane and the Hamilton Highway, outside of the Strategic Assessment Area (The City of Greater Geelong, 2021). More recent surveying of this area suggests that the occurrence does not represent the TEC. Further survey is required to confirm the presence of the TEC in this area. Indirect impacts to the TEC (if it does occur in this area) are unlikely given the distance from the Growth Areas, and the absence of hydrological links.

TEC name	EPBC listing	Requires further assessment	Justification
White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland	Critically Endangered	No	This community occurs along the western slopes and tablelands of the Great Dividing Range, from southern Queensland, through NSW to Victoria. It occurs in areas with annual rainfall between 400-800 mm per annum at altitudes of 170-1,200 m above sea level (DECCW, 2010). The community is a grassy woodland community which is characterised by a diverse understorey of tussock grasses, herbs and occasional shrubs, with either White Box (*Eucalyptus albens*), Yellow Box (*Eucalyptus melliodora*) and/or Blakely's Red Gum (*Eucalyptus blakelyi*) as the dominant tree species. The community may also occur as a derived grassland, where trees have been removed yet the groundcover remains intact Characteristics trees of this vegetation community have not been recorded during site surveys within the Growth Areas (EHP, 2021). The Strategic Assessment Area is modelled to have historically comprised of a native grassland community, not a woodland community (DELWP, 2022a). Further, the Strategic Assessment Area is located wholly within the Southern Volcanic Plain IBRA bioregion, and this community is not known to occur within this bioregion (DECCW, 2010). Overall, it is considered unlikely that this community would be present within the Strategic Assessment Area. It is unlikely that the community is present in areas downstream of the Strategic Assessment Area. The Strategic Assessment Area occurs up to approximately 100 m in elevation (and so all areas downstream would be at lower elevations than this), whereas this TEC occurs at altitudes above 170 (DECCW, 2010). Within the Study Area, elevations of 170 m or above occur within You Yangs Regional Park, and in the region associated with the Brisbane Ranges National Park in the north-west of the Study Area. Given the distance of these areas from the Strategic Assessment Area and the fact that they are upstream, it is considered unlikely that the Plan would result in indirect impacts to these environments.

FPAL SPECIES CATEGORISATION

Table A-4: Categorisation of FPAL species

Scientific name	Common name	Proposed listing status	Requires further assessment	Justification
Birds				
Aphelocephala leucopsis	Southern Whiteface	Vulnerable	No	The Southern Whiteface has a very wide distribution, occurring across most of Australia south of the tropics, from western WA to eastern NSW, and through SA and VIC. The species occurs in open woodlands and shrublands, and forages on insects, spiders and seeds. The proposed definition of habitat critical to the survival of the species includes relatively undisturbed open woodlands and shrublands, habitat with low tree densities and herbaceous understorey litter cover, and living and dead trees which provide suitable nesting hollows. Threats to the species include large scale land clearing for agriculture, habitat degradation due to grazing, and climate change (DAWE, 2022c). The Plan will not result in direct impacts to suitable habitat for this species within the Growth Areas, as the Growth Areas support grassland and open agricultural environments, which are not consistent with habitat requirements of the species. There are multiple records in the VBA database of the Southern Whiteface within the Study Area. Records are mostly concentrated on the limited areas of remnant woodland located some distance from the Growth Areas which are unlikely to be impacted under the Plan. Other than these woodland remnants, the Study Area provides very limited suitable habitat for the species. Development under the Plan is unlikely to affect the species or contribute to any recognised threats.
Climacteris picumnus victoriae	(Brown Treecreeper (south-eastern))	Vulnerable	No	The Brown Treecreeper (south-eastern) occurs in south-eastern Australia, from the Grampians in western Victoria, through central New South Wales to the Bunya Mountains in Queensland, and from the coast to the inland slopes of Great Dividing Range. Records of the subspecies mostly occur in inland environments, and the species is less commonly found in coastal environments (DAWE, 2022d). The species occupies dry open eucalypt forests and woodlands with a dense shrub layer and is not present in heavily degraded woodlands. Habitat critical to the survival of the species is proposed to include relatively undisturbed grassy woodlands, live and dead trees which provide essential roosting and nesting sites (including tree hollows), and fallen timber which provides essential foraging habitat (DAWE, 2022d). The species is thought to be unable to cross habitat gaps and are thought to require remnant vegetation fragments of at least 300 ha to maintain population viability (DAWE, 2022d). Threats to the species include habitat clearing and fragmentation due to agriculture, habitat degradation due to grazing, firewood collection, climate change, inappropriate fire regimes, Noisy Miner competition, invasive species, and grazing pressures from overabundant kangaroo populations (DAWE, 2022d).

Scientific name	Common name	Proposed listing status	Requires further assessment	Justification
				The Plan will not result in direct impacts to suitable habitat for this species within the Growth Areas, as the Growth Areas support grassland and open agricultural environments, which are not consistent with habitat requirements of the species. There are multiple records in the VBA database of the Brown Treecreeper (south-eastern) within the Study Area. Records are concentrated on the limited areas of remnant woodland located some distance from the Growth Areas which are unlikely to be impacted under the Plan. Other than these woodland remnants, the Study Area provides very limited suitable habitat for the species. Development under the Plan is unlikely to affect the species or contribute to any recognised threats.
Melanodryas cucullata cucullata	South-eastern Hooded Robin	Vulnerable	No	The South-eastern Hooded Robin occurs across south-eastern Australia, including most of NSW, Victoria and south-eastern South Australia (SA DEH, 2008). In Victoria, the species is mostly distributed across the Lowan Mallee, Murray Mallee, Wimmera, Goldfields, Central Victorian Uplands, Victorian Riverina, Northern Inland Slopes and East Gippsland Upland bioregions. The highest density of records in Victoria occur in the semi-arid region of north west Victoria (SWIFFT, 2022c). The species is reported to occur in eucalypt woodland and mallee and Acacia shrubland, in habitat which include relatively open areas, patches of young eucalypts for nest sites, and the presence of suitable perches for foraging (SA DEH, 2008). Their habitat has also been described as structurally diverse open woodlands containing eucalypts, acacia or callitris with an understorey of smaller trees, shrubs and grasses (SWIFFT, 2022c). The species is territorial, occupying the same habitat for a year or several years (SA DEH, 2008). Territories range between 10 ha in the breeding season to 30 ha in the non-breeding season (SWIFFT, 2022c). A minimum remnant vegetation size of over 50 ha is required (SA DEH, 2008). The main threats to the species are clearing and fragmentation of critical habitat, with even large habitat fragments appearing to be unable to sustain the species over the long term (SA DEH, 2008). Other threats to the species include inappropriate fire regimes, weed invasion (the species avoids foraging in sites dominated by weeds and exotic grasses), predation by cats and foxes, noisy miner competition, firewood collection and climate change (SWIFFT, 2022c). The Plan will not result in direct impacts to suitable habitat for this species within the Growth Areas, as the Growth Areas support grassland and open agricultural environments with high densities of weeds, which are not consistent with habitat requirements of the species. There are multiple records within the VBA database of the South-eastern Hooded Robin within the Study Area. Records are concentrated on the limited areas of remnant woodland located some distance from the

Scientific name	Common name	Proposed listing status	Requires further assessment	Justification
				Growth Areas which are unlikely to be impacted under the Plan. Other than these woodland remnants, the Study Area provides very limited suitable habitat for the species. Development under the Plan is unlikely to affect the species or contribute to any recognised threats.
Stagonopleura guttata	Diamond Firetail	Vulnerable	No	Diamond Firetails occur in south-east mainland Australia, from south-east Queensland to South Australia, and about 300 km inland from the coast. The species used to occur further north in Queensland but currently only occurs in the southernmost parts of the State. It has disappeared from many of the more settled regions of NSW, ACT and Victoria, and currently occurs as disjunct populations in South Australia (DAWE, 2022e). The species occupies eucalypt, acacia or casuarina woodlands, open forests, and lightly timbered habitats with scattered trees. The species is likely to be sedentary, although may move locally. Nesting occurs in dense shrubs. Habitat critical to the survival of the species is proposed to include areas of eucalypt, acacia or casuarina woodlands, open forests and other lightly timbered habitats; areas with low tree density, few large logs and little litter cover but high grass cover for foraging, roosting and breeding, and Drooping She-oak habitat within the Mt Lofty Ranges (DAWE, 2022e). Threats to the species include habitat loss caused by large scale land clearing for agriculture, weeds (particularly exotic grasses which alter habitat values), habitat degradation caused by livestock, rabbit, and overabundant kangaroo grazing, inappropriate fire regimes, climate change, competition with noisy miners, and predation by Pied Currawongs (DAWE, 2022e). The Plan will not result in direct impacts to suitable habitat for this species within the Growth Areas, as the Growth Areas support grassland and open agricultural environments which are heavily infested with exotic grass species, which are not consistent with habitat requirements of the species. There are multiple records within the VBA database of the Diamond Firetail within the Study Area. Records are concentrated on the limited areas of remnant woodland located some distance from the Growth Areas which are unlikely to be impacted under the Plan. Other than these woodland remnants, the Study Area provides very limited suitable habitat for the species. Development under the Plan is unlikely to affect the species or contribute to any recognised threats.
Reptiles				
Chelodina longicollis	Eastern Long-necked Turtle	Vulnerable	No	The Eastern Long-necked Turtle has a broad distribution throughout south-east Australia including south-east Queensland, New South Wales, Victoria, and south-east South Australia. It occurs in the Murray-Darling drainage, the Paroo Drainage, and in the Cooper Creek drainage (Kennett *et al.*, 2009). The species uses a diversity of freshwater aquatic habitats, including lakes, farm dams, shallow temporary ponds, and permanent riverine waterholes. It is found in higher numbers within bodies of water which are remote from permanent rivers (Kennett *et al.*, 2009). The turtle likes to bask on rocks or logs in soft sandy areas.

Scientific name	Common name	Proposed listing status	Requires further assessment	Justification
				The species is dormant over winter and resides under logs or leaves. It may travel long distances during the dry season to find suitable habitat (DELWP, 2017). The main threats to the species include nest predation by introduced foxes, riverine habitat modification, and land use change impacting migrating turtles (Kennett *et al.*, 2009). There are a small number of scattered and isolated records across the Study Area, associated with different hydrology systems such as the Western Treatment Plant, Little River, the Barwon River and a number of smaller waterbodies. The nearest record occurs approximately 18.6 km (in stream length) south-east of the WGGA in a small tributary of the Barwon River (Waurn Ponds Creek). The creek occurs in an area surrounded by both urbanised and agricultural land. Given that the species is considered common throughout all major river systems within its range (Kennett *et al.*, 2009), the absence of abundant records indicates that the Study Area may not be an important area for the species. Further, any potential aquatic habitat within the Study Area is unlikely to be important considering the broad habitat preferences of the species. Development under the Plan is unlikely to affect the species or contribute to any recognised threats.
Lissolepis coventryi	Swamp Skink, Eastern Mourning Skink	Endangered	No	The Swamp Skink occurs in south-eastern Australia, ranging between Mt Gambier in the west, through Victoria, and likely to just north of the NSW border. It primarily inhabits coastal areas, with few inland populations. Its distribution is severely disjunct, having declined significantly following European settlement. In 1998, the species was known from 77 discrete sites, of which 72 were located in Victoria. Of the 72 in Victoria, 5 to 6 sites are presumed extinct, and 38 sites are thought unlikely to be viable. Only 12 sites (all in East Gippsland) are thought to be potentially secure (DAWE, 2022f). The species occurs in densely vegetated saltwater and freshwater wetlands which have natural hydrological regimes and have suitable shelter sites. The species appears to have specific habitat requirements, favouring dense groundcover with little to no overstorey (DAWE, 2022f). Threats to the species include loss of habitat due to wetland draining for agriculture, altered river/wetland water regimes, pollution of rivers/wetlands/coastal environments resulting in changes to vegetation, impacts from pests and weeds, habitat fragmentation, impacts from recreational users, timber harvesting, climate change, disturbance from grazing, and habitat degradation due to phytophthora (DAWE, 2022f). There are no records of the species within the Study Area, although records occur along coastal areas to the east and west of the Study Area. The Study Area includes areas which are mapped within the draft Conservation Advice as localities where the species or species habitat 'may occur' (DAWE, 2022f). While the Study Area contains wetland habitat, the wetlands within the Study Area are already disturbed and experience altered hydrological regimes. The absence of species' records within the Study Area, the sensitivity

Scientific name	Common name	Proposed listing status	Requires further assessment	Justification
				of the species to disturbance, and the presence of existing threats within the Study Area, suggests that it is unlikely that the Study Area supports suitable habitat for the species. Development under the Plan is unlikely to affect the species or contribute to any recognised threats.
Pseudemoia rawlinsoni	Glossy Grass Skink, Swampland Cool-skink, Rawlinson's Window-eyed Skink	Vulnerable	No	The Glossy Grass Skink occurs in south eastern Australia in several disjunct areas, including south eastern South Australia, south western and south central Victoria, through the Snowy Mountains of NSW to the Brindabella Ranges of the ACT, and in Tasmania. The disjunct distribution of the species may be an artefact of historical clearing, and/or the cryptic nature of the species and associated challenges in finding and identifying it (Threatened Species Section, 2021). The species was described as being 'rare' in the Melbourne region in the 1990's (Hamer, 2011). The species' habitat use is consistent across its range. It occurs in sites with very humid microhabitats, including saltmarshes, boggy creek valleys, margins of permanent lakes and swamps in wet heathland, fens and bogs. It has been reported to thrive in anthropogenic habitats in several locations in Tasmania, such as marshy drainage lines in paddocks (Threatened Species Section, 2021). The skink shelters in dense vegetation, such as within the base of grass and rush tussocks and within rotting logs. The preference of the species for dense vegetation likely explains the species' rarity in known occurrences. (Threatened Species Section, 2021). Threats to the species include clearing/modification of habitat, altered hydrology of wetlands/swampy environments, inappropriate fire regimes, inappropriate recreational activities, climate change, and small populations increasing the risk of localised extinctions from stochastic events (Threatened Species Section, 2021). There are no records of the Glossy Grass Skink within the Study Area, although potential habitat is available within the Study Area associated with wetland areas. While it is acknowledged that the species is cryptic in nature and its full distribution may not be known, given the lack of records and known populations of the species and the well-surveyed nature of the wetlands in the Study Area (as Ramsar sites, and as sites with high accessibility), it is considered unlikely that the species is present within these areas. Development under the Plan is unlikely to affect the species or contribute to any recognised threats.
Insects				
Agrotis infusa	Bogong Moth	Endangered	No	The Bogong Moth occurs across a large area of Australia. Over summer (from the end of September to February and March), adult Bogong Moths undertake a summer 'hibernation' referred to as estivation in the Australian Alps of Victoria and NSW, taking shelter in caves and rock crevices. Once summer ends, the moths disperse over large distances to breeding grounds. Once at the breeding grounds, the moths mate, lay eggs in the soil, and die. Juvenile moths which hatch and develop then repeat the migratory cycle (Warrant *et al.*, 2016).

Scientific name	Common name	Proposed listing status	Requires further assessment	Justification
				Outside of their summer estivation, Bogong Moths have been observed across Australia, south of the Tropic of Capricorn, including in Tasmania, from coastal NSW through to Perth (Warrant *et al.*, 2016). There is yearly variation in the larval range of the species, and uncertainty regarding the processes which influence this variation. It is thought that the breeding grounds and larval stages mostly occur in the soil of lowland Queensland, NSW, northern Victoria and South Australia (Wintle *et al.*, 2021). Uncertainty regarding the location of preferred breeding grounds of this species is a key limitation which makes it difficult to target conservation practices effectively for the species (Wintle *et al.*, 2021). Larvae occur in clay soils, where eggs hatch in autumn or early winter, and larvae feed on the young shoots of plants. Later stages of larvae sever plants at the base and draw them into tunnels for consumption during the day. The species passes through six instars before pupating over several weeks. Adult moths then emerge ready for migration in early to mid-spring (Wintle *et al.*, 2021). The main threats to the species are thought to include climate change (including temperature and rainfall changes) and agricultural practices (including conversion of cracking clay soil into farmland, agricultural weed management of fallow fields which may deprive larvae of a food source during development, and use of insecticides). Potential threats also include distracting during migration by artificial lights, predation by native and introduced pests in estivation caves, and altered fire regimes (Wintle *et al.*, 2021). There are no VBA records of the Bogong Moth within the Study Area. While there is uncertainty regarding the preferred breeding locations of the species, it is thought that within Victoria, breeding grounds mostly occur within the north of the state (Wintle *et al.*, 2021). Further, development under the Plan will not exacerbate threats to the species, as identified known and potential threats are already present within the Study Area. Overall, development under the Plan is unlikely to affect the species or contribute to any recognised threats.

FPAL COMMUNITIES CATEGORISATION

Table A-5: Categorisation of FPAL ecological communities

Proposed TEC name	Proposed listing	Requires further assessment	Justification
Temperate coastal oyster beds and reef	Critically Endangered	No	This proposed TEC was nominated for listing under the EPBC Act in 2018. There is limited publicly available information regarding the proposed community and its possible distribution. At the time of listing, the proposed TEC was described to comprise of temperate intertidal or subtidal oyster beds/reefs and associated species, occurring in the marine and estuarine waters of eastern and southern Australia. This type of community has been heavily cleared with only a small proportion remaining. Key threats include historical overexploitation and harvesting, increasing urbanisation of catchments and coastlines, increasing disease and pest prevalence, water pollution, sedimentation and altered flow regimes (DoEE, 2018b). The nomination is noted to be based on work completed by the NESP Marine Hub (Gillies, Creighton and McLeod, 2015). This report describes the historical and current extent of shellfish reefs across Australia. Port Phillip is identified as a site which historically supported substantial shellfish reef communities. However, these ecosystems at this site have experienced a dramatic decline due to overexploitation, water quality declines, and other forms of anthropogenic disturbance. While it is no longer clear if the community exists in Port Phillip, isolated individual and small clumps of oysters remain in sparsely distributed areas in Port Phillip. For this reason, Port Phillip has been identified as a potential site for restoration of shellfish reef ecosystems. While there is a lack of clarity around the definition and distribution of this TEC, it is considered likely that the TEC may be present in small areas within Port Phillip Bay. However, it is considered unlikely that the Plan would impact upon this TEC. This is because the main potential impact pathway to the TEC due to the Plan is through changes to water flow and quality. The Plan includes a commitment which will suitably mitigate this impact, through undertaking technical studies to understand key risks to water flow and quality, preparing guidelines based on the result of these studies, and undertaking planning scheme amendments to implement the guidelines. This commitment is supported by a range of existing measures in the planning system to minimise impacts to water flow and quality. Overall, it is considered unlikely that implementation of the Plan would result in impacts to this proposed TEC.

MIGRATORY SPECIES CATEGORISATION

Table A-6 Categorisation results for Commonwealth-listed migratory bird species

Scientific name	Common name	EPBC Status[1]	Applicable EPBC Policy	Categorisation criteria triggered[2]		Justification	Final category
				ESP[3]	IH[3]		
Actitis hypoleucos	Common Sandpiper	Mig, B, C, J, K	EPBC Act Policy Statement 3.21 (DoE, 2017)	No	No	13 individuals of the Common Sandpiper have been recorded within the Study Area within the past 5 years, which is below the threshold of an ecologically significant proportion of the species (190 individuals within the last 5 years) (Hansen *et al.*, 2016; DoE, 2017). No important habitat for the Common Sandpiper has been mapped by Birdlife Australia within the Study Area (Weller *et al.*, 2020). The Plan will not impact this species.	Category 2
Anous stolidus	Common Noddy	Mig, C, J	None	No	No	One individual of the Common Noddy has been recorded within the Study Area, which is below the threshold of an ecologically significant proportion of the species (800 individuals) (Birdlife International, 2022). Given the small number of records, it is unlikely that the Study Area supports important habitat for this species. The Plan will not impact this species.	Category 2
Apus pacificus	Fork-tailed Swift	Mig, C, J, K	Draft referral guidelines for 14 migratory birds (DoE, 2015c)	Yes	No	819 individuals of the Fork-tailed Swift have been recorded within the Study Area, which is above the threshold of an ecologically significant proportion of the species (100 individuals) (DoE, 2015c). Species records range in age from 1898 through to 2015 and occur scattered across the eastern half of the Study Area. Within this area, there is no location where record densities are substantially greater than elsewhere. The Migratory Bird Referral Guidelines describes important habitat for the species as follows: "Non breeding habitat only; Found across a range of habitats, from inland open plains to wooded areas, where it is exclusively aerial." (DoE, 2015c). The species' SPRAT profile notes that the species is widespread but sparsely scattered across Victoria. It is insectivorous which forages, loafs and probably roosts aerially, although the species is occasionally observed	Category 2

Scientific name	Common name	EPBC Status[1]	Applicable EPBC Policy	Categorisation criteria triggered[2]		Justification	Final category
				ESP[3]	IH[3]		
						to land. The species forages along the edges of low-pressure weather systems which assist with flight (DCCEEW, 2022). Given that the species occurs in a widespread but sparse manner across Victoria and given that the last known record of the species within the Study Area was from 2015, it is unlikely that the Study Area contains important habitat for the species. Further, given that the species is almost exclusively aerial and insectivorous, it is unlikely that the Plan would result in impacts to the species.	
Ardenna carneipes	Flesh-footed Shearwater, Fleshy-footed Shearwater	Mig, J, K	None	No	No	No individuals of the Flesh-footed Shearwater have been recorded within the Study Area. Given the absence of records of the species, it is unlikely the Study Area supports important habitat for the species. The Plan will not impact this species.	Category 2
Ardenna grisea	Sooty Shearwater	Mig, J, FPAL	None	No	No	One individual of the Sooty Shearwater has been recorded within the Study Area, which is below the threshold of an ecologically significant proportion of the species (88,000 individuals) (Birdlife International, 2022). Given the small number of records, it is unlikely that the Study Area supports important habitat for this species. The Plan will not impact this species.	Category 2
Arenaria interpres	Ruddy Turnstone	Mig, B, C, J, K, FPAL	EPBC Act Policy Statement 3.21 (DoE, 2017)	Yes	No	356 individuals of the Ruddy Turnstone have been recorded within the Study Area within the past 5 years, which is above the threshold of an ecologically significant proportion of the species (30 individuals within the last 5 years) (Hansen *et al.*, 2016; DoE, 2017). All individuals occur along the northern coastline of Port Phillip Bay, extending from Avalon Beach in the west to the boundary of the Study Area in the east. This area will not be impacted by the Plan as it is not located downstream of the Strategic Assessment Area. No important habitat for the Ruddy Turnstone has been mapped by Birdlife Australia within the Study Area (Weller *et al.*, 2020).	Category 2

Scientific name	Common name	EPBC Status[1]	Applicable EPBC Policy	Categorisation criteria triggered[2]		Justification	Final category
				ESP[3]	IH[3]		
Calidris acuminata	Sharp-tailed Sandpiper	Mig, B, C, J, K, FPAL	EPBC Act Policy Statement 3.21 (DoE, 2017)	Yes	Yes	11,075 individuals of the Sharp-tailed Sandpiper have been recorded within the Study Area within the past 5 years, which is above the threshold of an ecologically significant proportion of the species (85 individuals within the last 5 years) (Hansen *et al.*, 2016; DoE, 2017). These recent records primarily occur along the northern coastline of Port Phillip Bay, within or adjacent to The Spit Wildlife Reserve. This area will not be impacted by the Plan as it is not located downstream of the Strategic Assessment Area. Important habitat for the Sharp-tailed Sandpiper has been mapped by Birdlife Australia within the Study Area in the following areas (Weller *et al.*, 2020): • Lake Connewarre and Barwon River Estuary IBA • Werribee/Avalon IBA • Moolap IBA These IBAs extend outside of the locations of recent (2017 onwards) records of the species. However, when date filters are removed and all available records of the species are considered, substantial records of the species occur within the Lake Connewarre wetland complex and in the Moolap locality. A small number of records also occur in the vicinity of Limeburners Lagoon. The Moolap IBA will not be impacted by the Plan as it is not located downstream of the Strategic Assessment Area. However, there is potential for impacts to occur to the Lake Connewarre wetland complex and Limeburners Lagoon, as these localities are downstream of the Growth Areas. Historical records of the species in these habitats, and identification of these habitats as IBAs for the species by Birdlife Australia, suggest that these areas are important for the species, despite the lack of recent records in these localities. For this reason, this species has been assigned to Category 1 for a detailed assessment. Refer to Chapter 23 of Part 4 for the detailed impact assessment of the Sharp-tailed Sandpiper.	Category 1

Scientific name	Common name	EPBC Status[1]	Applicable EPBC Policy	Categorisation criteria triggered[2]		Justification	Final category
				ESP[3]	IH[3]		
Calidris alba	Sanderling	Mig, B, C, J, K	EPBC Act Policy Statement 3.21 (DoE, 2017)	Yes	Yes	35 individuals of the Sanderling have been recorded within the Study Area within the past 5 years, which is above the threshold of an ecologically significant proportion of the species (30 individuals within the last 5 years) (Hansen *et al.*, 2016; DoE, 2017). The closest of these recent records are two records (each noting a single individual) located at Avalon Beach, over 6.5 km east of the closest Growth Area. Otherwise, the majority of recent records occur further to the east of the Growth Areas, in association with The Spit Wildlife Reserve. This area will not be impacted by the Plan as it is not located downstream of the Strategic Assessment Area. A record also occurs at the coast along the southern edge of the Study Area, at 13th Beach, nearly 20 km from the Strategic Assessment Area. This record will not be impacted by the Plan. Important habitat for the Sanderling has been mapped by Birdlife Australia within the Study Area at Werribee/Avalon IBA (Weller *et al.*, 2020). Analysis of all species' records (with date filters removed) indicate that the species' known occurrence within the Werribee/Avalon IBA region is from the Avalon Beach locality in the west and extends east into the region of The Spit Wildlife Reserve. This area will not be impacted by the Plan as it is not located downstream of the Strategic Assessment Area.	Category 2
Calidris canutus	Red Knot, Knot	E, Mig, B, C, J, K, FPAL	EPBC Act Policy Statement 3.21 (DoE, 2017)	-	-	This species has been triggered as a Category 1 threatened species. Note that assessment of this species is contained within the threatened fauna assessment in Chapter 19. Refer to Section 19.4 of Part 4 for the detailed impact assessment of the Red Knot.	Category 1
Calidris ferruginea	Curlew Sandpiper	CE, Mig, B, C, J, K, FPAL	EPBC Act Policy Statement 3.21 (DoE, 2017)	-	-	This species has been triggered as a Category 1 threatened species. Note that assessment of this species is contained within the threatened fauna assessment in Chapter 19. Refer to Section 19.4 of Part 4 for the detailed impact assessment of the Curlew Sandpiper.	Category 1
Calidris melanotos	Pectoral Sandpiper	Mig, B, J, K	EPBC Act Policy	No	No	179 individuals of the Pectoral Sandpiper have been recorded within the Study Area within the past 5 years, which is below the threshold of an	Category 2

Scientific name	Common name	EPBC Status[1]	Applicable EPBC Policy	Categorisation criteria triggered[2]		Justification	Final category
				ESP[3]	IH[3]		
			Statement 3.21 (DoE, 2017)			ecologically significant proportion of the species (1,220 individuals within the last 5 years) (Hansen *et al.*, 2016; DoE, 2017). No important habitat for the Pectoral Sandpiper has been mapped by Birdlife Australia within the Study Area (Weller *et al.*, 2020). The Plan will not impact this species.	
Calidris ruficollis	Red-necked Stint	Mig, B, C, J, K	EPBC Act Policy Statement 3.21 (DoE, 2017)	Yes	Yes	21,042 individuals of the Red-necked Stint have been recorded within the Study Area within the past 5 years, which is above the threshold of an ecologically significant proportion of the species (475 individuals within the last 5 years) (Hansen *et al.*, 2016; DoE, 2017). All of these recent individuals occur along the northern coastline of Port Phillip Bay, extending from Avalon Beach in the west to the boundary of the Study Area in the east. This area will not be impacted by the Plan as it is not located downstream of the Strategic Assessment Area. Important habitat for the Red-necked Stint has been mapped by Birdlife Australia within the Study Area in the following localities (Weller *et al.*, 2020): • Lake Connewarre and Barwon River Estuary IBA • Werribee/Avalon IBA • Moolap IBA These IBAs extend outside of the locations of recent (2017 onwards) records of the species. However, when date filters are removed and all available records of the species are considered, substantial records of the species occur within the Lake Connewarre wetland complex and in the Moolap locality. A small number of records also occur in the vicinity of Limeburners Lagoon. The Moolap IBA will not be adversely impacted by development under the Plan as it is not downstream of the Strategic Assessment Area. However, there is potential for impacts to occur to the Lake Connewarre wetland complex and Limeburners Lagoon, as these localities are downstream of the Growth Areas. Historical records of the species in these habitats, and identification of these habitats as IBAs for the species by	Category 1

Scientific name	Common name	EPBC Status[1]	Applicable EPBC Policy	Categorisation criteria triggered[2]		Justification	Final category
				ESP[3]	IH[3]		
						Birdlife Australia, suggest that these areas are important for the species, despite the lack of recent records in these localities. For this reason, this species has been assigned to Category 1 for a detailed assessment. Refer to Chapter 23 of Part 4 for the detailed impact assessment of the Red-necked Stint.	
Calidris subminuta	Long-toed Stint	Mig, B, C, J, K	EPBC Act Policy Statement 3.21 (DoE, 2017)	No	No	No individuals of the Long-toed Stint have been recorded within the Study Area within the past 5 years, which is below the threshold of an ecologically significant proportion of the species (230 individuals within the last 5 years) (Hansen *et al.*, 2016; DoE, 2017). No important habitat for the Long-toed Stint has been mapped by Birdlife Australia within the Study Area (Weller *et al.*, 2020). The Plan will not impact this species.	Category 2
Calidris tenuirostris	Great Knot	CE, Mig, B, C, J, K, FPAL	EPBC Act Policy Statement 3.21 (DoE, 2017)	-	-	This species has been triggered as a Category 1 threatened species. Note that assessment of this species is contained within the threatened fauna assessment in Chapter 19. Refer to Section 19.4 of Part 4 for the detailed impact assessment of the Great Knot.	Category 1
Charadrius bicinctus	Double-banded Plover	Mig, B	EPBC Act Policy Statement 3.21 (DoE, 2017)	No	Yes	3 individuals of the Double-banded Plover have been recorded within the Study Area within the past 5 years, which is below the threshold of an ecologically significant proportion of the species (19 individuals within the last 5 years) (Hansen *et al.*, 2016; DoE, 2017). These individuals are recorded to occur along the northern coastline of Port Phillip Bay, adjacent to The Spit Wildlife Reserve. This area will not be impacted by the Plan as it is not located downstream of the Strategic Assessment Area. Important habitat for the Double-banded Plover has been mapped by Birdlife Australia within the Study Area in the following localities (Weller *et al.*, 2020): • Lake Connewarre and Barwon River Estuary IBA • Werribee/Avalon IBA • Moolap IBA	Category 1

Scientific name	Common name	EPBC Status[1]	Applicable EPBC Policy	Categorisation criteria triggered[2]		Justification	Final category
				ESP[3]	IH[3]		
						While few individuals of the Double-banded Plover have been recorded within the last 5 years, it is noted that when historical records are considered, a substantial number of individuals has been recorded within the Study Area within recent years (7,992 individuals from 1990 onwards). When records from 1990 onwards are considered, substantial records of the species occur within the Lake Connewarre wetland complex and in the Moolap locality. A small number of records also occur in the vicinity of Limeburners Lagoon. The Moolap IBA will not be impacted by the Plan as it is not located downstream of the Strategic Assessment Area. However, there is potential for impacts to occur to the Lake Connewarre wetland complex and Limeburners Lagoon, as these localities are downstream of the Growth Areas. Historical records of the species in these habitats, and identification of these habitats as IBAs for the species by Birdlife Australia, suggest that these areas are important for the species, despite the lack of recent records in these localities. For this reason, this species has been assigned to Category 1 for a detailed assessment. Refer to Chapter 23 of Part 4 for the detailed impact assessment of the Double-banded Plover.	
Charadrius leschenaultii	Greater Sand Plover, Large Sand Plover	V, Mig, B, C, J, K, FPAL	EPBC Act Policy Statement 3.21 (DoE, 2017)	-	-	This species has been triggered as a Category 1 threatened species. Note that assessment of this species is contained within the threatened fauna assessment in Chapter 19. Refer to Section 19.4 of Part 4 for the detailed impact assessment of the Greater Sand Plover.	Category 1
Charadrius mongolus	Lesser Sand Plover, Mongolian Plover	E, Mig, B, C, J, K	EPBC Act Policy Statement 3.21 (DoE, 2017)	-	-	This species has been triggered as a Category 1 threatened species. Note that assessment of this species is contained within the threatened fauna assessment in Chapter 19. Refer to Section 19.4 of Part 4 for the detailed impact assessment of the Lesser Sand Plover.	Category 1
Diomedea antipodensis	Antipodean Albatross	V, Mig, B	None	No	No	No individuals of the Antipodean Albatross have been recorded within the Study Area. Given the absence of records of the species, it is unlikely the Study Area supports important habitat for the species. The Plan will not impact this species.	Category 2

Scientific name	Common name	EPBC Status[1]	Applicable EPBC Policy	Categorisation criteria triggered[2]		Justification	Final category
				ESP[3]	IH[3]		
Diomedea epomophora	Southern Royal Albatross	V, Mig, B	None	No	No	No individuals of the Southern Royal Albatross have been recorded within the Study Area. Given the absence of records of the species, it is unlikely the Study Area supports important habitat for the species. The Plan will not impact this species.	Category 2
Diomedea exulans	Wandering Albatross	V, Mig, B	None	No	No	16 individuals of the Wandering Albatross have been recorded within the Study Area, which is below the threshold of an ecologically significant proportion of the species (201 individuals) (Birdlife International, 2022). The species is a wide-ranging marine species which breeds on a number of subantarctic islands. It feeds mainly in pelagic, offshore and inshore waters, feeding mainly on squid and fish, but also crustaceans and carrion (DCCEEW, 2022). Given the small number of records and the species' ecological characteristics, it is unlikely that the Study Area supports important habitat for this species. The Plan will not impact this species.	Category 2
Diomedea sanfordi	Northern Royal Albatross	E, Mig, B	None	No	No	No individuals of the Northern Royal Albatross have been recorded within the Study Area. Given the absence of records of the species, it is unlikely the Study Area supports important habitat for the species. The Plan will not impact this species.	Category 2
Gallinago hardwickii	Latham's Snipe, Japanese Snipe	Mig, B, J, K, FPAL	EPBC Act Policy Statement 3.21 (DoE, 2017)	Yes	Yes	940 individuals of the Latham's Snipe have been recorded within the Study Area within the past 5 years, which is above the threshold of an ecologically significant proportion of the species (18 individuals within the last 5 years) (Hansen *et al.*, 2016; DoE, 2017). The majority of these individuals (over 580 individuals) occur either within the downstream reaches of the Barwon River or within the Lake Connewarre wetland complex. These localities are downstream of the WGGA and have potential to be impacted under the Plan. One of the recent individuals occurs within the Strategic Assessment Area adjacent to Cowies Creek, approximately 600 m east of the boundary of WGGA. This locality is downstream of both Growth Areas and has potential to be impacted by the Plan.	Category 1

Scientific name	Common name	EPBC Status[1]	Applicable EPBC Policy	Categorisation criteria triggered[2]		Justification	Final category
				ESP[3]	IH[3]		
						Further, a small number of recent individuals have been recorded in proximity to Limeburners Lagoon, slightly upstream of the Lagoon. While the habitat in the location of the records themselves will not be impacted by the Plan, it is noted that Limeburners Lagoon is downstream of sections of the NGGA and therefore may be impacted by the Plan. Further, when date filters are removed, records of the Latham's Snipe are identified to occur within Limeburners Lagoon (the most recent record occurring in 1990). It is considered possible that the Latham's Snipe may utilise this habitat, based on proximity of recent records, and presence of historical records. Otherwise, the majority of remaining individuals occur along the northern coastline of Port Phillip Bay, adjacent to The Spit Wildlife Reserve. This area will not be impacted by the Plan as it is not located downstream of the Strategic Assessment Area. A small number of records also occur in the southern area of the Study Area along Thompson Creek and adjacent to Merrigig Creek. Some records also occur near the Moolap locality. These areas will not be impacted by the Plan as they are not located downstream of the Strategic Assessment Area. Important habitat for the Latham's Snipe has been mapped by Birdlife Australia within the Study Area in the following localities (Weller *et al.*, 2020): • Lake Connewarre and Barwon River Estuary IBA • Moolap IBA The Lake Connewarre and Barwon River Estuary IBA has potential to be impacted by the Plan as this site is downstream from the WGGA. The Moolap IBA will not be impacted by the Plan as it is not located downstream of the Strategic Assessment Area. Refer to Chapter 23 of Part 4 for the detailed impact assessment of the Latham's Snipe.	
Gallinago megala	Swinhoe's Snipe	Mig, B, C, J, K	EPBC Act Policy Statement 3.21 (DoE, 2017)	No	No	No individuals of the Swinhoe's Snipe have been recorded within the Study Area within the past 5 years, which is below the threshold of an ecologically significant proportion of the species (40 individuals within the last 5 years) (Hansen *et al.*, 2016; DoE, 2017).	Category 2

Scientific name	Common name	EPBC Status[1]	Applicable EPBC Policy	Categorisation criteria triggered[2]		Justification	Final category
				ESP[3]	IH[3]		
						No important habitat for the Swinhoe's Snipe has been mapped by Birdlife Australia within the Study Area (Weller *et al.*, 2020). The Plan will not impact this species.	
Gallinago stenura	Pin-tailed Snipe	Mig, B, C, J, K	EPBC Act Policy Statement 3.21 (DoE, 2017)	No	No	No individuals of the Pin-tailed Snipe have been recorded within the Study Area within the past 5 years, which is below the threshold of an ecologically significant proportion of the species (170 individuals within the last 5 years) (Hansen *et al.*, 2016; DoE, 2017). No important habitat for the Pin-tailed Snipe has been mapped by Birdlife Australia within the Study Area (Weller *et al.*, 2020). The Plan will not impact this species.	Category 2
Hirundapus caudacutus	White-throated Needletail	V, Mig, C, J, K	Draft referral guidelines for 14 migratory birds (DoE, 2015c)	Yes	No	745 individuals of the White-throated Needletail have been recorded within the Study Area, which is above the threshold of an ecologically significant proportion of the species (10 individuals) (DoE, 2015c). Records range in age from 1800 through to 2019. From 1990 to onwards, 670 individuals have been recorded within the Study Area. Records occur scattered throughout the Study Area, with slightly higher densities of records occurring within Geelong, You Yangs Regional Park, and within Brisbane Ranges National Park. The majority of records within You Yangs Regional Park, and within Brisbane Ranges National Park occur prior to 1990. The species has a widespread distribution in eastern and south-eastern Australia, occurring in all coastal regions of Queensland and NSW, and extending inland to the western slopes of the Great Dividing Range. In Victoria, the species is widespread, with most records occurring on or south of the Great Dividing Range, with few records in western Victoria. It is also widespread in Tasmania (TSSC, 2019b). The Migratory Bird Referral Guidelines describe important habitat for the species as follows: "Non-breeding habitat only: Found across a range of habitats, more often over wooded areas, where it is almost exclusively aerial. Large tracts of native vegetation, particularly forest, may be a key habitat requirement for species. Found to roost in tree hollows in tall trees	Category 2

Scientific name	Common name	EPBC Status[1]	Applicable EPBC Policy	Categorisation criteria triggered[2]		Justification	Final category
				ESP[3]	IH[3]		
						on ridge-tops, on bark or rock faces. Appears to have traditional roost sites." (DoE, 2015c) The species is insectivorous. In Australia, threats to the species include use of insecticides, loss of forests and woodland habitats which may be contributing to loss of roosting sites and reduction in invertebrate prey, and collisions with infrastructure such as wind turbines, windows and overhead wires (TSSC, 2019b). The Growth Areas and surrounds are likely to represent more marginal foraging habitat for the species. Development under the Plan is unlikely to affect the species or contribute to any recognised threats.	
Limicola falcinellus	Broad-billed Sandpiper	Mig, B, C, J, K	EPBC Act Policy Statement 3.21 (DoE, 2017)	No	No	One individual of the Broad-billed Sandpiper has been recorded within the Study Area within the past 5 years, which is below the threshold of an ecologically significant proportion of the species (30 individuals within the last 5 years) (Hansen *et al.*, 2016; DoE, 2017). No important habitat for the Broad-billed Sandpiper has been mapped by Birdlife Australia within the Study Area (Weller *et al.*, 2020). The Plan will not impact this species.	Category 2
Limosa lapponica	Bar-tailed Godwit	Mig, B, C, J, K	EPBC Act Policy Statement 3.21 (DoE, 2017)	No	No	This species has been triggered as a Category 1 threatened species (as *Limosa lapponica baueri*). Note that assessment of this species is contained within the threatened fauna assessment in Chapter 19. Refer to Section 19.4 of Part 4 for the detailed impact assessment of the Bar-tailed Godwit.	Category 1
Limosa limosa	Black-tailed Godwit	Mig, B, C, J, K	EPBC Act Policy Statement 3.21 (DoE, 2017)	Yes	No	892 individuals of the Black-tailed Godwit have been recorded within the Study Area within the past 5 years, which is above the threshold of an ecologically significant proportion of the species (160 individuals within the last 5 years) (Hansen *et al.*, 2016; DoE, 2017). Of these, the majority of individuals (over 800) occur along the northern coastline of Port Phillip Bay, adjacent to The Spit Wildlife Reserve. This area will not be impacted by the Plan as it is not located downstream of the Strategic Assessment Area.	Category 2

Scientific name	Common name	EPBC Status[1]	Applicable EPBC Policy	Categorisation criteria triggered[2]		Justification	Final category
				ESP[3]	IH[3]		
						A smaller number of recent individuals (48) occur within or adjacent to the Lake Connewarre wetland complex. While this area has potential to be impacted by the Plan as it is downstream of the WGGA, the number of individuals present at this site is substantially below the threshold of an ecologically significant proportion of the species within this habitat area. No important habitat for the Black-tailed Godwit has been mapped by Birdlife Australia within the Study Area (Weller *et al.*, 2020).	
Macronectes giganteus	Southern Giant-Petrel, Southern Giant Petrel	E, Mig, B	None	No	No	31 individuals of the Southern Giant-Petrel have been recorded within the Study Area, which is below the threshold of an ecologically significant proportion of the species (956 individuals) (Birdlife International, 2022). The Southern Giant-Petrel breeds on the Antarctic continent, subantarctic islands, and in South America. The species is widespread throughout the Southern Ocean, yet also occurs north into subtropical waters. It is a predator and a scavenger, feeding on penguin, seal, and whale carcasses. It also catches live birds such as albatrosses and smaller seabirds, in addition to marine food sources including cephalopods, krill and fish (DCCEEW, 2022). Given the small number of records and the species' ecological characteristics, it is unlikely that the Study Area supports important habitat for this species. The Plan will not impact this species.	Category 2
Macronectes halli	Northern Giant Petrel	V, Mig, B	None	No	No	11 individuals of the Northern Giant Petrel have been recorded within the Study Area, which is below the threshold of an ecologically significant proportion of the species (236 individuals) (Birdlife International, 2022). The Northern Giant Petrel breeds on a range of islands, including South Georgia, Prince Edward Islands (South Africa), Crozet and Kerguelen Islands (French Southern Territories), Macquarie Island (Australia) and a range of New Zealand islands (Birdlife International, 2022). The species primarily occurs within sub-Antarctic to Antarctic waters yet can occur north into subtropical waters. It is a wide-ranging marine, oceanic species, feeding on seal, whale and penguin carrion, krill, cephalopods, and fish. It will kill and eat immature albatross and other	Category 2

Scientific name	Common name	EPBC Status[1]	Applicable EPBC Policy	Categorisation criteria triggered[2]		Justification	Final category
				ESP[3]	IH[3]		
						seabird species. The species often follows ships to obtain offal (DCCEEW, 2022). Given the small number of records and the species' ecological characteristics, it is unlikely that the Study Area supports important habitat for this species. The Plan will not impact this species.	
Monarcha melanopsis	Black-faced Monarch	Mig, B	Draft referral guidelines for 14 migratory birds (DoE, 2015c)	No	No	2 individuals of the Black-faced Monarch have been recorded within the Study Area, which is below the threshold of an ecologically significant proportion of the species (460 individuals) (DoE, 2015c). These individuals are recorded as two separate records, one from 1993 and one from 1950. The more recent record occurs in the south-west of the Study Area, with the older record occurring near You Yangs Regional Park. The Migratory Bird Referral Guidelines describe important habitat for this species as follows: "Wet forest specialist, found mainly in rainforest and wet sclerophyll forest, especially in sheltered gullies and slopes with a dense understorey of ferns and/or shrubs." (DoE, 2015c). It is noted that this habitat is absent from the Strategic Assessment Area and generally not present within the wider Study Area. The Plan will not impact this species.	Category 2
Motacilla flava	Yellow Wagtail	Mig, C, J, K	Draft referral guidelines for 14 migratory birds (DoE, 2015c)	No	No	No individuals of the Yellow Wagtail have been recorded within the Study Area, which is below the threshold of an ecologically significant proportion of the species (1,000 individuals) (DoE, 2015c). Given the absence of records of the species, it is unlikely that the Study Area supports important habitat for the species. The Plan will not impact this species.	Category 2
Myiagra cyanoleuca	Satin Flycatcher	Mig, B	Draft referral guidelines for 14 migratory birds (DoE, 2015c)	No	No	155 individuals of the Satin Flycatcher have been recorded within the Study Area, which is below the threshold of an ecologically significant proportion of the species (1,700 individuals) (DoE, 2015c). Records are scattered throughout the Study Area, with the highest record densities occurring within the Brisbane Ranges National Park locality, and in You Yangs Regional Park.	Category 2

Scientific name	Common name	EPBC Status[1]	Applicable EPBC Policy	Categorisation criteria triggered[2]		Justification	Final category
				ESP[3]	IH[3]		
						The Migratory Bird Referral Guidelines describe important habitat for this species as follows: "Eucalypt forest and woodlands, at high elevations when breeding. They are particularly common in tall wet sclerophyll forest, often in gullies or along water courses. In woodlands they prefer open, grassy woodland types. During migration, habitat preferences expand, with the species recorded in most wooded habitats except rainforests. Wintering birds in northern Qld will use rainforest - gallery forests interfaces, and birds have been recorded wintering in mangroves and paperbark swamps." (DoE, 2015c). Given the low number of individuals recorded within the Study Area, and the general absence of habitat matching the description of important habitat within the Study Area, it is considered unlikely that the Study Area provides important habitat for this species. While some individuals may occur in more elevated regions, these localities are considered unlikely to be impacted by the Plan.	
Numenius madagascariensis	Eastern Curlew, Far Eastern Curlew	CE, Mig, B, C, J, K, FPAL	EPBC Act Policy Statement 3.21 (DoE, 2017)	-	-	This species has been triggered as a Category 1 threatened species. Note that assessment of this species is contained within the threatened fauna assessment in Chapter 19. Refer to Section 19.4 of Part 4 for the detailed impact assessment of the Eastern Curlew.	Category 1
Numenius minutus	Little Curlew, Little Whimbrel	Mig, B, C, J, K	EPBC Act Policy Statement 3.21 (DoE, 2017)	No	No	No individuals of the Little Curlew have been recorded within the Study Area within the past 5 years, which is below the threshold of an ecologically significant proportion of the species (110 individuals within the last 5 years) (Hansen *et al.*, 2016; DoE, 2017). No important habitat for the Little Curlew has been mapped by Birdlife Australia within the Study Area (Weller *et al.*, 2020). The Plan will not impact this species.	Category 2
Numenius phaeopus	Whimbrel	Mig, B, C, J, K	EPBC Act Policy Statement 3.21 (DoE, 2017)	No	No	5 individuals of the Whimbrel have been recorded within the Study Area within the past 5 years, which is below the threshold of an ecologically significant proportion of the species (65 individuals within the last 5 years) (Hansen *et al.*, 2016; DoE, 2017).	Category 2

Scientific name	Common name	EPBC Status[1]	Applicable EPBC Policy	Categorisation criteria triggered[2]		Justification	Final category
				ESP[3]	IH[3]		
						No important habitat for the Whimbrel has been mapped by Birdlife Australia within the Study Area (Weller *et al.*, 2020). The Plan will not impact this species.	
Pandion haliaetus	Osprey	Mig, B	Draft referral guidelines for 14 migratory birds (DoE, 2015c)	No	No	No individuals of the Osprey have been recorded within the Study Area, which is below the threshold of an ecologically significant proportion of the species (24 individuals) (DoE, 2015c). Given the absence of records of the species, it is unlikely that the Study Area supports important habitat for the species. The Plan will not impact this species.	Category 2
Phalaropus lobatus	Red-necked Phalarope	Mig, B, C, J, K	EPBC Act Policy Statement 3.21 (DoE, 2017)	No	No	No individuals of the Red-necked Phalarope have been recorded within the Study Area within the past 5 years, which is below the threshold of an ecologically significant proportion of the species (250 individuals within the last 5 years) (Hansen *et al.*, 2016; DoE, 2017). No important habitat for the Red-necked Phalarope has been mapped by Birdlife Australia within the Study Area (Weller *et al.*, 2020). The Plan will not impact this species.	Category 2
Philomachus pugnax	Ruff (Reeve)	Mig, B, C, J, K	None	No	No	No individuals of the Ruff have been recorded within the Study Area. Given the absence of records of the species, it is unlikely the Study Area supports important habitat for the species. The Plan will not impact this species.	Category 2
Phoebetria fusca	Sooty Albatross	V, Mig, B	None	No	No	No individuals of the Sooty Albatross have been recorded within the Study Area. Given the absence of records of the species, it is unlikely the Study Area supports important habitat for the species. The Plan will not impact this species.	Category 2
Pluvialis fulva	Pacific Golden Plover	Mig, B, C, J, K	EPBC Act Policy Statement 3.21 (DoE, 2017)	Yes	No	298 individuals of the Pacific Golden Plover have been recorded within the Study Area within the past 5 years, which is above the threshold of an ecologically significant proportion of the species (120 individuals within the last 5 years) (Hansen *et al.*, 2016; DoE, 2017). All individuals occur along the northern coastline of Port Phillip Bay, extending from Point Lillias in the west to the boundary of the Study Area	Category 2

Scientific name	Common name	EPBC Status[1]	Applicable EPBC Policy	Categorisation criteria triggered[2]		Justification	Final category
				ESP[3]	IH[3]		
						in the east. This area will not be impacted by the Plan as it is not located downstream of the Strategic Assessment Area. No important habitat for the Pacific Golden Plover has been mapped by Birdlife Australia within the Study Area(Weller *et al.*, 2020).	
Pluvialis squatarola	Grey Plover	Mig, B, C, J, K, FPAL	EPBC Act Policy Statement 3.21 (DoE, 2017)	No	No	11 individuals of the Grey Plover have been recorded within the Study Area within the past 5 years, which is below the threshold of an ecologically significant proportion of the species (80 individuals within the last 5 years) (Hansen *et al.*, 2016; DoE, 2017). No important habitat for the Grey Plover has been mapped by Birdlife Australia within the Study Area (Weller *et al.*, 2020). The Plan will not impact this species.	Category 2
Rhipidura rufifrons	Rufous Fantail	Mig, B	Draft referral guidelines for 14 migratory birds (DoE, 2015c)	No	No	110 individuals of the Rufous Fantail have been recorded within the Study Area, which is below the threshold of an ecologically significant proportion of the species (4,800 individuals) (DoE, 2015c). Records occur scattered throughout the Study Area, with higher record densities in You Yangs Regional Park and in the Brisbane Ranges National Park. The Migratory Bird Referral Guidelines describe important habitat for this species as follows: "Moist, dense habitats, including mangroves, rainforest, riparian forests and thickets, and wet eucalypt forests with a dense understorey. When on passage a wider range of habitats are used including dry eucalypt forests and woodlands and Brigalow shrublands." (DoE, 2015c). It is noted that important habitat characteristics are not present within the Strategic Assessment Area. Given the low number of individuals recorded within the Study Area, and the general absence of habitat matching the description of important habitat within the Study Area, it is considered unlikely that the Study Area provides important habitat for this species.	Category 2

Scientific name	Common name	EPBC Status[1]	Applicable EPBC Policy	Categorisation criteria triggered[2]		Justification	Final category
				ESP[3]	IH[3]		
Sternula albifrons	Little Tern	Mig, B, C, J, K, FPAL	None	Yes	Yes	While the Little Tern is a species which has a large global distribution and population size, the Australian population is geographically distinct. Its occurrence in Australia can be divided into three groups: • A sub-population that occurs in south-eastern Australia and New Zealand. It breeds in multiple areas in Australia, including Tasmania, South Australia, Victoria, NSW, and in Queensland (DAWE, 2022g). This sub-population may be at risk from the Plan • A sub-population that breeds in northern Australia between Cape York and Broome (DAWE, 2022g). This sub-population is not at risk from the Plan • A sub-population that breeds in north-east Asia and migrates to northern and eastern Australia during the non-breeding season. It is recognised that most threats to the species are associated with breeding, and therefore that the sub-population of non-breeding visitors is unlikely to be at risk (DAWE, 2022g). This sub-population is not at risk from the Plan For the purpose of this assessment, only the south-eastern sub-population of the species is considered. The estimated population size of the south-eastern sub-population is 1,200 mature individuals (DAWE, 2022g). The threshold of an ecologically significant proportion of this species is therefore 12 individuals. 3,779 individuals of the Little Tern have been recorded within the Study Area, which is above the threshold of an ecologically significant proportion of the species. Of these, 3,188 have been recorded from 1990 onwards. Of the records from 1990 onwards, most (over 2,500) occur along the northern coastline of Port Phillip Bay, extending from Avalon Beach in the west to the boundary of the Study Area in the east. Over 300 individuals have also been recorded in the Moolap locality. This area will not be impacted by the Plan as it is not located downstream of the Strategic Assessment Area.	Category 1

Scientific name	Common name	EPBC Status[1]	Applicable EPBC Policy	Categorisation criteria triggered[2]		Justification	Final category
				ESP[3]	IH[3]		
						A smaller number of individuals (67) have been recorded since 1990 within the Lake Connewarre wetland complex. This area has potential to be impacted by the Plan, as it is downstream of WGGA. This species has been assigned to Category 1 for a detailed assessment. Refer to Chapter 23 of Part 4 for the detailed impact assessment of the Little Tern.	
Thalassarche bulleri	Buller's Albatross, Pacific Albatross	V, Mig, B	None	No	No	No individuals of the Buller's Albatross have been recorded within the Study Area. Given the absence of records of the species, it is unlikely the Study Area supports important habitat for the species. The Plan will not impact this species.	Category 2
Thalassarche carteri	Indian Yellow-nosed Albatross	V, Mig, B	None	No	No	4 individuals of the Indian Yellow-nosed Albatross have been recorded within the Study Area, which is below the threshold of an ecologically significant proportion of the species (160 individuals) (Birdlife International, 2022). The species is a marine bird which breeds on islands of the southern Indian Ocean, and which mostly forages in the Indian Ocean. In the Australasian region, the species occurs in inshore and offshore waters. It occurs along the entirety of the southern coast of Australia, ranging from north of Perth in Western Australia, to northern NSW in the east. It is most abundant off the coast of Western Australia. Its diet includes cephalopods and fish (DCCEEW, 2022). Given the small number of records and the species' ecological characteristics, it is unlikely that the Study Area supports important habitat for this species. The Plan will not impact this species.	Category 2
Thalassarche cauta	Shy Albatross	E, Mig, B	None	No	No	14 individuals of the Shy Albatross have been recorded within the Study Area, which is below the threshold of an ecologically significant proportion of the species (307 individuals) (Birdlife International, 2022). The Shy Albatross is the only albatross species which is endemic to Australia, with breeding colonies on three small islands off Tasmania. Adults of the species primarily occur in waters adjacent to Tasmania and	Category 2

Scientific name	Common name	EPBC Status[1]	Applicable EPBC Policy	Categorisation criteria triggered[2]		Justification	Final category
				ESP[3]	IH[3]		
						southern Australia, while juveniles have a much larger range, extending across the Indian Ocean to Africa and potentially to the south-western Atlantic Ocean. The species feeds primarily on fish and cephalopods, foraging in the marine environment (TSSC, 2020a). Threats to the species include fisheries bycatch, climate change, disease, interspecies competition, marine pollution, human disturbance of nesting colonies and historical harvest from the wild (TSSC, 2020a). Given the small number of records and the species' ecological characteristics, it is unlikely that the Study Area supports important habitat for this species. Further, the Plan will not exacerbate any threats to this species, and subsequently will not impact this species.	
Thalassarche chrysostoma	Grey-headed Albatross	E, Mig, B	None	No	No	No individuals of the Grey-headed Albatross have been recorded within the Study Area. Given the absence of records of the species, it is unlikely the Study Area supports important habitat for the species. The Plan will not impact this species.	Category 2
Thalassarche impavida	Campbell Albatross, Campbell Black-browed Albatross	V, Mig, B	None	No	No	No individuals of the Campbell Albatross have been recorded within the Study Area. Given the absence of records of the species, it is unlikely the Study Area supports important habitat for the species. The Plan will not impact this species.	Category 2
Thalassarche melanophris	Black-browed Albatross	V, Mig, B	None	No	No	36 individuals of the Black-browed Albatross have been recorded within the Study Area, which is below the threshold of an ecologically significant proportion of the species (14,000 individuals) (Birdlife International, 2022). The species breeds on subantarctic islands under Australian jurisdiction and is mostly confined to subantarctic and Antarctic waters during the breeding season. Outside of the breeding season, the species migrates north and forages across a wide area marine area, including along the southern continental shelf of Australia. The species forages on fish, cephalopods and crustaceans in the marine environment (DCCEEW, 2022).	Category 2

Scientific name	Common name	EPBC Status[1]	Applicable EPBC Policy	Categorisation criteria triggered[2]		Justification	Final category
				ESP[3]	IH[3]		
						Given the small number of records and the species' ecological characteristics, it is unlikely that the Study Area supports important habitat for this species. The Plan will not impact this species.	
Thalassarche salvini	Salvin's Albatross	V, Mig, B	None	No	No	No individuals of the Salvin's Albatross have been recorded within the Study Area. Given the absence of records of the species, it is unlikely the Study Area supports important habitat for the species. The Plan will not impact this species.	Category 2
Thalassarche steadi	White-capped Albatross	V, Mig, B	None	No	No	No individuals of the White-capped Albatross have been recorded within the Study Area. Given the absence of records of the species, it is unlikely the Study Area supports important habitat for the species. The Plan will not impact this species.	Category 2
Tringa brevipes	Grey-tailed Tattler	Mig, B, C, J, K	EPBC Act Policy Statement 3.21 (DoE, 2017)	No	No	5 individuals of the Grey-tailed Tattler have been recorded within the Study Area within the past 5 years, which is below the threshold of an ecologically significant proportion of the species (70 individuals within the last 5 years) (Hansen *et al.*, 2016; DoE, 2017). No important habitat for the Grey-tailed Tattler has been mapped by Birdlife Australia within the Study Area (Weller *et al.*, 2020). The Plan will not impact this species.	Category 2
Tringa glareola	Wood Sandpiper	Mig, B, C, J, K	None	No	No	276 individuals of the Wood Sandpiper have been recorded within the Study Area, which is below the threshold of an ecologically significant proportion of the species (31,000 individuals) (Birdlife International, 2022). The species is a small wader which breeds across Eurasia, and during its non-breeding season, most of the species' flyway population occurs in South-East Asia. In Australia, the largest numbers of the species are recorded in north-west Australia, with all areas of national importance occurring in Western Australia (DCCEEW, 2022). Given the small number of records of the species within the Study Area and the global distribution of the species, it is considered unlikely that the Study Area supports important habitat for this species.	Category 2

Scientific name	Common name	EPBC Status[1]	Applicable EPBC Policy	Categorisation criteria triggered[2]		Justification	Final category
				ESP[3]	IH[3]		
						The Plan will not impact this species.	
Tringa nebularia	Common Greenshank, Greenshank	Mig, B, C, J, K, FPAL	EPBC Act Policy Statement 3.21 (DoE, 2017)	Yes	Yes	4,625 individuals of the Common Greenshank have been recorded within the Study Area within the past 5 years, which is above the threshold of an ecologically significant proportion of the species (110 individuals within the last 5 years) (Hansen *et al.*, 2016; DoE, 2017). Most of these individuals (over 2,800) occur along the northern coastline of Port Phillip Bay, extending from Avalon Beach in the west to the boundary of the Study Area in the east. This area will not be impacted by the Plan as it is not located downstream of the Strategic Assessment Area. A substantial proportion of individuals (approximately 800) also occur within the Lake Connewarre wetland complex. This area has potential to be impacted by the Plan, as it is downstream of WGGA. Individuals are also recorded to occur within the Moolap region. This area will not be impacted by the Plan as it is not located downstream of the Strategic Assessment Area. Important habitat for the Common Greenshank has been mapped by Birdlife Australia within the Study Area in the following localities (Weller *et al.*, 2020): • Lake Connewarre and Barwon River Estuary IBA • Werribee/Avalon IBA The Lake Connewarre and Barwon River Estuary IBA has potential to be impacted by the Plan as this site is downstream from the WGGA. The Werribee/Avalon IBA to the east of Avalon Beach (where the species is recorded to occur) will not be adversely impacted by development under the Plan as this area is not downstream of the Strategic Assessment Area. Refer to Chapter 23 of Part 4 for the detailed impact assessment of the Common Greenshank.	Category 1
Tringa stagnatilis	Marsh Sandpiper, Little Greenshank	Mig, B, C, J, K	EPBC Act Policy Statement 3.21 (DoE, 2017)	Yes	Yes	4,714 individuals of the Marsh Sandpiper have been recorded within the Study Area within the past 5 years, which is above the threshold of an ecologically significant proportion of the species (130 individuals within the last 5 years) (Hansen *et al.*, 2016; DoE, 2017).	Category 1

Scientific name	Common name	EPBC Status[1]	Applicable EPBC Policy	Categorisation criteria triggered[2]		Justification	Final category
				ESP[3]	IH[3]		
						Most of these individuals (over 4,000) occur along the northern coastline of Port Phillip Bay, extending from Avalon Beach in the west to the boundary of the Study Area in the east. This area will not be impacted by the Plan as it is not located downstream of the Strategic Assessment Area. A substantial proportion of individuals (over 200) also occur within the Lake Connewarre wetland complex. This area has potential to be impacted by the Plan, as it is downstream of WGGA. Individuals are also recorded to occur within the Moolap region. This area will not be impacted by the Plan as it is not located downstream of the Strategic Assessment Area. Important habitat for the Marsh Sandpiper has been mapped by Birdlife Australia within the Study Area in the following localities (Weller *et al.*, 2020): • Werribee/Avalon IBA • Moolap IBA The Werribee/Avalon IBA to the east of Avalon Beach (where the species is recorded to occur) will not be adversely impacted by development under the Plan as this area is not downstream of the Strategic Assessment Area. Further, the Moolap IBA will not be impacted by the Plan as it is not located downstream of the Strategic Assessment Area. Although the Lake Connewarre and Barwon River Estuary IBA was not identified as important habitat for the Marsh Sandpiper by Birdlife Australia (Weller *et al.*, 2020), the presence of an ecologically significant proportion of individuals within this locality and the potential for impacts under the Plan means this species has been assigned to Category 1 for detailed assessment. Refer to Chapter 23 of Part 4 for the detailed impact assessment of the Marsh Sandpiper.	
Xenus cinereus	Terek Sandpiper	Mig, B, C, J, K, FPAL	EPBC Act Policy Statement 3.21 (DoE, 2017)	Yes	No	136 individuals of the Terek Sandpiper have been recorded within the Study Area within the past 5 years, which is above the threshold of an ecologically significant proportion of the species (50 individuals within the last 5 years) (Hansen *et al.*, 2016; DoE, 2017).	Category 2

Scientific name	Common name	EPBC Status[1]	Applicable EPBC Policy	Categorisation criteria triggered[2]		Justification	Final category
				ESP[3]	IH[3]		
						These recent records primarily occur along the northern coastline of Port Phillip Bay, within or adjacent to The Spit Wildlife Reserve. There is also a single record of the species within the Moolap locality. This area will not be impacted by the Plan as it is not located downstream of the Strategic Assessment Area. There are no recent records of the species within Limeburners Lagoon, the Lake Connewarre wetland complex, or in the vicinity of Cowies Creek, which are the areas which have been identified to be at risk of potential impacts under the Plan. No important habitat for the Terek Sandpiper has been mapped by Birdlife Australia within the Study Area (Weller *et al.*, 2020).	

1: To save space, the following abbreviations are used: V: Vulnerable, E: Endangered, CE: Critically Endangered, P. Ex: Presumed Extinct, Ex: Extinct, FPAL: Finalised Priority Assessment List (meaning the species is currently undergoing a listing assessment), Mig: Migratory, B: Bonn, C: CAMBA, J: JAMBA, K: ROKAMBA

2: Categorisation criteria are given in Chapter 12, Section 12.3

3: To save space, the following abbreviations are used: ESP: Ecologically significant proportion of individuals present within Study Area, IH: Important habitat present within Study Area

Table A-7: Categorisation results for other Commonwealth-listed migratory species

Scientific name	Common name	EPBC Status[1]	Categorisation criteria[2]		Reason[3]	Final category
			ESP[4]	IH[4]		
Balaena glacialis australis / Eubalaena australis	Southern Right Whale	Listed M as *B. glacialis australis* Listed E, B as *E. australis*.	No	No	2 records (one from 2006 and the other from 2007) occur within the Study Area. The species is a wide-ranging marine species and will not be impacted by the Plan	Category 2
Balaenoptera musculus	Blue Whale	E, Mig, B	No	No	No records occur within the Study Area. The species is a wide-ranging marine species and will not be impacted by the Plan	Category 2
Caperea marginata	Pygmy Right Whale	Mig, B	No	No	No records occur within the Study Area. The species is a wide-ranging marine species and will not be impacted by the Plan	Category 2
Carcharodon carcharias	White Shark, Great White Shark	V, Mig, B	No	No	No records occur within the Study Area. The species is a wide-ranging marine species and will not be impacted by the Plan	Category 2
Caretta caretta	Loggerhead Turtle	E, Mig, B	No	No	No records occur within the Study Area. No nesting sites for the species occur within Victoria (DoEE, 2017a). The species is a wide-ranging marine species and will not be impacted by the Plan	Category 2
Chelonia mydas	Green Turtle	V, Mig, B	No	No	No records occur within the Study Area. No nesting sites for the species occur within Victoria (DoEE, 2017a). The species is a wide-ranging marine species and will not be impacted by the Plan	Category 2
Dermochelys coriacea	Leatherback Turtle, Leathery Turtle, Luth	E, Mig, B	No	No	2 records occur within the Study Area. Both are recorded on the same date in 2017 and likely relate to a single individual. No nesting sites for the species occur within Victoria (DoEE, 2017a). The species is a wide-ranging marine species and will not be impacted by the Plan	Category 2

Scientific name	Common name	EPBC Status[1]	Categorisation criteria[2]		Reason[3]	Final category
			ESP[4]	IH[4]		
Lagenorhynchus obscurus	Dusky Dolphin	Mig, B	No	No	No records occur within the Study Area. The species is a wide-ranging marine species and will not be impacted by the Plan	Category 2
Lamna nasus	Porbeagle, Mackerel Shark	Mig, B	No	No	No records occur within the Study Area. The species is a wide-ranging marine species and will not be impacted by the Plan	Category 2
Lepidochelys olivacea	Pacific (Olive) Ridley	E, Mig, B	No	No	1 record occurs within the Study Area, which was recorded in 1974. There are no more recent records of the species in the Study Area. No nesting sites for the species occur within Victoria (DoEE, 2017a). The species is a wide-ranging marine species and will not be impacted by the Plan	Category 2
Megaptera novaeangliae	Humpback Whale	Mig, B	No	No	No records occur within the Study Area. The species is a wide-ranging marine species and will not be impacted by the Plan	Category 2
Orcinus orca	Killer Whale, Orca	Mig, B	No	No	No records occur within the Study Area. The species is a wide-ranging marine species and will not be impacted by the Plan	Category 2

1: To save space, the following abbreviations are used: V: Vulnerable, E: Endangered, CE: Critically Endangered, P. Ex: Presumed Extinct, Ex: Extinct, FPAL: Finalised Priority Assessment List (meaning the species is currently undergoing a listing assessment), Mig: Migratory, B: Bonn, C: CAMBA, J: JAMBA, K: ROKAMBA

2: Categorisation criteria are given in Chapter 12, Section 12.3

3: Unless otherwise stated, all distribution information is taken from the species' profile in the Species Profile and Threats Database (DCCEEW, 2022)

4: To save space, the following abbreviations are used: ESP: Ecologically significant proportion of individuals present within Study Area, IH: Important habitat present within Study Area

B. Background information for the combined fauna assessment: birds

This attachment provides further information about the eleven bird species addressed in the combined fauna assessment in Section 19.4 of Chapter 19.

The species are:

- Australasian Bittern (*Botaurus poiciloptilus)*
- Australian Fairy Tern (*Sternula nereis nereis*)
- Australian Painted Snipe (*Rostratula australis*)
- Curlew Sandpiper (*Calidris ferruginea*)
- Eastern Curlew (*Numenius madagascariensis*)
- Great Knot (*Calidris tenuirostris*)
- Greater Sand Plover (*Charadrius leschenaultia*)
- Lesser Sand Plover (*Charadrius m*ongolus)
- Orange-bellied Parrot (*Neophema chrysogaster*)
- Red Knot (*Calidris canutus*)
- Western Alaskan Bar-tailed Godwit (*Limosa lapponica baueri*)

The following information is provided for each species:

- Species background, including the species' ecology, distribution, habitat, populations, and threats
- A detailed description of the species' occurrence in the Study Area
- Identification and description of each of the relevant potential indirect impacts to each species due to development under the Plan
- An assessment of consistency of the Plan with the species' Recovery Plan
- Identification of relevant Key Threatening Processes and Threat Abatement Plans for each species

AUSTRALASIAN BITTERN *(BOTAURUS POICILOPTILUS)*

SPECIES BACKGROUND

This section sets out the basic information about the species. It provides an overview of the species' ecology, distribution, habitat, populations and threats. These provide context for the impact assessment. At the end of the section are links to key species' documents that provide additional background information.

EPBC ACT LISTING	Endangered
DESCRIPTION	*Botaurus poiciloptilus* (Australasian Bittern) is a large heron-like bird. It has mottled brown, dark brown to black feathers, a straw-yellow bill and pale green to olive legs. The average male weighs 1.4 kg and the average female weighs 0.9 kg (TSSC, 2019a).
ECOLOGY	Breeding occurs from October to February. Females usually lay four to five olive-brown eggs. Nests are built on a bed of reeds in densely vegetated wetlands and placed about 30 cm above the water level. The species is territorial, and several females will nest within a single male's territory (TSSC, 2019a). The age of maturity is estimated to be one year, and life expectancy is thought to be around 11 years. Generation length is approximately 5.5 years. These figures are based on data for the Eurasian Bittern (*Botaurus stellaris*) (TSSC, 2019a). The species feeds mainly at night on fish, eels, frogs, freshwater crayfish and aquatic insects (Garnett, Szabo and Dutson, 2011). The species is mainly solitary but has been seen in pairs or groups of up to 12 birds (TSSC, 2019a). The species was previously thought to be largely sedentary, although more recent tracking studies have shown movements over hundreds of kilometres between wetlands in south-eastern Australia. The species appears to be capable of moving between habitats as suitability changes with flooding and drying patterns (TSSC, 2019a).
DISTRIBUTION AND HABITAT	The Australasian Bittern occurs in New Zealand, New Caledonia, and Australia. In Australia the species occurs in south-eastern Australia: throughout Tasmania, south-east of South Australia, through Victoria and NSW (excluding the north-west), and up to Yeppoon in Queensland. It also occurs in the south-west of Western Australia between Moora and Cape Arid (TSSC, 2019a). In Victoria, the species is recorded mostly in the southern coastal areas and in the Murray River region of central northern Victoria (TSSC, 2019a). In 2011, the area of occupancy in Australia was estimated to be 1,150 km^2 (TSSC, 2011a). The area of occupancy is thought to have declined by 70 per cent from 1977 to 2008 (TSSC, 2019a). The species occurs mainly in freshwater wetlands, and more rarely in estuaries or tidal environments. Wetlands with tall, dense vegetation are favoured, particularly those dominated by sedges, rushes and reeds or cutting grass growing over muddy or peaty substrates. Foraging occurs in still, shallow water, often at the edges of pools or waterways. Foraging can also occur from vegetation platforms over deeper water (TSSC, 2011a). The species moves between habitats as suitability changes and has been observed to use coastal wetlands during periods of drought and ephemeral wetlands when wet (TSSC, 2019a). All natural habitat where the species is known or likely to occur is considered habitat critical to the survival of the species (TSSC, 2019a).
POPULATIONS	The Australasian Bittern occurs as two sub-populations: one in south-eastern Australia and the other in south-western Australia (TSSC, 2019a). In 2011, the total Australian population was estimated at 1,000 mature individuals (Garnett, Szabo and Dutson, 2011) Given the small total number of individuals and observed declines, all populations of the species should be considered important (TSSC, 2019a).

THREATS	The species Conservation Advice identified the following threats (TSSC, 2019a):
	• Habitat loss, including:
	  ○ Water reduction
	  ○ Transitions from ponded rice to other farming systems

	• Habitat degradation, including:
	  ○ Increased salinity, siltation and pollution
	  ○ Grazing by livestock and feral animals
	  ○ Changes in abundance of plant species (including native and introduced plants)
	  ○ Inappropriate fire regimes
	  ○ Urban wetland management
	• Climate change, including changes in water availability and fire regimes, and salination of coastal wetlands
	• Inappropriate placement of infrastructure such as fence lines and powerlines
	• Urban development, which can impact water quality and increase disturbance, particularly from domestic pets
	• Predation by foxes and cats

RELEVANT PLANS AND POLICIES	Conservation Advice *Botaurus poiciloptilus* Australasian Bittern (TSSC, 2019a) Commonwealth Listing Advice on *Botaurus poiciloptilus* (Australasian Bittern) (TSSC, 2011a) Threat abatement plan for predation by feral cats (DoE, 2015h) Threat abatement plan for predation by the European red fox (DEWHA, 2008f)
SPECIES-SPECIFIC GUIDELINES	There are no species-specific guidelines for this species.
SPRAT LINK	http://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=1001

APPROACH TO BASELINE DATA

This section provides a summary of the baseline information used in the assessment. It sets out:

- *An overview of the habitat mapping for the species within and outside the Growth Areas*
- *An overview of the population mapping for the species*

Please refer to Chapter 13 for further details about the approach to threatened species baseline data, including a description of the different types and sources of data, as well as some discussion on the interpretation and suitability of the data for use in the impact assessment.

HABITAT MAPPING	**WITHIN THE SURVEYED AREAS OF THE GROWTH AREAS**
	N/A. Surveys conducted within the Growth Areas concluded that there is unlikely to be suitable habitat present for this species.
	WITHIN THE UNSURVEYED AREAS OF THE GROWTH AREAS
	N/A. There is unlikely to be suitable habitat present for this species.
	OUTSIDE THE GROWTH AREAS
	Habitat important models (HIMs). Habitat mapping for the species across the broader Strategic Assessment Area and Study Area was prepared using DELWPs HIMs. Refer to Chapter 13 of Part 3 for a detailed description of the baseline mapping, landholder surveys, and HIMs.
POPULATION MAPPING	**RECORD SELECTION**
	Species records were compiled from the VBA and surveys undertaken for the project. The VBA records were filtered to remove records from prior to 1990 for the purpose of the impact assessment.
	RECORD DOWNLOAD DATE
	VBA records for the Australasian Bittern used in this assessment were downloaded in June 2022.

	METHOD FOR IDENTIFYING POPULATIONS
	All records of the species within the Study Area are considered a single population. This is because the Australasian Bittern occurs as a single sub-population in south-eastern Australia (TSSC, 2019a).

OCCURRENCE IN THE STUDY AREA

This section describes the occurrence of the species in the Study Area. It includes reference to a map of records and habitat which can be viewed as a separate file. The map provides critical context for the assessment and should be viewed in conjunction with the text presented in this assessment. This section also provides a qualitative description of where records and habitat occur.

See Map 19-10 for a map of records and habitat across the Strategic Assessment Area.

Records and potential habitat for the Australasian Bittern is associated with wetlands and watercourses. There are 144 records (comprising 164 individuals) from 1990 onwards of the Australasian Bittern within the Study Area. The most recent record of the species is from 2019.

A total of 8,244.5 ha of potential habitat has been mapped within the Study Area. Of this, 40.9 ha occurs within the Strategic Assessment Area. No habitat is mapped within the Growth Areas.

The species has not been recorded within the Strategic Assessment Area.

The majority of records occur within and near the Lake Connewarre Complex and along the coastline near Port Wilson.

The largest area of habitat is associated with the Lake Connewarre Complex, which is associated with multiple records of species (49 records which includes 62 individuals). Habitat in this area is connected to small, thin areas of upstream habitat mapped along the Barwon River and the Moorabool River. No records of the species occur along either of these rivers upstream of the Lake Connewarre Complex.

Habitat also occurs along the northern Port Phillip Bay shoreline, between Limeburners Bay in the west and the Port Wilson area in the east. The majority of records within the Study Area are associated with this habitat, mainly to the east near Port Wilson (83 records which includes 84 individuals). This broad area of habitat is connected to two thin areas of habitat mapped along Hovells Creek, and along Little River (in the north-east of the Study Area, upstream of the Port Wilson locality). A small number of upstream records are associated with Hovells Creek. No upstream records occur along Little River.

Isolated records and habitat also occur as follows:

- Small areas of habitat are mapped along Cowies Creek. However, there are no records of the species in this locality
- A small area of mapped habitat occurs at Point Henry. There are a small number of records associated with this habitat
- Habitat occurs in the south of the Study Area along Thompson Creek. No records of the species are associated with this habitat
- Isolated records occur at Staughton Vale and You Yangs Regional Park. These areas are both located over 19 km from the Strategic Assessment Area, to the north-west and north-east respectively

DETAILED OVERVIEW OF SPECIES' SUSCEPTIBILITY TO INDIRECT IMPACTS

This section identifies the relevant potential indirect impacts to the species that may occur as a result of development under the Plan. Indirect impacts were identified as being relevant to the species if:

- *The indirect impact is identified as a threat in a relevant profile, Conservation Advice, or Recovery Plan, and*
- *The Plan has the potential to introduce or exacerbate the threat in areas which support records and/or mapped habitat for the species*

It describes the mechanism by which each relevant potential indirect impact may affect the species.

Please refer to Chapter 19 for an assessment of how the Plan addresses each indirect impact for this species. Further, please refer to Chapter 17 for a detailed discussion and analysis of indirect impacts and mitigation measures included in the Plan.

RELEVANT POTENTIAL INDIRECT IMPACTS

The Conservation Advice for the Australasian Bittern identifies a range of threats to the species (TSSC, 2019a). Where these threats have the potential to be introduced or exacerbated under the Plan, the Plan includes management strategies to mitigate their impacts.

Decreased water quality due to siltation and pollution has been identified as a threat to the Australasian Bittern which is potentially relevant to implementation of the Plan.

There are a number of additional threats to the species identified in the Conservation Advice. However, potential indirect impacts associated with these threats are considered unlikely given the landscape context of the site and the ecology of the species. Refer to Section 17.2 of Chapter 17 for a detailed assessment of potential indirect impacts associated with the implementation of the Plan.

Climate change is also identified as a threat to the species. The potential impacts of climate change and relevant mitigation measures under the Plan are outlined in Part 5.

DECREASED WATER QUALITY DUE TO SILTATION AND POLLUTION

General reductions in water quality may pose a threat to the species' survival and breeding success and may also affect food sources for the species such as macrophytes, algae and invertebrates. Urban development near wetlands is recognised as a potential threat to water quality which may affect the species (TSSC, 2019a).

RECOVERY PLAN, KEY THREATENING PROCESSES AND THREAT ABATEMENT PLANS

Where applicable, this section discusses the consistency of the Plan with any Recovery Plans and relevant Threat Abatement Plans. The general consistency of the Plan with Threat Abatement Plans is discussed in detail in Section 17.3 of Chapter 17.

CONSISTENCY WITH RECOVERY PLAN

There is no adopted or made Recovery Plan for this species.

KEY THREATENING PROCESSES AND CONSISTENCY WITH THREAT ABATEMENT PLANS

Relevant Key Threatening Processes (KTPs) and any of their associated Threat Abatement Plans (TAPs) have been identified in Table B-1 where they relate to:

- The potential direct impacts of the Plan, or
- The relevant indirect impacts

Table B-1: Relevant Key Threatening Processes and associated Threat Abatement Plans for the Australasian Bittern

Key threatening process	Threat abatement plan
Fire regimes that cause declines in biodiversity	There is no relevant TAP
Land clearance	There is no relevant TAP
Loss of climatic habitat caused by anthropogenic emissions of greenhouse gases	There is no relevant TAP
Novel biota and their impact on biodiversity	There is no relevant TAP
Predation by feral cats	Threat abatement plan for predation by feral cats (DoE, 2015h)
Predation by European red fox	Threat abatement plan for predation by the European red fox (DEWHA, 2008f)

AUSTRALIAN FAIRY TERN *(STERNULA NEREIS NEREIS)*

SPECIES BACKGROUND

This section sets out the basic information about the species. It provides an overview of the species' ecology, distribution, habitat, populations and threats. These provide context for the impact assessment. At the end of the section are links to key species' documents that provide additional background information.

EPBC ACT LISTING	Vulnerable
DESCRIPTION	*Sternula nereis nereis* (Australian Fairy Tern) is a small bird approximately 22 – 27 cm in length. It is bulky and round bodied. The breeding plumage is pale grey-white, with a black crown, and white forehead (DAWE, 2020).
ECOLOGY	The Australian Fairy Tern is gregarious and gathers at roost sites during and outside the breeding season (DAWE, 2020). The species breeds between June and March in colonies of between 2 and 400 pairs, and up to 700 pairs in Western Australia. Breeding colonies are located on coastal islands or coral cays, on sandy islands and beaches inside estuaries. Breeding colony location is associated with areas of high food abundance. Colonies may occur in the same general location for several seasons, and then shift to new locations (DAWE, 2020). Individuals lay 1 – 2 eggs. The species has a high natural breeding failure due to inundation from high tides and storm surges, or smothering by wind-blown sand (DAWE, 2020). The Australian Fairy Tern feeds almost exclusively on fish in near-shore waters adjacent to nesting colonies (DAWE, 2020).
DISTRIBUTION AND HABITAT	The Australian Fairy Tern occurs in southern Australia from the Montebello Islands of the Pilbara in Western Australia to Botany Bay NSW, with a gap in distribution across the Great Australian Bight (DAWE, 2020). Within Victoria, the species occurs in the following NRM regions – Corangamite, East Gippsland, West Gippsland, and Port Phillip and Western Port (DSEWPaC, 2011a). The number of nesting colonies has declined, particularly around the Victorian coastline (DAWE, 2020).The species extent of occurrence is approximately 380,000 km^2 and the area of occupancy is estimated to be 1,150 km^2 (DSEWPaC, 2011a). The Australian Fairy Tern uses a variety of habitats including offshore, estuarine or lacustrine (lake) islands, coastal wetlands, beaches and sand spits. Nesting habitat consists of a shallow scrape in the sand which may be lined with vegetation or small shells. In Victoria, the species uses seagrass covered beaches for nesting (DAWE, 2020). The species' Recovery Plan notes that it is not possible to generate one detailed description or definition of habitat critical to the survival of the species. Instead, the Recovery Plan notes that habitat critical to the survival of the species is more usefully considered at a bioregional scale, which acknowledges the species occurs within a mosaic of coastal habitats. As a guide, habitat critical to the survival of the species can be considered to comprise (DAWE, 2020): • *Suitable habitat where the species is known or likely to breed or forage as shown in the indicative distribution map* • *Any suitable habitat outside the above area that may be periodically occupied by non-breeding Australian Fairy Terns*
POPULATIONS	The population of the Australian Fairy Tern is estimated at 7,450, of which approximately 100 – 150 occur in Victoria. There has been a decline in breeding pairs within Victoria. There have been few records documenting successful breeding attempts over the last decade within Western Port Ramsar site and Port Phillip Bay. Gippsland Lakes Ramsar site continues to host breeding Australian Fairy Terns (DAWE, 2020). The Tasmanian and Victorian populations may form a single subpopulation (DAWE, 2020).
THREATS	The species Recovery Plan and Conservation Advice identifies the following threats (DSEWPaC, 2011a; DAWE, 2020): • Habitat degradation and loss of breeding habitat • Disturbance by humans, dogs and vehicles

	• Predation by introduced species such as foxes, dogs, cats, rats, and by native species • Road traffic mortality of chicks which are fledging or practising flight • Invasive plants • Climate variability and change, and extreme weather events • Inappropriate water regimes and water pollution in foraging habitat • Hybridisation with Little Terns
RELEVANT PLANS AND POLICIES	Approved Conservation Advice for *Sternula nereis nereis* (Fairy Tern) (DSEWPaC, 2011a) Commonwealth Listing Advice on *Sternula nereis nereis* (Fairy Tern) (TSSC, 2011b) National Recovery Plan for the Australian Fairy Tern (*Sternula nereis nereis*) (DAWE, 2020) Threat abatement plan for predation by feral cats (DoE, 2015h) Threat abatement plan for predation by the European red fox (DEWHA, 2008f)
SPECIES-SPECIFIC GUIDELINES	There are no species-specific guidelines for this species.
SPRAT LINK	http://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=82950

APPROACH TO BASELINE DATA

This section provides a summary of the baseline information used in the assessment. It sets out:

- *An overview of the habitat mapping for the species within and outside the Growth Areas*
- *An overview of the population mapping for the species*

Please refer to Chapter 13 for further details about the approach to threatened species baseline data, including a description of the different types and sources of data, as well as some discussion on the interpretation and suitability of the data for use in the impact assessment.

HABITAT MAPPING	**WITHIN THE SURVEYED AREAS OF THE GROWTH AREAS**
	N/A. Surveys conducted within the Growth Areas concluded that there is unlikely to be suitable habitat present for this species.
	WITHIN THE UNSURVEYED AREAS OF THE GROWTH AREAS
	N/A. There is unlikely to be suitable habitat present for this species.
	OUTSIDE THE GROWTH AREAS
	Habitat important models (HIMs). Habitat mapping for the species across the broader Strategic Assessment Area and Study Area was prepared using DELWPs HIMs. Refer to Chapter 13 of Part 3 for a detailed description of the baseline mapping, landholder surveys, and HIMs.
POPULATION MAPPING	**RECORD SELECTION**
	Species records were compiled from the VBA and surveys undertaken for the project. The VBA records were filtered to remove records from prior to 1990 for the purpose of the impact assessment.
	RECORD DOWNLOAD DATE
	VBA records for the Australian Fairy Tern used in this assessment were downloaded in June 2022.
	METHOD FOR IDENTIFYING POPULATIONS
	All records within the Study Area were considered a single population. This is because the species within Victoria is thought to comprise a single subpopulation population (DAWE, 2020).

OCCURRENCE IN THE STUDY AREA

This section describes the occurrence of the species in the Study Area. It includes reference to a map of records and habitat which can be viewed as a separate file. The map provides critical context for the assessment and should be viewed in conjunction with the text presented in this assessment. This section also provides a qualitative description of where records and habitat occur.

See Map 19-11 for a map of records and habitat across the Strategic Assessment Area.

There are 914 records from 1990 onwards of the Fairy Tern within the Study Area (comprising 5,871 individuals). The most recent record was recorded in 2019. The species has not been recorded within the Strategic Assessment Area.

A total of 5,155.3 ha of potential habitat has been mapped within the Study Area. Of this, 5.1 ha of habitat occurs within the Strategic Assessment Area. No habitat has been mapped within the Growth Areas.

Mapped habitat and the majority of records (822 records, comprising 4,927 individuals) for the Australian Fairy Tern occur along the northern shoreline of Port Phillip Bay, from Limeburners Bay in the west through to the Study Area boundary in the east.

74 records (comprising 827 individuals) and mapped habitat occur in the Moolap locality. A smaller number of records (17 records, comprising 114 individuals) and mapped habitat occur at the Lake Connewarre Complex.

An isolated record occurs near Lara.

A smaller area of habitat not associated with records occurs in the estuarine environment of Thompson Creek in the south of the Study Area.

POTENTIAL INDIRECT IMPACTS AND MITIGATION

This section identifies the relevant potential indirect impacts to the species that may occur as a result of development under the Plan. Indirect impacts were identified as being relevant to the species if:

- *The indirect impact is identified as a threat in a relevant profile, Conservation Advice, or Recovery Plan, and*
- *The Plan has the potential to introduce or exacerbate the threat in areas which support records and/or mapped habitat for the species*

It describes the mechanism by which each relevant potential indirect impact may affect the species.

Please refer to Chapter 19 for an assessment of how the Plan addresses each indirect impact for this species. Further, please refer to Chapter 17 for a detailed discussion and analysis of indirect impacts and mitigation measures included in the Plan.

RELEVANT POTENTIAL INDIRECT IMPACTS

The Conservation Advice and Recovery Plan for the Australian Fairy Tern identify a range of threats to the species (DSEWPaC, 2011a; DAWE, 2020). Where these threats have the potential to be introduced or exacerbated under the Plan, the Plan includes management strategies to mitigate their impacts.

The following potential indirect impacts (identified as threats) are considered relevant to implementation of the Plan:

- Disturbance by humans, dogs and vehicles
- Inappropriate water regimes and water pollution in foraging habitat

There are a number of additional threats to the species identified in the Conservation Advice and Recovery Plan. However, potential indirect impacts associated with these threats are considered unlikely given the landscape context of the site and the ecology of the species. Refer to Section 17.2 of Chapter 17 for a detailed assessment of potential indirect impacts associated with the implementation of the Plan.

Climate change is also identified as a threat to the species. The potential impacts of climate change and relevant mitigation measures under the Plan are outlined in Part 5.

DISTURBANCE BY HUMANS, DOGS AND VEHICLES

The Australian Fairy Tern will enact an anti-predator response as humans and/or their dogs approach within 80-100 m. Adults tending nests will take flight to avoid disclosing the location of the nest, and will engage in noisy dives against intruders, including defecating on intruders (DAWE, 2020).

Repeated ongoing disturbance during colony establishment or during the early laying period will often result in site abandonment, while disturbance later in the breeding season may result in overheating or chilling of eggs, and death of chicks. Predators such as gulls and ravens have been known to opportunistically feed on exposed nests during periods of human disturbance (DAWE, 2020).

Successful strategies to protect nesting Australian Fairy Terns (and similar species including Hooded Plovers and Little Terns) have included chick shelters, community education, signage (combined with boundary delineation) and volunteer wardens. It is noted that education does not work on its own without a holistic approach which combines education, on-ground approaches, compliance programs and effectiveness reviews (DAWE, 2020).

INAPPROPRIATE WATER REGIMES AND WATER POLLUTION IN FORAGING HABITAT

Increased water discharge into estuaries can result in estuary overfilling and inundation of roosting and nesting sites. Reduced discharge into estuaries can also result in drying of estuaries, which closes the estuary mouth and prevents connection to the marine environment. Overfilling or underfilling of estuaries also impacts upon water salinities, which may render sites inappropriate for the species (DAWE, 2020).

Further, Australian Fairy Terns often locate colonies close to food resources (generally small schooling fishes). These fish often occur in locations of higher productivity, such as around estuary mouths. These locations may be compromised by poor water quality from drainage from a range of development types, including urban and rural areas, canal estates, boat harbours, coastal heavy industries and ports. Exposure of acid sulfate soils may also negatively impact upon water quality. These locations may be susceptible to accumulation of floating debris, pesticides, and contaminants such as heavy metals. There is currently no data on contaminant burden amongst Australian Fairy Terns in Victoria, although there is evidence of a contaminant burden within the species in other locations (DAWE, 2020).

RECOVERY PLAN, KEY THREATENING PROCESSES AND THREAT ABATEMENT PLANS

Where applicable, this section discusses the consistency of the Plan with any Recovery Plans and relevant Threat Abatement Plans. The general consistency of the Plan with Threat Abatement Plans is discussed in detail in Section 17.3 of Chapter 17.

CONSISTENCY WITH RECOVERY PLAN

In accordance with Section 146K of the EPBC Act, this section considers whether the implementation of the Plan is not inconsistent with the species' Recovery Plan. It considers two questions:

- Does the Plan prevent achievement of the objectives of the Recovery Plan?
- Does the Plan prevent implementation of the Recovery Plan actions?

These questions are discussed below.

DOES THE PLAN PREVENT ACHIEVEMENT OF THE OBJECTIVES OF THE RECOVERY PLAN?

The overall objective of the Recovery Plan is as follows: by 2030, sustain a positive population trend (compared to 2020 baseline counts) in the number of mature individuals of the Australian Fairy Tern in both the eastern and western populations. This overall objective is associated with a series of specific strategies to achieve the objective (DAWE, 2020):

1. Manage and protect known Australian Fairy Tern breeding populations at the landscape scale
2. Develop and apply techniques to measure changes in population trend(s) in order to measure the efficacy of recovery actions
3. Reduce, or eliminate threats at breeding, non-breeding and foraging sites
4. Undertake research and monitoring to improve understanding of breeding, non-breeding and foraging attributes in order to better target management actions and habitat restoration

5. Engage community stakeholders in Australian Fairy Tern conservation
6. Coordinate, review and report on recovery progress

The outcome under the Plan for the Australian Fairy Tern will not prevent the achievement of any of the objectives of the Recovery Plan.

DOES THE PLAN PREVENT IMPLEMENTATION OF THE RECOVERY PLAN ACTIONS?

The Recovery Plan identifies a set of actions in order to deliver on the objectives. Each action is associated with performance criteria (DAWE, 2020). The Plan will not prevent the implementation of any of these actions, nor will it prevent the achievement of any of the performance criteria.

KEY THREATENING PROCESSES AND CONSISTENCY WITH THREAT ABATEMENT PLANS

Relevant Key Threatening Processes (KTPs) and any of their associated Threat Abatement Plans (TAPs) have been identified in Table B-2where they relate to:

- The potential direct impacts of the Plan, or
- The relevant indirect impacts

Table B-2: Relevant Key Threatening Processes and associated Threat Abatement Plans for the Fairy Tern

Key threatening process	Threat abatement plan
Fire regimes that cause declines in biodiversity	There is no relevant TAP
Land clearance	There is no relevant TAP
Loss of climatic habitat caused by anthropogenic emissions of greenhouse gases	There is no relevant TAP
Novel biota and their impact on biodiversity	There is no relevant TAP
Predation by feral cats	Threat abatement plan for predation by feral cats (DoE, 2015h)
Predation by the European red fox	Threat abatement plan for predation by the European red fox (DEWHA, 2008f)

AUSTRALIAN PAINTED SNIPE *(ROSTRATULA AUSTRALIS)*

SPECIES BACKGROUND

This section sets out the basic information about the species. It provides an overview of the species' ecology, distribution, habitat, populations and threats. These provide context for the impact assessment. At the end of the section are links to key species' documents that provide additional background information.

EPBC ACT LISTING	Endangered
DESCRIPTION	*Rostratula australis* (Australian Painted Snipe) is a medium sized stocky wading bird with blue-green legs and a long orange-pink bill. It has a brown head, nape and chest with comma shaped white markings around the eyes, white belly and a white harness shape marking from its breast to back. Its plumage is barred olive green and black (DSEWPaC, 2013b).
ECOLOGY	Relatively little is known about the ecology of this species, as it has few records, unpredictable movements, cryptic habits, and often occurs in reasonably inaccessible areas (DoEE, 2019). The species breeds all year round depending on available suitable wetland conditions. It has been known to lay up to four clutches of 2 to 6 eggs per year. Females mostly breed every two years (DCCEEW, 2022). The species feeds on vegetation, seeds, and invertebrates such as insects, worms, molluscs, and crustaceans. It is mostly active at dawn, dusk and throughout the night (Garnett, Szabo and Dutson, 2011; DCCEEW, 2022). It is generally seen singly or in pairs. Movement patterns are not well understood, the species may be dispersive or migratory (DCCEEW, 2022).
DISTRIBUTION AND HABITAT	The species is only found in Australia and mainly occurs in the Murray Darling Basin. It is widespread across Australia (DSEWPaC, 2013b; DCCEEW, 2022). Important areas for the species include the Murray Darling Basin, Queensland Channel Country, Fitzroy Basin of Central Queensland, south-eastern South Australia, and adjacent parts of Victoria (DSEWPaC, 2013b). It is associated with the following EPBC Act listed TECs (DSEWPaC, 2013b): • Seasonal Herbaceous Wetlands (Freshwater) of the Temperate Lowland Plains • Upland Wetlands of the New England Tablelands The species inhabits ephemeral and permanent shallow freshwater wetlands, and occasionally in brackish wetlands. It favours a dense cover of grass and reeds (DSEWPaC, 2013b). Breeding habitat requirements may be quite specific (DoEE, 2019). Due to limited understanding of the species' ecology and habitat requirements, it is not possible to generate a detailed description or definition of habitat critical to the survival of the species (DoEE, 2019).
POPULATIONS	There are a number of population estimates for the species, ranging between 1,500 and 5,000 mature individuals. Population estimates are considered unreliable due to the species' cryptic nature, inaccessible habitat and limited numbers of surveys (DoEE, 2019). The species occurs as a single homogenous breeding population across the country (DoEE, 2019).
THREATS	The species Conservation Advice (DSEWPaC, 2013b) and draft Recovery Plan (DoEE, 2019) have identified the following threats • Loss of wetlands through drainage and the diversion of water for agriculture and reservoirs • Inappropriate hydrological regimes and declines in water quality • Grazing and the associated trampling of wetland vegetation/nests, nutrient enrichment and disturbance to substrate by livestock • Climate change, including reduced rainfall and runoff in the Murray-Darling Basin • Impacts from feral animals, including predation by cats and foxes, and habitat degradation by pigs, goats and deer • Invasive plants

	• Human disturbance of breeding birds • Inappropriate fire regimes • Low genetic diversity
RELEVANT PLANS AND POLICIES	Approved Conservation Advice for *Rostratula australis* (Australian Painted Snipe) (DSEWPaC, 2013b) Commonwealth Listing Advice on *Rostratula australis* (Australian Painted Snipe) (TSSC, 2013) It is noted that the species has a draft Recovery Plan which has been released for public consultation: Draft National Recovery Plan for the Australian Painted Snipe *Rostratula australis* (DoEE, 2019). Threat abatement plan for competition and land degradation by unmanaged goats (DEWHA, 2008e) Threat abatement plan for predation by feral cats (DoE, 2015h) Threat abatement plan for predation by the European red fox (DEWHA, 2008f) Threat abatement plan for predation, habitat degradation, competition and disease transmission by feral pigs (DoEE, 2017b)
SPECIES-SPECIFIC GUIDELINES	Survey Guidelines for Australia's Threatened Birds. EPBC Act survey guidelines 6.2 (DEWHA, 2010b)
SPRAT LINK	http://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=77037

APPROACH TO BASELINE DATA

This section provides a summary of the baseline information used in the assessment. It sets out:

- *An overview of the habitat mapping for the species within and outside the Growth Areas*
- *An overview of the population mapping for the species*

Please refer to Chapter 13 for further details about the approach to threatened species baseline data, including a description of the different types and sources of data, as well as some discussion on the interpretation and suitability of the data for use in the impact assessment.

HABITAT MAPPING	**WITHIN THE SURVEYED AREAS OF THE GROWTH AREAS**
	N/A. Surveys conducted within the Growth Areas concluded that there is unlikely to be suitable habitat present for this species.
	WITHIN THE UNSURVEYED AREAS OF THE GROWTH AREAS
	N/A. There is unlikely to be suitable habitat present for this species.
	OUTSIDE THE GROWTH AREAS
	Habitat important models (HIMs). Habitat mapping for the species across the broader Strategic Assessment Area and Study Area was prepared using DELWPs HIMs. Refer to Chapter 13 of Part 3 for a detailed description of the baseline mapping, landholder surveys, and HIMs.
POPULATION MAPPING	**RECORD SELECTION**
	Species records were compiled from the VBA and surveys undertaken for the project. The VBA records were filtered to remove records from prior to 1990 for the purpose of the impact assessment.
	RECORD DOWNLOAD DATE
	VBA records for the Australian Painted Snipe used in this assessment were downloaded in June 2022.
	METHOD FOR IDENTIFYING POPULATIONS

	Given the mobile nature of the species, all records within the Study Area are considered a single population.

OCCURRENCE IN THE STUDY AREA

This section describes the occurrence of the species in the Study Area. It includes reference to a map of records and habitat which can be viewed as a separate file. The map provides critical context for the assessment and should be viewed in conjunction with the text presented in this assessment. This section also provides a qualitative description of where records and habitat occur.

See Map 19-12 for a map of records and habitat across the Strategic Assessment Area.

There are seven records (19 individuals) of the Australian Painted Snipe within the Study Area, the most recent of which was recorded in 2013. The species has not been recorded in the Strategic Assessment Area.

A total of 7,828.4 ha of potential habitat has been mapped within the Study Area. Of this, 42.4 ha of habitat is mapped within the Strategic Assessment Area. No habitat has been mapped within the Growth Areas.

A large area of habitat and two records (3 individuals) of the species occur at the Lake Connewarre Complex.

Two records (9 individuals) occur in the north-east of the Study Area in the locality of Little River.

An isolated record (single individual) occurs at Brisbane Ranges National Park in the north-west of the Study Area.

Otherwise, habitat is mapped largely mapped along riparian habitats, including the Moorabool River, Barwon River, Hovells Creek, Little River, and Thompsons Creek. Some habitat is also mapped along the coastline in the Port Wilson area.

POTENTIAL INDIRECT IMPACTS AND MITIGATION

This section identifies the relevant potential indirect impacts to the species that may occur as a result of development under the Plan. Indirect impacts were identified as being relevant to the species if:

- *The indirect impact is identified as a threat in a relevant profile, Conservation Advice, or Recovery Plan, and*
- *The Plan has the potential to introduce or exacerbate the threat in areas which support records and/or mapped habitat for the species*

It describes the mechanism by which each relevant potential indirect impact may affect the species.

Please refer to Chapter 19 for an assessment of how the Plan addresses each indirect impact for this species. Further, please refer to Chapter 17 for a detailed discussion and analysis of indirect impacts and mitigation measures included in the Plan.

RELEVANT POTENTIAL INDIRECT IMPACTS

The Conservation Advice (DSEWPaC, 2013b) and draft Recovery Plan (DoEE, 2019) for the Australian Painted Snipe identify a range of threats to the species. Where these threats have the potential to be introduced or exacerbated under the Plan, the Plan includes management strategies to mitigate their impacts.

The following potential indirect impacts (identified as threats) are considered relevant to implementation of the Plan:

- Inappropriate hydrological regimes and declines in water quality
- Human disturbance of breeding birds

There are a number of additional threats to the species identified in the Conservation Advice and draft Recovery Plan. However, potential indirect impacts associated with these threats are considered unlikely given the landscape context of the site and the ecology of the species. Refer to Section 17.2 of Chapter 17 for a detailed assessment of potential indirect impacts associated with the implementation of the Plan.

Climate change is also identified as a threat to the species. The potential impacts of climate change and relevant mitigation measures under the Plan are outlined in Part 5.

INAPPROPRIATE HYDROLOGICAL REGIMES AND DECLINES IN WATER QUALITY

Inappropriate hydrological regimes which can impact the species include reduced flooding frequency of wetland habitat, and stabilisation of water within wetlands which otherwise had naturally fluctuating water levels, resulting in water levels becoming too deep and inappropriate vegetation cover developing (DSEWPaC, 2013b). Inappropriate hydrological regimes pose a threat especially within the Murray Darling Basin as a result of water diversion and development for agriculture (DoEE, 2019).

Water quality declines of wetlands can impact habitat characteristics and food availability for the Australian Painted Snipe. Water quality can be impacted through lack of flushing flood flows, increased nutrient runoff, pesticide and herbicide runoff or spray drift, removal of vegetation resulting in sedimentation and turbidity, and increased salinity (DoEE, 2019).

Many of the wetlands used by the species are now degraded. This may result in the species having to expend more effort in foraging and having to increase travel between foraging and roosting areas. It is thought that declines in water quality are likely to be most detrimental to chicks (DoEE, 2019).

HUMAN DISTURBANCE OF BREEDING BIRDS

The Australian Painted Snipe has potential to be impacted by human disturbance, with breeding birds being the most vulnerable to impacts. Duck hunting (including accidental mortality, or disturbance from the noise of discharging firearms), recreational fishers and birdwatchers have potential to disturb the species. Other forms of human disturbance also include habitat trampling, and litter such as discarded fishing gear and rubbish. While human disturbance is not considered a major threat throughout the species' range, it has the potential to be locally severe if not appropriately managed (DoEE, 2019).

RECOVERY PLAN, KEY THREATENING PROCESSES AND THREAT ABATEMENT PLANS

Where applicable, this section discusses the consistency of the Plan with any Recovery Plans and relevant Threat Abatement Plans. The general consistency of the Plan with Threat Abatement Plans is discussed in detail in Section 17.3 of Chapter 17.

CONSISTENCY WITH RECOVERY PLAN

There is no adopted or made Recovery Plan for this species. While the species had a draft Recovery Plan released for public consultation in 2020, this draft document has not been endorsed under the EPBC Act.

KEY THREATENING PROCESSES AND CONSISTENCY WITH THREAT ABATEMENT PLANS

Relevant Key Threatening Processes (KTPs) and any of their associated Threat Abatement Plans (TAPs) have been identified in Table B-3 where they relate to:

- The potential direct impacts of the Plan, or
- The relevant indirect impacts

Table B-3: Relevant Key Threatening Processes and associated Threat Abatement Plans for the Australian Painted Snipe

Key threatening process	Threat abatement plan
Competition and land degradation by unmanaged goats	Threat abatement plan for competition and land degradation by unmanaged goats (DEWHA, 2008e)
Fire regimes that cause declines in biodiversity	There is no relevant TAP
Land clearance	There is no relevant TAP
Loss of climatic habitat caused by anthropogenic emissions of greenhouse gases	There is no relevant TAP
Novel biota and their impact on biodiversity	There is no relevant TAP

Key threatening process	Threat abatement plan
Predation by feral cats	Threat abatement plan for predation by feral cats (DoE, 2015h)
Predation by the European red fox	Threat abatement plan for predation by the European red fox (DEWHA, 2008f)
Predation, Habitat Degradation, Competition and Disease Transmission by Feral Pigs	Threat abatement plan for predation, habitat degradation, competition and disease transmission by feral pigs (DoEE, 2017b)

CURLEW SANDPIPER *(CALIDRIS FERRUGINEA)*

SPECIES BACKGROUND

This section sets out the basic information about the species. It provides an overview of the species' ecology, distribution, habitat, populations and threats. These provide context for the impact assessment. At the end of the section are links to key species' documents that provide additional background information.

EPBC ACT LISTING	Critically Endangered, Migratory Note that the Curlew Sandpiper is currently on the Finalised Priority Assessment List (FPAL) and is proposed to have its listing downgraded to Endangered (DAWE, 2021f) A decision is due by 30 October 2023 (DAWE, 2021f)
DESCRIPTION	*Calidris ferruginea* (Curlew Sandpiper) is a small, slim migratory bird with long legs and a long black bill (TSSC, 2015a).
ECOLOGY	The species breeds in the Russian Arctic before migrating to the southern hemisphere. A relatively small proportion of the species (thought to be less than 13 per cent of the global population) migrates to Australia for the austral summer. Most immature birds do not return to the northern hemisphere for two years following their first arrival in Australia (TSSC, 2015a). The species feeds mainly on invertebrates but will also eat seeds (TSSC, 2015a).
DISTRIBUTION AND HABITAT	In Australia, the species occurs along the coast but is also widespread inland (although in lower and variable numbers). The species uses a range of freshwater and brackish coastal and estuarine areas and inland waterbodies, where it: • Forages on mudflats and in nearby shallow water, and occasionally low, sparse vegetation • Roosts in open areas with damp substrates, especially on shingle, shell or sand beaches, spits and islets (TSSC, 2015a)
POPULATIONS	The species occurs as a single population in Australia (TSSC, 2015a). The most recent estimate of the species' East Asian – Australasian Flyway population size is 90,000 individuals (Hansen *et al.*, 2016).
THREATS	The species Conservation Advice has identified the following threats within Australia (TSSC, 2015a): • Ongoing human disturbance • Habitat loss and degradation from pollution and changes to the water regime • Invasive plants
RELEVANT PLANS AND POLICIES	Conservation Advice *Calidris ferruginea* Curlew Sandpiper (TSSC, 2015a)
SPECIES-SPECIFIC GUIDELINES	Wildlife Conservation Plan for Migratory Shorebirds (Commonwealth of Australia, 2015) EPBC Act Policy Statement 3.21 - Industry Guidelines for avoiding, assessing and mitigating impacts on EBBC Act listed migratory shorebird species (DoE, 2017)
SPRAT LINK	http://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=856

APPROACH TO BASELINE DATA

This section provides a summary of the baseline information used in the assessment. It sets out:

- *An overview of the habitat mapping for the species within and outside the Growth Areas*
- *An overview of the population mapping for the species*

Please refer to Chapter 13 for further details about the approach to threatened species baseline data, including a description of the different types and sources of data, as well as some discussion on the interpretation and suitability of the data for use in the impact assessment.

HABITAT MAPPING	**WITHIN THE SURVEYED AREAS OF THE GROWTH AREAS**
	N/A. Surveys conducted within the Growth Areas concluded that there is unlikely to be suitable habitat present for this species.
	WITHIN THE UNSURVEYED AREAS OF THE GROWTH AREAS
	N/A. There is unlikely to be suitable habitat present for this species.
	OUTSIDE THE GROWTH AREAS
	Habitat important models (HIMs). Habitat mapping for the species across the broader Strategic Assessment Area and Study Area was prepared using DELWPs HIMs. Refer to Chapter 13 of Part 3 for a detailed description of the baseline mapping, landholder surveys, and HIMs.
POPULATION MAPPING	**RECORD SELECTION**
	Species records were compiled from the VBA and surveys undertaken for the project. The VBA records were filtered to remove records from prior to 1990 for the purpose of the impact assessment.
	RECORD DOWNLOAD DATE
	VBA records for the Curlew Sandpiper used in this assessment were downloaded in June 2022.
	METHOD FOR IDENTIFYING POPULATIONS
	Given the mobile nature of the species, all records within the Study Area are considered a single population.

OCCURRENCE IN THE STUDY AREA

This section describes the occurrence of the species in the Study Area. It includes reference to a map of records and habitat which can be viewed as a separate file. The map provides critical context for the assessment and should be viewed in conjunction with the text presented in this assessment. This section also provides a qualitative description of where records and habitat occur.

See Map 19-13 for a map of records and habitat across the Strategic Assessment Area.

There are 2,690 records from 1990 onwards of the Curlew Sandpiper within the Study Area (comprising 125,035 individuals). Of these, 2,060 records have been recorded within the last five years, with the most recent record from 2021. The species has not been recorded within the Strategic Assessment Area.

A total of 5,929.7 ha of potential habitat has been mapped within the Study Area. Of this, 12.4 ha is mapped within the Strategic Assessment Area. No habitat is mapped within the Growth Areas.

Mapped potential habitat and the majority of records (2,413 records, comprising 96,466 individuals) for the Curlew Sandpiper occur along the northern shoreline of Port Phillip Bay, from Limeburners Bay in the west through to the Study Area boundary in the east.

Mapped potential habitat and multiple records (116 records, comprising 10,999 individuals) occur at the Lake Connewarre Complex.

Mapped potential habitat and multiple records (154 records, comprising 17,563 individuals) occur in the Moolap locality.

Isolated records also occur at Lara, and at 13th Beach in the south of the Study Area.

A smaller area of potential habitat not associated with records occurs in the estuarine environment of Thompson Creek in the south of the Study Area.

POTENTIAL INDIRECT IMPACTS AND MITIGATION

This section identifies the relevant potential indirect impacts to the species that may occur as a result of development under the Plan. Indirect impacts were identified as being relevant to the species if:

- *The indirect impact is identified as a threat in a relevant profile, Conservation Advice, or Recovery Plan, and*
- *The Plan has the potential to introduce or exacerbate the threat in areas which support records and/or mapped habitat for the species*

It describes the mechanism by which each relevant potential indirect impact may affect the species.

Please refer to Chapter 19 for an assessment of how the Plan addresses each indirect impact for this species. Further, please refer to Chapter 17 for a detailed discussion and analysis of indirect impacts and mitigation measures included in the Plan.

RELEVANT POTENTIAL INDIRECT IMPACTS

The Conservation Advice for the Curlew Sandpiper identifies a range of threats to the species within Australia (TSSC, 2015a). Where these threats have the potential to be introduced or exacerbated under the Plan, the Plan includes management strategies to mitigate their impacts.

The following potential indirect impacts (identified as threats) are considered relevant to implementation of the Plan:

- Ongoing human disturbance
- Habitat degradation from pollution and changes to the water regime

Invasive plants are also identified in the Conservation Advice as a threat to the species. However, potential indirect impacts associated with this threat are considered unlikely given the landscape context of the site and the ecology of the species. Refer to Section 17.2 of Chapter 17 for a detailed assessment of potential indirect impacts associated with the implementation of the Plan.

ONGOING HUMAN DISTURBANCE

Within the species' range in Australia, some populations occur within highly populated areas which are vulnerable to disturbance. Disturbance can be caused by recreational activities, such as from vehicle traffic, dog walking and horse riding on beaches. It is necessary to maintain undisturbed feeding and roosting habitat along the south-east and north-west coasts of Australia used for migration for the species to survive at current population levels (TSSC, 2015a).

HABITAT DEGRADATION FROM POLLUTION AND CHANGES TO THE WATER REGIME

Habitat degradation from pollution poses a threat to the Curlew Sandpiper. It is possible that pollution around settled areas may reduce food availability for the species (TSSC, 2015a).

Changes to water regimes pose a threat to the Curlew Sandpiper. For example, stabilisation of water levels which otherwise naturally fluctuate can result in the loss of feeding habitat (TSSC, 2015a).

RECOVERY PLAN, KEY THREATENING PROCESSES AND THREAT ABATEMENT PLANS

Where applicable, this section discusses the consistency of the Plan with any Recovery Plans and relevant Threat Abatement Plans. The general consistency of the Plan with Threat Abatement Plans is discussed in detail in Section 17.3 of Chapter 17.

CONSISTENCY WITH RECOVERY PLAN

There is no adopted or made Recovery Plan for this species.

KEY THREATENING PROCESSES AND CONSISTENCY WITH THREAT ABATEMENT PLANS

Relevant Key Threatening Processes (KTPs) and any of their associated Threat Abatement Plans (TAPs) have been identified in Table B-4 where they relate to:

- The potential direct impacts of the Plan, or
- The relevant indirect impacts

Table B-4: Relevant Key Threatening Processes and associated Threat Abatement Plans for the Curlew Sandpiper

Key threatening process	Threat abatement plan
Land clearance	There is no relevant TAP
Loss and degradation of native plant and animal habitat by invasion of escaped garden plants	There is no relevant TAP
Novel biota and their impact on biodiversity	There is no relevant TAP

EASTERN CURLEW *(NUMENIUS MADAGASCARIENSIS)*

SPECIES BACKGROUND

This section sets out the basic information about the species. It provides an overview of the species' ecology, distribution, habitat, populations and threats. These provide context for the impact assessment. At the end of the section are links to key species' documents that provide additional background information.

EPBC ACT LISTING	Critically Endangered, Migratory Note that the Eastern Curlew is currently on the Finalised Priority Assessment List (FPAL) and is proposed to have its listing downgraded to Endangered (DAWE, 2021f). A decision is due by 30 October 2023 (DAWE, 2021f).
DESCRIPTION	*Numenius madagascariensis* (Eastern Curlew) is the largest migratory shorebird in the world. It has a long neck and legs, and a very long downcurved bill (DoE, 2015f).
ECOLOGY	The species breeds in Russia, Mongolia, and north-eastern China. It is thought that approximately 73 per cent of the population migrates to Australia in the non-breeding season. Individuals arrive in Australia as early as July, with the majority of birds arriving in mid-to-late August. Migration north typically starts in late February and continues until March or April. Immature individuals may spend as many as three austral winters in Australia before returning to the Northern Hemisphere to breed (DoE, 2015f). In Australia, the species feeds on crustaceans, small molluscs and insects. The species is extremely wary and will take flight at the first sign of danger, long before other shorebirds become nervous (DoE, 2015f).
DISTRIBUTION AND HABITAT	In Australia, the species is typically distributed across coastal areas and is rarely found inland. The species is found in all states and territories. In Victoria, the main strongholds for the species are Corner Inlet and Western Port Bay. Smaller populations occur at Port Phillip Bay and in other scattered coastal localities (DoE, 2015f). The species: • Typically forages in sheltered intertidal sandflats or mudflats that are either open or vegetated with seagrass, or near mangroves, salt flats, or saltmarshes • Typically roosts during high tide periods on sandy spits, sandbars, and islets, either on sand near the high-water mark or among coastal vegetation • Is rarely found on near-coastal lakes or in grassy areas (DoE, 2015f)
POPULATIONS	The global population has been estimated at 38,000 individuals, of which 28,000 occur in Australia. However, the Conservation Advice notes that this estimate is out of date given the ongoing population declines (DoE, 2015f).
THREATS	The species Conservation Advice has identified the following threats within Australia (DoE, 2015f): • Ongoing human disturbance • Habitat loss and degradation from pollution • Changes to the water regime • Invasive plants
RELEVANT PLANS AND POLICIES	Conservation Advice *Numenius madagascariensis* Eastern Curlew (DoE, 2015f)
SPECIES-SPECIFIC GUIDELINES	Wildlife Conservation Plan for Migratory Shorebirds (Commonwealth of Australia, 2015) EPBC Act Policy Statement 3.21 - Industry Guidelines for avoiding, assessing and mitigating impacts on EBBC Act listed migratory shorebird species (DoE, 2017)
SPRAT LINK	http://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=847

APPROACH TO BASELINE DATA

This section provides a summary of the baseline information used in the assessment. It sets out:

- *An overview of the habitat mapping for the species within and outside the Growth Areas*
- *An overview of the population mapping for the species*

Please refer to Chapter 13 for further details about the approach to threatened species baseline data, including a description of the different types and sources of data, as well as some discussion on the interpretation and suitability of the data for use in the impact assessment.

HABITAT MAPPING	**WITHIN THE SURVEYED AREAS OF THE GROWTH AREAS**
	N/A. Surveys conducted within the Growth Areas concluded that there is unlikely to be suitable habitat present for this species.
	WITHIN THE UNSURVEYED AREAS OF THE GROWTH AREAS
	N/A. There is unlikely to be suitable habitat present for this species.
	OUTSIDE THE GROWTH AREAS
	Habitat important models (HIMs). Habitat mapping for the species across the broader Strategic Assessment Area and Study Area was prepared using DELWPs HIMs. Refer to Chapter 13 of Part 3 for a detailed description of the baseline mapping, landholder surveys, and HIMs.
POPULATION MAPPING	**RECORD SELECTION**
	Species records were compiled from the VBA and surveys undertaken for the project. The VBA records were filtered to remove records from prior to 1990 for the purpose of the impact assessment.
	RECORD DOWNLOAD DATE
	VBA records for the Eastern Curlew used in this assessment were downloaded in June 2022.
	METHOD FOR IDENTIFYING POPULATIONS
	Given the mobile nature of the species, all records within the Study Area are considered a single population.

OCCURRENCE IN THE STUDY AREA

This section describes the occurrence of the species in the Study Area. It includes reference to a map of records and habitat which can be viewed as a separate file. The map provides critical context for the assessment and should be viewed in conjunction with the text presented in this assessment. This section also provides a qualitative description of where records and habitat occur.

See Map 19-14 for a map of records and habitat across the Strategic Assessment Area.

There are 94 records (187 individuals) of the Eastern Curlew within the Study Area, the most recent of which was recorded in 2018. The species has not been recorded within the Strategic Assessment Area.

A total of 5,073.8 ha of potential habitat has been mapped within the Study Area. Of this, 3.9 ha has been mapped within the Strategic Assessment Area. No habitat has been mapped within the Growth Areas.

Mapped habitat and 44 records (comprising 86 individuals) for the Eastern Curlew occur along the northern shoreline of Port Phillip Bay, from Limeburners Bay in the west through to the Study Area boundary in the east.

24 records (57 individuals) occur at the Lake Connewarre Complex, associated with a large area of mapped potential habitat.

26 records (43 individuals) and mapped potential habitat also occurs at the Moolap locality.

A smaller area of habitat not associated with records occurs in the estuarine environment of Thompson Creek in the south of the Study Area.

POTENTIAL INDIRECT IMPACTS AND MITIGATION

This section identifies the relevant potential indirect impacts to the species that may occur as a result of development under the Plan. Indirect impacts were identified as being relevant to the species if:

- *The indirect impact is identified as a threat in a relevant profile, Conservation Advice, or Recovery Plan, and*
- *The Plan has the potential to introduce or exacerbate the threat in areas which support records and/or mapped habitat for the species*

It describes the mechanism by which each relevant potential indirect impact may affect the species.

Please refer to Chapter 19 for an assessment of how the Plan addresses each indirect impact for this species. Further, please refer to Chapter 17 for a detailed discussion and analysis of indirect impacts and mitigation measures included in the Plan.

RELEVANT POTENTIAL INDIRECT IMPACTS

The Conservation Advice for the Eastern Curlew identifies a range of threats to the species in Australia (DoE, 2015f). Where these threats have the potential to be introduced or exacerbated under the Plan, the Plan includes management strategies to mitigate their impacts.

The following potential indirect impacts (identified as threats) are considered relevant to implementation of the Plan:

- Ongoing human disturbance
- Pollution and changes to the water regime

Invasive weeds are also identified in the Conservation Advice as a threat to the species. However, potential indirect impacts associated with this threat are considered unlikely given the landscape context of the site and the ecology of the species. Refer to Section 17.2 of Chapter 17 for a detailed assessment of potential indirect impacts associated with the implementation of the Plan.

ONGOING HUMAN DISTURBANCE

Disturbance may result from recreational activities such as fishing, boating, dog walking (particularly unleashed dogs), four-wheel driving, noise, and lighting. While an individual source of disturbance may have a low impact, it is important to consider the cumulative impact of different types of human disturbance on the species (DoE, 2015f).

As a migratory shorebird, the Eastern Curlew requires suitable foraging opportunities to build up energy stores required for migration. Human disturbance can interrupt the species' feeding or roosting behaviours and may cause the species not to feed or roost in a location that would otherwise provide suitable habitat. Disturbance can also reduce the time the species has available for foraging and resting and increase the time the species spends engaging in vigilance and anti-predator behaviour. Eastern Curlews have been recorded to take flight when humans approach within 30-100 m, or even up to 250 m (DoE, 2015f).

POLLUTION AND CHANGES TO THE WATER REGIME

Pollution and changes to the water regime in habitat used by the Eastern Curlew for foraging and/or roosting can cause indirect loss of habitat for the species through habitat degradation. Stabilisation of water regimes can result in loss of feeding habitat, and pollution near settled areas can reduce food availability for the species (DoE, 2015f).

RECOVERY PLAN, KEY THREATENING PROCESSES AND THREAT ABATEMENT PLANS

Where applicable, this section discusses the consistency of the Plan with any Recovery Plans and relevant Threat Abatement Plans. The general consistency of the Plan with Threat Abatement Plans is discussed in detail in Section 17.3 of Chapter 17.

CONSISTENCY WITH RECOVERY PLAN

There is no adopted or made Recovery Plan for this species.

KEY THREATENING PROCESSES AND CONSISTENCY WITH THREAT ABATEMENT PLANS

Relevant Key Threatening Processes (KTPs) and any of their associated Threat Abatement Plans (TAPs) have been identified in Table B-5 where they relate to:

- The potential direct impacts of the Plan, or
- The relevant indirect impacts

Table B-5: Relevant Key Threatening Processes and associated Threat Abatement Plans for the Eastern Curlew

Key threatening process	Threat abatement plan
Land clearance	There is no relevant TAP
Loss and degradation of native plant and animal habitat by invasion of escaped garden plants	There is no relevant TAP
Novel biota and their impact on biodiversity	There is no relevant TAP

GREAT KNOT *(CALIDRIS TENUIROSTRIS)*

SPECIES BACKGROUND

This section sets out the basic information about the species. It provides an overview of the species' ecology, distribution, habitat, populations and threats. These provide context for the impact assessment. At the end of the section are links to key species' documents that provide additional background information.

EPBC ACT LISTING	Critically Endangered, Migratory Note that the Great Knot is currently on the Finalised Priority Assessment List (FPAL) and is proposed to have its listing downgraded to not listed (DAWE, 2021f) A decision is due by 30 October 2023 (DAWE, 2021f)
DESCRIPTION	*Calidris tenuirostris* (Great Knot) is a medium sized shorebird that grows to a length of 26 – 28 cm. It has a straight, slender bill, and distinct breeding, non-breeding and juvenile plumages (TSSC, 2016c).
ECOLOGY	The species generation time is estimated at 8.6 years, with a maximum longevity of 19.7 years. The Great Knot breeds in north-east Siberia and far north-east Russia. The species migrates to southern non-breeding grounds between August and October. Most birds stay in northern Australia, although some individuals move further south. The species leaves Australia in late March to early April (TSSC, 2016c). The Great Knot feeds on invertebrates through pecking at or just below the surface of moist mud or sand. The species feeds on bivalves, gastropods, crustaceans and other invertebrates (TSSC, 2016c).
DISTRIBUTION AND HABITAT	The Great Knot breeds in the northern hemisphere and undertakes biannual migrations along the East Asian-Australasian Flyway. The species has been recorded around the entirety of the Australian coast along with a few scattered records inland. The greatest numbers have been recorded in northern Western Australia, and the Northern Territory. The species is much less common in south-west Australia, South Australia, Victoria and Tasmania. The extent of occurrence of the Australian population is estimated to be 35,000 km^2, and the area of occupancy is 2,800 km^2 (TSSC, 2016c). Within Australia, the species prefers sheltered coastal habitats with large intertidal mudflats or sandflats, including inlets, bays, harbours, estuaries and lagoons. The Great Knot also is occasionally found on exposed reefs or rock platforms, shorelines with mangrove vegetation, ponds in saltworks, at swamps near the coast, salt lakes and non-tidal lagoons. The species roosts in open areas, often at the water's edge or in shallow water close to feeding grounds (TSSC, 2016c).
POPULATIONS	The number of individuals using the East Asian-Australasian Flyway is approximately 425,000 (Hansen *et al.*, 2016).

THREATS	The species Conservation Advice has identified the following threats (TSSC, 2016c):
	• Habitat loss and habitat degradation, through:
	  ○ Urban and industrial expansion
	  ○ Altered hydrological regimes and decreased water quality
	  ○ Invasive weeds
	• Climate change
	• Pollution/contaminants
	• Human disturbance
	• Disease (avian influenza virus)
	• Direct mortality (hunting)

RELEVANT PLANS AND POLICIES	Conservation Advice *Calidris tenuirostris* Great Knot (TSSC, 2016c)
SPECIES-SPECIFIC GUIDELINES	Wildlife Conservation Plan for Migratory Shorebirds (Commonwealth of Australia, 2015)

	EPBC Act Policy Statement 3.21 - Industry Guidelines for avoiding, assessing and mitigating impacts on EBBC Act listed migratory shorebird species (DoE, 2017)
SPRAT LINK	http://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=862

APPROACH TO BASELINE DATA

This section provides a summary of the baseline information used in the assessment. It sets out:

- *An overview of the habitat mapping for the species within and outside the Growth Areas*
- *An overview of the population mapping for the species*

Please refer to Chapter 13 for further details about the approach to threatened species baseline data, including a description of the different types and sources of data, as well as some discussion on the interpretation and suitability of the data for use in the impact assessment.

HABITAT MAPPING	**WITHIN THE GROWTH AREAS**
	N/A. Surveys conducted within the Growth Areas concluded that there is unlikely to be suitable habitat present for this species.
	WITHIN THE SURVEYED AREAS OF THE GROWTH AREAS
	N/A. Surveys conducted within the Growth Areas concluded that there is unlikely to be suitable habitat present for this species.
	OUTSIDE THE GROWTH AREAS
	Habitat important models (HIMs). Habitat mapping for the species across the broader Strategic Assessment Area and Study Area was prepared using DELWPs HIMs. Refer to Chapter 13 of Part 3 for a detailed description of the baseline mapping, landholder surveys, and HIMs.
POPULATION MAPPING	**RECORD SELECTION**
	Species records were compiled from the VBA and surveys undertaken for the project. The VBA records were filtered to remove records from prior to 1990 for the purpose of the impact assessment.
	RECORD DOWNLOAD DATE
	VBA records for the Great Knot used in this assessment were downloaded in June 2022.
	METHOD FOR IDENTIFYING POPULATIONS
	Given the mobile nature of the species, all records within the Study Area are considered a single population.

OCCURRENCE IN THE STUDY AREA

This section describes the occurrence of the species in the Study Area. It includes reference to a map of records and habitat which can be viewed as a separate file. The map provides critical context for the assessment and should be viewed in conjunction with the text presented in this assessment. This section also provides a qualitative description of where records and habitat occur.

See Map 19-15 for a map of records and habitat across the Strategic Assessment Area.

There are 55 records (129 individuals) of the Great Knot within the Study Area, the most recent of which was recorded in 2018. The species has not been recorded within the Strategic Assessment Area.

A total of 4,161.4 ha of potential habitat has been mapped within the Study Area. No habitat has been mapped within the Strategic Assessment Area or the Growth Areas.

Mapped habitat for the Great Knot occurs along the northern shoreline of Port Phillip Bay, from Limeburners Bay in the west through to the Study Area boundary in the east. Records in this area (53 records, constituting 118 individuals) occur near Port Wilson.

A large area of mapped habitat and a single record (of 10 individuals) occurs at the Lake Connewarre Complex.

A smaller area of mapped habitat and a single record (of one individual) occurs at the Moolap locality.

Habitat not associated with records occurs in the estuarine environment of Thompson Creek in the south of the Study Area.

POTENTIAL INDIRECT IMPACTS AND MITIGATION

This section identifies the relevant potential indirect impacts to the species that may occur as a result of development under the Plan. Indirect impacts were identified as being relevant to the species if:

- *The indirect impact is identified as a threat in a relevant profile, Conservation Advice, or Recovery Plan, and*
- *The Plan has the potential to introduce or exacerbate the threat in areas which support records and/or mapped habitat for the species*

It describes the mechanism by which each relevant potential indirect impact may affect the species.

Please refer to Chapter 19 for an assessment of how the Plan addresses each indirect impact for this species. Further, please refer to Chapter 17 for a detailed discussion and analysis of indirect impacts and mitigation measures included in the Plan.

RELEVANT POTENTIAL INDIRECT IMPACTS

The Conservation Advice for the Great Knot identifies a range of threats to the species (TSSC, 2016c). Where these threats have the potential to be introduced or exacerbated under the Plan, the Plan includes management strategies to mitigate their impacts.

The following potential indirect impacts (identified as threats) are considered relevant to implementation of the Plan:

- Altered hydrological regimes and decreased water quality
- Human disturbance

There are a number of additional threats to the species identified in the Conservation Advice. However, potential indirect impacts associated with these threats are considered unlikely given the landscape context of the site and the ecology of the species. Refer to Section 17.2 of Chapter 17 for a detailed assessment of potential indirect impacts associated with the implementation of the Plan.

Climate change is also identified as a threat to the species. The potential impacts of climate change and relevant mitigation measures under the Plan are outlined in Part 5.

ALTERED HYDROLOGICAL REGIMES AND DECREASED WATER QUALITY

Changes to water regimes and decreased water quality pose a threat to the Great Knot. Upstream development, water regulation and diversion has resulted in lowered water volumes and increased sediment loads, which exacerbates the threats of habitat loss for the species. The species is particularly sensitive to impacts due to its high site fidelity, tendency to aggregate, high energy demands required for migration and requirement for a network of foraging and roosting habitats (TSSC, 2016c).

HUMAN DISTURBANCE

Human disturbance of Great Knots can be associated with a range of sources, including recreational activities, construction activities and fishing/harvesting. Examples of recreational activities which may pose a threat to the species include dog walking, vehicle movements and horse riding on beaches (TSSC, 2016c).

Disturbance can cause Great Knots to pause or abandon roosting or foraging activities and may cause then to cease using areas of habitat which are otherwise suitable. Disturbance reduces the amount of time the species devotes to foraging

and resting, and increases the time spent on vigilance/anti predator activities. As the species is a migratory bird, the Great Knot has high energy requirements to allow it to build up necessary fat stores to migrate north, and so is particularly vulnerable to disturbance (TSSC, 2016c).

RECOVERY PLAN, KEY THREATENING PROCESSES AND THREAT ABATEMENT PLANS

Where applicable, this section discusses the consistency of the Plan with any Recovery Plans and relevant Threat Abatement Plans. The general consistency of the Plan with Threat Abatement Plans is discussed in detail in Section 17.3 of Chapter 17.

CONSISTENCY WITH RECOVERY PLAN

There is no adopted or made Recovery Plan for this species.

KEY THREATENING PROCESSES AND CONSISTENCY WITH THREAT ABATEMENT PLANS

Relevant Key Threatening Processes (KTPs) and any of their associated Threat Abatement Plans (TAPs) have been identified in Table B-6where they relate to:

- The potential direct impacts of the Plan, or
- The relevant indirect impacts

Table B-6: Relevant Key Threatening Processes and associated Threat Abatement Plans for the Great Knot

Key threatening process	Threat abatement plan
Land clearance	There is no relevant TAP
Loss and degradation of native plant and animal habitat by invasion of escaped garden plants, including aquatic plants	There is no relevant TAP
Loss of climatic habitat caused by anthropogenic emissions of greenhouse gases	There is no relevant TAP
Novel biota and their impact on biodiversity	There is no relevant TAP

GREATER SAND PLOVER *(CHARADRIUS LESCHENAULTII)*

SPECIES BACKGROUND

This section sets out the basic information about the species. It provides an overview of the species' ecology, distribution, habitat, populations and threats. These provide context for the impact assessment. At the end of the section are links to key species' documents that provide additional background information.

EPBC ACT LISTING	Vulnerable, Migratory Note that the Greater Sand Plover is currently on the Finalised Priority Assessment List (FPAL) and is proposed to have its listing downgraded to not listed (DAWE, 2021f) A decision is due by 30 October 2023 (DAWE, 2021f)
DESCRIPTION	*Charadrius leschenaultii* (Greater Sand Plover) is a medium sized brown and white plover. It is similar in appearance to the Lesser Sand Plover although distinctly bigger (TSSC, 2016d).
ECOLOGY	The Greater Sand Plover is a migratory shorebird. The species breeds in China, Mongolia and nearby parts of Russia. During the non-breeding season, the species migrates south, with records from Australia and the south Pacific across the coast of the Indian Ocean to the eastern and southern coasts of Africa and the south eastern shores of the Mediterranean (TSSC, 2016d). Only the subspecies *C. l. leschenaultii* occurs in Australia. Almost three quarters of the subspecies is present in Australia during the austral summer. Birds typically arrive between mid-July and November and leave in late February. Most immature birds remain in Australia during the breeding season (TSSC, 2016d). In Australia, the species' diet mostly consists of molluscs, worms, crustaceans and insects (TSSC, 2016d).
DISTRIBUTION AND HABITAT	During the austral summer the species is widespread but more common in northern Australia. It is found in coastal areas in every Australian state. In Victoria, it is mostly recorded from Corner Inlet, Western Port and Port Phillip Bay (TSSC, 2016d). While in Australia the species is almost entirely coastal. It inhabits sheltered beaches, intertidal mudflats, sandbanks, salt marshes, estuaries, coral reefs, rocky islands or platforms, tidal lagoons and dunes near the coast. They typically forage in wet sand or mud, and roost on sand-spits or high on banks near beaches (TSSC, 2016d).
POPULATIONS	The most recent estimate of the East Asian-Australasia Flyway population of the Greater Sand Plover is between 200,000 – 300,000 individuals (Hansen *et al.*, 2016).
THREATS	The species Conservation Advice has identified the following threats to the species within Australia (TSSC, 2016d): • Ongoing human disturbance • Pollution and changes to the water regime • Invasive plants
RELEVANT PLANS AND POLICIES	Conservation Advice *Charadrius leschenaultii* Greater Sand Plover (TSSC, 2016d)
SPECIES-SPECIFIC GUIDELINES	Wildlife Conservation Plan for Migratory Shorebirds (Commonwealth of Australia, 2015) EPBC Act Policy Statement 3.21 - Industry Guidelines for avoiding, assessing and mitigating impacts on EBBC Act listed migratory shorebird species (DoE, 2017)
SPRAT LINK	http://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=877

APPROACH TO BASELINE DATA

This section provides a summary of the baseline information used in the assessment. It sets out:

- *An overview of the habitat mapping for the species within and outside the Growth Areas*
- *An overview of the population mapping for the species*

Please refer to Chapter 13 for further details about the approach to threatened species baseline data, including a description of the different types and sources of data, as well as some discussion on the interpretation and suitability of the data for use in the impact assessment.

HABITAT MAPPING	**WITHIN THE GROWTH AREAS**
	N/A. Surveys conducted within the Growth Areas concluded that there is unlikely to be suitable habitat present for this species.
	WITHIN THE SURVEYED AREAS OF THE GROWTH AREAS
	N/A. Surveys conducted within the Growth Areas concluded that there is unlikely to be suitable habitat present for this species.
	OUTSIDE THE GROWTH AREAS
	Habitat important models (HIMs). Habitat mapping for the species across the broader Strategic Assessment Area and Study Area was prepared using DELWPs HIMs. Refer to Chapter 13 of Part 3 for a detailed description of the baseline mapping, landholder surveys, and HIMs.
POPULATION MAPPING	**RECORD SELECTION**
	Species records were compiled from the VBA and surveys undertaken for the project. The VBA records were filtered to remove records from prior to 1990 for the purpose of the impact assessment.
	RECORD DOWNLOAD DATE
	VBA records for the Greater Sand Plover used in this assessment were downloaded in June 2022.
	METHOD FOR IDENTIFYING POPULATIONS
	Given the mobile nature of the species, all records within the Study Area are considered a single population.

OCCURRENCE IN THE STUDY AREA

This section describes the occurrence of the species in the Study Area. It includes reference to a map of records and habitat which can be viewed as a separate file. The map provides critical context for the assessment and should be viewed in conjunction with the text presented in this assessment. This section also provides a qualitative description of where records and habitat occur.

See Map 19-16 for a map of records and habitat across the Strategic Assessment Area.

There are two records (3 individuals) of the Greater Sand Plover within the Study Area, recorded in 1994 and 1996. The species has not been recorded within the Strategic Assessment Area.

A total of 2,988.6 ha of potential habitat has been mapped within the Study Area. Of this, 0.5 ha has been mapped within the Strategic Assessment Area. No habitat has been mapped within the Growth Areas.

Both records and mapped habitat for the Greater Sand Plover occurs in the Moolap locality.

Otherwise, habitat is mapped along the northern shoreline of Port Phillip Bay, from Limeburners Bay in the west through to the Study Area boundary in the east, and at the Lake Connewarre Complex.

POTENTIAL INDIRECT IMPACTS AND MITIGATION

This section identifies the relevant potential indirect impacts to the species that may occur as a result of development under the Plan. Indirect impacts were identified as being relevant to the species if:

- *The indirect impact is identified as a threat in a relevant profile, Conservation Advice, or Recovery Plan, and*
- *The Plan has the potential to introduce or exacerbate the threat in areas which support records and/or mapped habitat for the species*

It describes the mechanism by which each relevant potential indirect impact may affect the species.

Please refer to Chapter 19 for an assessment of how the Plan addresses each indirect impact for this species. Further, please refer to Chapter 17 for a detailed discussion and analysis of indirect impacts and mitigation measures included in the Plan.

RELEVANT POTENTIAL INDIRECT IMPACTS

The Conservation Advice identifies a range of threats to the Greater Sand Plover in Australia (TSSC, 2016d). Where these threats have the potential to be introduced or exacerbated under the Plan, the Plan includes management strategies to mitigate their impacts.

The following potential indirect impacts (identified as threats) are considered relevant to implementation of the Plan:

- Ongoing human disturbance
- Pollution and changes to the water regime

Invasive weeds are also identified in the Conservation Advice as a threat to the species. However, potential indirect impacts associated with this threat are considered unlikely given the landscape context of the site and the ecology of the species. Refer to Section 17.2 of Chapter 17 for a detailed assessment of potential indirect impacts associated with the implementation of the Plan.

ONGOING HUMAN DISTURBANCE

Disturbance may result from recreational activities such as fishing, boating, dog walking, four-wheel driving, noise and lighting. While an individual source of disturbance may have a low impact, it is important to consider the cumulative impact of different types of human disturbance on the species (TSSC, 2016d).

As a migratory shorebird, the Greater Sand Plover requires suitable foraging opportunities to build up energy stores required for migration. Human disturbance can interrupt the species' feeding or roosting behaviours and may cause the species not to feed or roost in a location that would otherwise provide suitable habitat. Disturbance can also reduce the time the species has available for foraging and resting and increase the time the species spends engaging in vigilance and anti-predator behaviour (TSSC, 2016d).

POLLUTION AND CHANGES TO THE WATER REGIME

Pollution and changes to the water regime in habitat used by the Greater Sand Plover for foraging and/or roosting can cause indirect loss of habitat for the species through habitat degradation. The species is particularly sensitive to impacts due to its high site fidelity, tendency to aggregate, high energy demands required for migration and requirement for a network of foraging and roosting habitats (TSSC, 2016d).

RECOVERY PLAN, KEY THREATENING PROCESSES AND THREAT ABATEMENT PLANS

Where applicable, this section discusses the consistency of the Plan with any Recovery Plans and relevant Threat Abatement Plans. The general consistency of the Plan with Threat Abatement Plans is discussed in detail in Section 17.3 of Chapter 17.

CONSISTENCY WITH RECOVERY PLAN

There is no adopted or made Recovery Plan for this species.

KEY THREATENING PROCESSES AND CONSISTENCY WITH THREAT ABATEMENT PLANS

Relevant Key Threatening Processes (KTPs) and any of their associated Threat Abatement Plans (TAPs) have been identified in Table B-7 where they relate to:

- The potential direct impacts of the Plan, or
- The relevant indirect impacts

Table B-7: Relevant Key Threatening Processes and associated Threat Abatement Plans for the Greater Sand Plover

Key threatening process	Threat abatement plan
Land clearance	There is no relevant TAP
Loss and degradation of native plant and animal habitat by invasion of escaped garden plants	There is no relevant TAP
Novel biota and their impact on biodiversity	There is no relevant TAP

LESSER SAND PLOVER *(CHARADRIUS MONGOLUS)*

SPECIES BACKGROUND

This section sets out the basic information about the species. It provides an overview of the species' ecology, distribution, habitat, populations and threats. These provide context for the impact assessment. At the end of the section are links to key species' documents that provide additional background information.

EPBC ACT LISTING	Endangered, Migratory
DESCRIPTION	*Charadrius mongolus* (Lesser Sand Plover) is a small to medium shorebird, 18 – 21 cm in length. The body is grey-brown and white, and the sexes differ in breeding plumage. While the species is in Australia, it is in non-breeding plumage and is often difficult to distinguish from *Charadrius mongolus* (Greater Sand Plover) (TSSC, 2016e).
ECOLOGY	The Lesser Sand Plover breeds in the northern hemisphere and undertakes annual migrations to and from southern feeding grounds. It has a generational time of 8 years, with a maximum longevity of 12.6 years (TSSC, 2016e). The species occurs in small to large flocks, often with greater than 100 individuals. During the non-breeding season, the species diet is comprised of insects, crustaceans, molluscs and polychaete worms (TSSC, 2016e).
DISTRIBUTION AND HABITAT	Four of the five subspecies occur in the East Asian-Australasian Flyway, of these, two occur in Australia during the non-breeding season including *Charadrius mongolus* subsp. *mongolus*, and *Charadrius mongolus* subsp. *stegmanni* (TSSC, 2016e). Within Australia, the Lesser Sand Plover is widespread in coastal regions, and the species has been recorded in all states. It mostly occurs in northern and eastern Australia, in south-eastern parts of the Gulf of Carpentaria, western Cape York Peninsula, and islands in the Torres Strait, and along the entire east coast of Australia, where it is most abundant in Queensland and New South Wales (TSSC, 2016e). During the non-breeding season, the Lesser Sand Plover is almost strictly coastal and prefers sandy beaches, mudflats of coastal bays and estuaries, sand flats and dunes near the coast, and occasionally mangrove mudflats. Feeding habitat is primarily comprised of intertidal sandflats and mudflats in estuaries or beaches or in shallow ponds. Occasional foraging also occurs on coral reefs, along sandy or muddy river margins, and in muddy areas around lakes and bores. The Lesser Sand Plover roosts on beaches, banks, spits and banks of sand or shells (TSSC, 2016e).
POPULATIONS	The most recent population estimate of the species present in the East Asian-Australasian Flyway is 180,000 – 275,000 (Hansen *et al.*, 2016).
THREATS	The species Conservation Advice identifies the following threats in Australia (TSSC, 2016e): • Ongoing human disturbance • Pollution and changes to the water regime • Invasive plants
RELEVANT PLANS AND POLICIES	Conservation Advice *Charadrius mongolus* Lesser Sand Plover (TSSC, 2016e) Threat abatement plan for predation by the European red fox (DEWHA, 2008f)
SPECIES-SPECIFIC GUIDELINES	Wildlife Conservation Plan for Migratory Shorebirds (Commonwealth of Australia, 2015) EPBC Act Policy Statement 3.21 - Industry Guidelines for avoiding, assessing and mitigating impacts on EBBC Act listed migratory shorebird species (DoE, 2017)
SPRAT LINK	http://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=879

APPROACH TO BASELINE DATA

This section provides a summary of the baseline information used in the assessment. It sets out:

- *An overview of the habitat mapping for the species within and outside the Growth Areas*
- *An overview of the population mapping for the species*

Please refer to Chapter 13 for further details about the approach to threatened species baseline data, including a description of the different types and sources of data, as well as some discussion on the interpretation and suitability of the data for use in the impact assessment.

HABITAT MAPPING	**WITHIN THE SURVEYED AREAS OF THE GROWTH AREAS**
	N/A. Surveys conducted within the Growth Areas concluded that there is unlikely to be suitable habitat present for this species.
	WITHIN THE UNSURVEYED AREAS OF THE GROWTH AREAS
	N/A. There is unlikely to be suitable habitat present for this species.
	OUTSIDE THE GROWTH AREAS
	Habitat important models (HIMs). Habitat mapping for the species across the broader Strategic Assessment Area and Study Area was prepared using DELWPs HIMs. Refer to Chapter 13 of Part 3 for a detailed description of the baseline mapping, landholder surveys, and HIMs.
POPULATION MAPPING	**RECORD SELECTION**
	Species records were compiled from the VBA and surveys undertaken for the project. The VBA records were filtered to remove records from prior to 1990 for the purpose of the impact assessment.
	RECORD DOWNLOAD DATE
	VBA records for the Lesser Sand Plover used in this assessment were downloaded in June 2022.
	METHOD FOR IDENTIFYING POPULATIONS
	Given the mobile nature of the species, all records within the Study Area are considered a single population.

OCCURRENCE IN THE STUDY AREA

This section describes the occurrence of the species in the Study Area. It includes reference to a map of records and habitat which can be viewed as a separate file. The map provides critical context for the assessment and should be viewed in conjunction with the text presented in this assessment. This section also provides a qualitative description of where records and habitat occur.

See Map 19-17 for a map of records and habitat across the Strategic Assessment Area.

There are four records (four individuals) of the Lesser Sand Plover within the Study Area. The most recent was recorded in 2008, and the remainder were recorded between 1991 and 1996. The species has not been recorded within the Strategic Assessment Area.

A total of 4,468.6 ha of potential habitat has been mapped within the Study Area. Of this, 2.2 ha has been mapped within the Strategic Assessment Area. No habitat has been mapped within the Growth Areas.

Mapped habitat for the Lesser Sand Plover occurs along the northern shoreline of Port Phillip Bay, from Limeburners Bay in the west through to the Study Area boundary in the east. A single record (of one individual) occurs in the Port Wilson area.

Three records (three individuals) and mapped habitat also occur in the Moolap locality.

Mapped habitat not associated with records occurs at the Lake Connewarre Complex and in the estuarine environment of Thompson Creek in the south of the Study Area.

POTENTIAL INDIRECT IMPACTS AND MITIGATION

This section identifies the relevant potential indirect impacts to the species that may occur as a result of development under the Plan. Indirect impacts were identified as being relevant to the species if:

- *The indirect impact is identified as a threat in a relevant profile, Conservation Advice, or Recovery Plan, and*
- *The Plan has the potential to introduce or exacerbate the threat in areas which support records and/or mapped habitat for the species*

It describes the mechanism by which each relevant potential indirect impact may affect the species.

Please refer to Chapter 19 for an assessment of how the Plan addresses each indirect impact for this species. Further, please refer to Chapter 17 for a detailed discussion and analysis of indirect impacts and mitigation measures included in the Plan.

RELEVANT POTENTIAL INDIRECT IMPACTS

The Conservation Advice for the Lesser Sand Plover identifies a range of threats to the species in Australia (TSSC, 2016e). Where these threats have the potential to be introduced or exacerbated under the Plan, the Plan includes management strategies to mitigate their impacts.

The following potential indirect impacts (identified as threats) are considered relevant to implementation of the Plan:

- Ongoing human disturbance
- Pollution and changes to the water regime

Invasive weeds are also identified in the Conservation Advice as a threat to the species. However, potential indirect impacts associated with this threat are considered unlikely given the landscape context of the site and the ecology of the species. Refer to Section 17.2 of Chapter 17 for a detailed assessment of potential indirect impacts associated with the implementation of the Plan.

ONGOING HUMAN DISTURBANCE

Disturbance may result from recreational activities such as fishing, boating, dog walking (particularly unleashed dogs), four-wheel driving, jet skiing, noise, and lighting. While an individual source of disturbance may have a low impact, it is important to consider the cumulative impact of different types of human disturbance on the species (TSSC, 2016e).

As a migratory shorebird, the Lesser Sand Plover requires suitable foraging opportunities to build up energy stores required for migration. Human disturbance can interrupt the species' feeding or roosting behaviours and may cause the species not to feed or roost in a location that would otherwise provide suitable habitat. Disturbance can also reduce the time the species has available for foraging and resting and increase the time the species spends engaging in vigilance and anti-predator behaviour (TSSC, 2016e).

POLLUTION AND CHANGES TO THE WATER REGIME

Pollution and changes to the water regime in habitat used by the Lesser Sand Plover for foraging and/or roosting can cause indirect loss of habitat for the species through habitat degradation. The species is particularly sensitive to impacts due to its high site fidelity, tendency to aggregate, high energy demands required for migration and requirement for a network of foraging and roosting habitats. It is also noted that some sites remain important throughout the year for juveniles who may stay in Australia until maturity is reached (TSSC, 2016e).

RECOVERY PLAN, KEY THREATENING PROCESSES AND THREAT ABATEMENT PLANS

Where applicable, this section discusses the consistency of the Plan with any Recovery Plans and relevant Threat Abatement Plans. The general consistency of the Plan with Threat Abatement Plans is discussed in detail in Section 17.3 of Chapter 17.

CONSISTENCY WITH RECOVERY PLAN

There is no adopted or made Recovery Plan for this species.

KEY THREATENING PROCESSES AND CONSISTENCY WITH THREAT ABATEMENT PLANS

Relevant Key Threatening Processes (KTPs) and any of their associated Threat Abatement Plans (TAPs) have been identified in Table B-8 where they relate to:

- The potential direct impacts of the Plan, or
- The relevant indirect impacts

Table B-8: Relevant Key Threatening Processes and associated Threat Abatement Plans for the Lesser Sand Plover

Key threatening process	Threat abatement plan
Land clearance	There is no relevant TAP
Loss and degradation of native plant and animal habitat by invasion of escaped garden plants	There is no relevant TAP
Novel biota and their impact on biodiversity	There is no relevant TAP
Predation by European red fox	Threat abatement plan for predation by the European red fox (DEWHA, 2008f)

ORANGE-BELLIED PARROT *(NEOPHEMA CHRYSOGASTER)*

SPECIES BACKGROUND

This section sets out the basic information about the species. It provides an overview of the species' ecology, distribution, habitat, populations and threats. These provide context for the impact assessment. At the end of the section are links to key species' documents that provide additional background information.

EPBC ACT LISTING	Critically Endangered
DESCRIPTION	The Orange-Bellied Parrot (*Neophema chrysogaster*) is a small parrot that grows to approximately 21 cm in length and weighs about 45 – 50 grams. The upper body is bright green, and the under body is light green to bright yellow with an orange patch on the belly (TSSC, 2006).
ECOLOGY	The Orange-bellied Parrot migrates yearly from its breeding sites in south-western Tasmania north to the mainland. Breeding occurs between November and March, and overwintering occurs between April and October (DELWP, 2016). The species has demonstrated low lifespan and survival rates. The mean lifespan was observed at 2.22 years between 1990 and 1999, and a decline in lifespan may have occurred during this period. Annual survival averaged at 56 per cent for juveniles and 65 per cent for adults between 1990 and 2006, with substantial inter-annual variation (DELWP, 2016). Birds can nest in natural hollows or artificial nests. Females produce 4 – 6 eggs with most nests producing fledglings. Pairs produce one brood in a breeding season, though not all females will breed in all years. The reason for this is not known, though may relate to the body condition of females in the beginning of the breeding season (DELWP, 2016). The Orange-Bellied Parrot forages on the ground or in low vegetation, usually less than 1 m above the ground. The species typically forages in pairs or singly during the breeding season, and in small flocks during the non-breeding seasons. Single birds have often been recorded feeding with other species, including *Neophema chrysostoma* (Blue-winged Parrot) (TSSC, 2006). On the mainland, the species feeds on a range of food plants, including some introduced species, and occasionally in irrigated crops. Food plant species appear to have become narrower in recent decades. Food availability changes throughout winter as different plants set seed at different times, and food at some sites may become temporarily unavailable due to inundation in closed wetland and estuary systems. It is therefore likely that the species requires a range of winter feeding locations and a wide variety of food plant species to sustain them (DELWP, 2016). During winter, the species appears to be semi-nomadic – moving between food sources and locations. This is likely in response to changing availability of food sources, and the species appears to avoid areas with high levels of disturbance and human development (DELWP, 2016).
DISTRIBUTION AND HABITAT	***DISTRIBUTION*** The Orange-bellied Parrot is endemic to south-eastern Australia. The species migrates between distinct breeding and non-breeding ranges. Breeding occurs in south-west Tasmania and overwintering occurs on the south-east coast of mainland Australia (DELWP, 2016). Non-breeding birds are found along the coast of Victoria and South Australia, and occasionally in NSW(although sightings in NSW are now very rare) (DELWP, 2016). The mainland distribution covers approximately 1,000 km of coastline from the mouth of the Murray River in SA to east of Jack Smith Lake in Victoria. The most common overwintering sites include the Bellarine Peninsula at Port Phillip Bay, Victoria, and Carpenter Rocks in South Australia (TSSC, 2006). ***HABITAT*** During the non-breeding season, the species forages in low shrubs or prostrate vegetation 10 km of the coast. When migrating, the Orange-bellied Parrot is found in locations associated with saltmarshes and adjacent pastures that are close to free-standing water bodes. It is likely that the species requires a range of winter feeding locations in different catchments, at different elevations and with a variety of food plant species to sustain them throughout winter. Roosting occurs in dense shrubs within a few kilometres of foraging sites. The species may roost in introduced plant species such as *Lycium ferocissum* (African Boxthorn) (DELWP, 2016).

	HABITAT CRITICAL TO SURVIVAL Further mapping is required to identify and map habitat critical to the survival of the species on the mainland. The Recovery Plan notes that it requires a diversity of foraging opportunities, in saltmarshes, dunes and adjacent shrubby areas and weedy pastures, within 10 km from the coast and 200 m of coastal wetlands and waterbodies, but more than 2 km from developed areas such as towns. Non-breeding habitat is required at several locations throughout the mainland range to support migration and local movements of the species which exploit fluctuating food sources during winter (DELWP, 2016). Because the wild population is small and difficult to detect, at a minimum, all non-breeding locations occupied since the year 2000 are considered essential for the survival of the species. Other locations are likely to become important as the population expands (DELWP, 2016).
POPULATIONS	Until 1920 the Orange-bellied Parrot was reported as common or locally abundant. The species has experienced a significant reduction in abundance since that time (TSSC, 2006). 70 adult Orange-bellied Parrots were recorded returning to breeding grounds in Melaleuca (in Tasmania) at the beginning of the 2021/22 breeding season (Birdlife Australia, 2022). This was a significant increase from previous years where approximately 50 individuals were recorded. Genetic analysis suggests the wild population has suffered a significant genetic decline. Further genetic declines are predicted to occur due to the continued decline of the species and current very low population size (DELWP, 2016). As of May 2022, there are over 500 Orange-bellied Parrots in captivity (Birdlife Australia, 2022). Breeding success is lower in the captive populations than in the wild. The captive population has produced a strongly female biased sex ratio (approximately 30 per cent male), the cause of this is unknown. This population is intended to serve as both an insurance population if extinction occurs in the wild, and a source population for release of captive-bred birds to the wild (DELWP, 2016). However, the survival rate of captive-bred Orange-bellied Parrots released into the wild is low. Recent research has found that the wing shape of captive-bred birds are different to those of wild birds, which may make captive-bred birds less able to successfully migrate long distances. It is possible that altered wing shape may contribute to low observed survival of captive-bred birds (Stojanovic *et al.*, 2021).

THREATS	The Recovery Plan has identified the following threats (DELWP, 2016):
	• Degradation and loss of habitat, including:
	  ○ Development and land use change
	  ○ Inappropriate hydrological regimes
	  ○ Inappropriate grazing regimes
	  ○ Inappropriate fire regimes within the species' breeding range
	  ○ Invasive weeds
	• Loss of genetic diversity and inbreeding
	• Disease (specifically Psittacine Beak and Feather Disease)
	• Stochastic environmental events (such as major fires within the breeding range, catastrophic weather events, storms during migration, or fires/storms at breeding institutions which house the captive breeding population)
	• Climate change
	• Predators and competitors
	• Barriers to migration and movement
	• Consumption of toxic food plants
	• Hybridisation with Blue-winged Parrots
	• Potentially negative outcomes from unforeseen impacts from land management activities
	A recent study found that knowledge of the key threatening processes remains lacking, and that recently used approaches of focusing conservation efforts within the species' breeding range alone are insufficient to halt its decline. The paper emphasises that mortality rates of migrating and

	wintering populations must also be targeted for conservation actions to prevent the species' extinction (Stojanovic *et al.*, 2020).
RELEVANT PLANS AND POLICIES	Commonwealth Listing Advice on *Neophema chrysogaster* (TSSC, 2006) National Recovery Plan for the Orange-bellied Parrot, *Neophema chrysogaster* (DELWP, 2016) Threat abatement plan for competition and land degradation by rabbits (DoEE, 2016) Threat abatement plan for predation by feral cats (DoE, 2015h) Threat abatement plan for predation by the European red fox (DEWHA, 2008f)
SPECIES-SPECIFIC GUIDELINES	Survey Guidelines for Australia's Threatened Birds. EPBC Act survey guidelines 6.2 (DEWHA, 2010b)
SPRAT LINK	http://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=747

APPROACH TO BASELINE DATA

This section provides a summary of the baseline information used in the assessment. It sets out:

- *An overview of the habitat mapping for the species within and outside the Growth Areas*
- *An overview of the population mapping for the species*

Please refer to Chapter 13 for further details about the approach to threatened species baseline data, including a description of the different types and sources of data, as well as some discussion on the interpretation and suitability of the data for use in the impact assessment.

HABITAT MAPPING	**WITHIN THE GROWTH AREAS**
	There is no habitat for the Orange-bellied Parrot within the growth areas.
	OUTSIDE THE GROWTH AREAS
	Habitat mapping across the broader Strategic Assessment Area and Study Area was based on the Orange-bellied Parrot HIM prepared by DELWP [insert ref].
POPULATION MAPPING	**RECORD SELECTION**
	Species records were compiled from the VBA. The records were filtered to remove records prior to 1990 for the purpose of the impact assessment.
	RECORD DOWNLOAD DATE
	VBA records for Orange-bellied Parrot used in this assessment were downloaded in June 2022.
	METHOD FOR IDENTIFYING POPULATIONS
	All records of the Orange-bellied Parrot are considered part of the same population.

OCCURRENCE IN THE STUDY AREA

This section describes the occurrence of the species in the Study Area. It includes reference to a map of records and habitat which can be viewed as a separate file. The map provides critical context for the assessment and should be viewed in conjunction with the text presented in this assessment.

See Map 19-18 for a map of records and habitat across the Strategic Assessment Area.

There are 621 records (2,793 individuals) of the Orange-bellied Parrot within the Study Area. The most recent was recorded in 2020. The species has not been recorded within the Strategic Assessment Area.

A total of 4,711.4 ha of potential habitat has been mapped within the Study Area. Of this, 2.8 ha occurs within the Strategic Assessment Area. No habitat has been mapped within the Growth Areas.

Mapped habitat and a large number of records (580 records, constituting 2,175 individuals) for the Orange-bellied Parrot occur along the northern shoreline of Port Phillip Bay, from Limeburners Bay in the west through to the Study Area boundary in the east. Records in this area are not hydrologically connected to the Growth Areas.

Mapped habitat and 41 records (constituting 618 individuals) occur at the Lake Connewarre Complex. This area is downstream of parts of the NGGA and the WGGA.

Habitat not associated with records is located at Moolap and at the estuarine environment of Thompson Creek in the south of the Study Area.

POTENTIAL INDIRECT IMPACTS AND MITIGATION

This section identifies the relevant potential indirect impacts to the species that may occur as a result of development under the Plan. Indirect impacts were identified as being relevant to the species if:

- *The indirect impact is identified as a threat in a relevant profile, Conservation Advice, or Recovery Plan, and*
- *The Plan has the potential to introduce or exacerbate the threat in areas which support records and/or mapped habitat for the species*

It describes the mechanism by which each relevant potential indirect impact may affect the species.

Please refer to Chapter 19 for an assessment of how the Plan addresses each indirect impact for this species. Further, please refer to Chapter 17 for a detailed discussion and analysis of indirect impacts and mitigation measures included in the Plan.

RELEVANT POTENTIAL INDIRECT IMPACTS

The Recovery Plan for the Orange-bellied Parrot identifies a range of threats to the species (DELWP, 2016). Where these threats are relevant to the implementation of the Plan, the Plan includes management strategies to mitigate their impacts. Where these threats are present in the Study Area and have the potential to be exacerbated under the Plan, the Plan includes management strategies to mitigate their impacts. The following potential indirect impacts (identified as threats) are considered relevant to implementation of the Plan:

- Inappropriate hydrological regimes

There are a wide range of additional key threats which are identified. However, these are not considered relevant to implementation of the Plan as the Plan is unlikely to exacerbate the risk across the Study Area. These threats are (DELWP, 2016):

- Invasive weeds
- Predation by cats
- Inappropriate grazing regimes
- Inappropriate fire regimes within the species' breeding range
- Loss of genetic diversity and inbreeding
- Disease (specifically Psittacine Beak and Feather Disease)

- Stochastic environmental events (such as major fires within the breeding range, catastrophic weather events, storms during migration, or fires/storms at breeding institutions which house the captive breeding population)
- Predation by a rats, foxes and raptors in the non-breeding range
- Predation by a wide range of predators within the breeding range
- Competition for food and nest sites within the breeding range
- Potential barriers to migration and movement (such as wind turbines, powerlines and associated infrastructure, aircraft, and illuminated structures and illuminated boats). Barriers to migration for such a wide-ranging species may include barriers where a species may be killed through collision (such as wind turbines), or barriers where infrastructure results in behaviour modification and avoidance of habitat by the species
- Consumption of toxic plants
- Hybridisation with Blue-winged Parrots
- Potentially negative outcomes from unforeseen impacts from land management activities

Climate change is also identified as a threat to the species. The potential impacts of climate change and relevant mitigation measures under the Plan are outlined in Part 5.

INAPPROPRIATE HYDROLOGICAL REGIMES

Hydrological regimes have the potential to be altered in multiple ways within the species' range, in a manner which negatively impacts the species. Some of the mechanisms which cause changes to hydrological regimes will not be exacerbated under the Plan and therefore are not considered further. These include water extraction and artificial estuary management practices (DELWP, 2016).

Inappropriate drainage and increased stormwater runoff from developed areas are mechanisms which can result in changes to hydrological regimes which have potential to be impacted under the Plan. These mechanisms can result in changes to the volume and timing of freshwater inflows into saline environments through increased stormwater drainage in the catchment. This, in turn, can alter the floristic composition of habitat for the Orange-bellied Parrot (DELWP, 2016).

RECOVERY PLAN, KEY THREATENING PROCESSES AND THREAT ABATEMENT PLANS

Where applicable, this section discusses the consistency of the Plan with any Recovery Plans and relevant Threat Abatement Plans. The general consistency of the Plan with Threat Abatement Plans is discussed in detail in Section 17.3 of Chapter 17.

CONSISTENCY WITH RECOVERY PLAN

In accordance with Section 146K of the EPBC Act, this section considers whether the implementation of the Plan is not inconsistent with the species' Recovery Plan. It considers two questions:

- Does the Plan prevent achievement of the objectives of the Recovery Plan?
- Does the Plan prevent implementation of the Recovery Plan actions?

These questions are discussed below.

DOES THE PLAN PREVENT ACHIEVEMENT OF THE OBJECTIVES OF THE RECOVERY PLAN?

The Recovery Plan for the Orange-bellied Parrot has three primary objectives, supported by a fourth objective which is essential in order to achieve the three primary objectives. Each of these key objectives is supported by a series of strategies (DELWP, 2016):

- Objective 1: To achieve a stable or increasing population in the wild within five years
  - Strategy 1: Increase breeding output in the wild
  - Strategy 2: Increase survival in the wild
  - Strategy 3: Maintain wild behaviours
- Objective 2: To increase the capacity of the captive population, both to support future releases of captive-bred birds to the wild and to provide a secure long-term insurance population

  - Strategy 4: Increase the size of the captive population as quickly as possible
  - Strategy 5: Manage genetics of the captive population
  - Strategy 6: Manage the wild and captive populations as a metapopulation
- Objective 3: To protect and enhance habitat to maintain, and support growth of, the wild population
  - Strategy 7: Maintain the extent of habitat throughout the breeding and non-breeding range
  - Strategy 8: Increase the extent of high quality of habitat throughout the breeding and non-breeding range
- Objective 4: To ensure effective adaptive implementation of the [recovery] plan
  - Strategy 9: Obtain and analyse key information required to measure and improve implementation to achieve the primary objectives
  - Strategy 10: Employ sound procedures for managing, reviewing and reporting on progress to ensure effective adaptive management
  - Strategy 11: Secure delivery partners and sufficient funding to ensure very high and high priority actions are implemented
  - Strategy 12: Foster and maintain relationships with key individuals, organisations and the broader community

It is also recognised that each of the strategies of the Recovery Plan has a detailed series of associated performance criteria against which the success of the Recovery Plan will be measured (DELWP, 2016). The Plan will not prevent the achievement of any of the performance criteria.

Overall, the outcome under the Plan for the Orange-bellied Parrot will not prevent the achievement of any of the objectives or associated strategies of the Recovery Plan.

Does the Plan prevent implementation of the Recovery Plan actions?

The Recovery Plan identifies a set of actions in order to deliver on the objectives (DELWP, 2016). The Plan will not prevent the implementation of any of these actions.

KEY THREATENING PROCESSES AND CONSISTENCY WITH THREAT ABATEMENT PLANS

Relevant Key Threatening Processes (KTPs) and any of their associated Threat Abatement Plans (TAPs) have been identified in Table B-9 where they relate to:

- The potential direct impacts of the Plan, or
- The relevant indirect impacts

Table B-9: Relevant Key Threatening Processes and associated Threat Abatement Plans for the Orange-bellied Parrot

Key threatening process	Threat abatement plan
Competition and land degradation by rabbits	Threat abatement plan for competition and land degradation by rabbits (DoEE, 2016)
Fire regimes that cause declines in biodiversity	There is no relevant TAP
Land clearance	There is no relevant TAP
Loss of climatic habitat caused by anthropogenic emissions of greenhouse gases	There is no relevant TAP
Novel biota and their impact on biodiversity	There is no relevant TAP
Predation by feral cats	Threat abatement plan for predation by feral cats (DoE, 2015h)
Predation by the European red fox	Threat abatement plan for predation by the European red fox (DEWHA, 2008f)
Psittacine Circoviral (beak and feather) Disease affecting endangered psittacine species	There is no relevant TAP

RED KNOT (*CALIDRIS CANUTUS*)

SPECIES BACKGROUND

This section sets out the basic information about the species. It provides an overview of the species' ecology, distribution, habitat, populations and threats. These provide context for the impact assessment. At the end of the section are links to key species' documents that provide additional background information.

EPBC ACT LISTING	Endangered, Migratory Note that the Red Knot is currently on the Finalised Priority Assessment List (FPAL) and is proposed to have its listing downgraded to Vulnerable (DAWE, 2021f) A decision is due by 30 October 2023 (DAWE, 2021f)
DESCRIPTION	*Calidris canutus* (Red Knot) is a small to medium migratory shorebird. It has a length of 23-25 cm, a wingspan of 45-54 cm, a short neck, a short straight bill, short legs, and wings that extend beyond its tail (TSSC, 2016b).
ECOLOGY	There are six recognised subspecies of the Red Knot, of which three have been recorded in Australia: • *Calidris canutus piersmai* regularly occurs in Australia, almost exclusively in the north-west • *C. c. rogersi* regularly occurs in Australia, mostly in the east • *C. c. canutus* occurs as a vagrant The species breeds at a range of locations around the Arctic. It is thought that the vast majority of the population migrates to Australia in the non-breeding season. Individuals typically arrive in Australia from late August. The species returns to the northern hemisphere between February and May. In Australia, the species feeds primarily on shellfish. It forages by probing mud in mudflats in large, dense flocks, often mixed with other bird species. Feeding is regulated by tidal activity, with the birds closely following the tide edge when foraging. (TSSC, 2016b)
DISTRIBUTION AND HABITAT	The species occurs around the entire coastline of Australia. However, it is less numerous in south-western Australia and very large numbers occur in north-west Australia. The species mainly inhabits coastal environments and saline wetlands near the coast where it is common in all the main suitable habitats. The Red Knot is rarely observed in or around freshwater swamps or inland aquatic habitats. The species: • Usually forages in soft substrate near the edge of intertidal mudflats or sandflats exposed by low tide, or during high tide, they may forage in nearby lakes, sewage ponds and floodwaters • Roosts on sandy beaches, spits, and islets; mudflats; or shallow saline ponds. The species prefers roosting habitat in open areas away from potential cover for predators, but close to foraging areas (TSSC, 2016b)
POPULATIONS	The global population of the Red Knot was estimated at 1,090,000 in 2008. It is estimated that 68,000 individuals occur in Australia (TSSC, 2016b).

THREATS	The species Conservation Advice has identified the following threats (TSSC, 2016b):
	• Habitat loss and habitat degradation through:
	  ○ Land clearing, inundation, infilling or draining
	  ○ Industrial and urban expansion
	  ○ Water pollution and changes to hydrological regimes
	  ○ Exposure of acid sulphate soil
	  ○ Invasive plants
	• Climate change

	• Pollution and contamination • Human disturbance • Diseases (avian influenza virus) • Direct mortality from wind farms, bird strike with aircraft or vehicles, hunting, chemical spills and oil spills • Overexploitation of shellfish
RELEVANT PLANS AND POLICIES	Conservation Advice *Calidris canutus* Red Knot (TSSC, 2016b)
SPECIES-SPECIFIC GUIDELINES	Wildlife Conservation Plan for Migratory Shorebirds (Commonwealth of Australia, 2015) EPBC Act Policy Statement 3.21 - Industry Guidelines for avoiding, assessing and mitigating impacts on EBBC Act listed migratory shorebird species (DoE, 2017)
SPRAT LINK	http://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=855

APPROACH TO BASELINE DATA

This section provides a summary of the baseline information used in the assessment. It sets out:

- *An overview of the habitat mapping for the species within and outside the Growth Areas*
- *An overview of the population mapping for the species*

Please refer to Chapter 13 for further details about the approach to threatened species baseline data, including a description of the different types and sources of data, as well as some discussion on the interpretation and suitability of the data for use in the impact assessment.

HABITAT MAPPING	**WITHIN THE SURVEYED AREAS OF THE GROWTH AREAS**
	N/A. Surveys conducted within the Growth Areas concluded that there is unlikely to be suitable habitat present for this species.
	WITHIN THE UNSURVEYED AREAS OF THE GROWTH AREAS
	N/A. There is unlikely to be suitable habitat present for this species.
	OUTSIDE THE GROWTH AREAS
	Habitat important models (HIMs). Habitat mapping for the species across the broader Strategic Assessment Area and Study Area was prepared using DELWPs HIMs. Refer to Chapter 13 of Part 3 for a detailed description of the baseline mapping, landholder surveys, and HIMs.
POPULATION MAPPING	**RECORD SELECTION**
	Species records were compiled from the VBA and surveys undertaken for the project. The VBA records were filtered to remove records from prior to 1990 for the purpose of the impact assessment.
	RECORD DOWNLOAD DATE
	VBA records for the Red Knot used in this assessment were downloaded in June 2022.
	METHOD FOR IDENTIFYING POPULATIONS
	Given the mobile nature of the species, all records within the Study Area are considered a single population.

OCCURRENCE IN THE STUDY AREA

This section describes the occurrence of the species in the Study Area. It includes reference to a map of records and habitat which can be viewed as a separate file. The map provides critical context for the assessment and should be viewed in conjunction with the text presented in this assessment. This section also provides a qualitative description of where records and habitat occur.

See Map 19-19 for a map of records and habitat across the Strategic Assessment Area.

A total of 4,364.5 ha of potential habitat has been mapped within the Study Area. Of this, 5.6 ha occurs within the Strategic Assessment Area. No habitat has been mapped within the Growth Areas.

There are 466 records (2,545 individuals) of the Red Knot within the Study Area, the most recent of which was recorded in 2019. The species has not been recorded within the Strategic Assessment Area.

Mapped habitat and the majority of records (444 records, constituting 2,416 individuals) for the Red Knot occur along the northern shoreline of Port Phillip Bay, from Limeburners Bay in the west through to the Study Area boundary in the east.

Mapped habitat and a smaller number of records (8 records, constituting 31 individuals) occur in the Moolap locality.

14 records (98 individuals) and mapped habitat also occur at the Lake Connewarre Complex.

Habitat not associated with records occurs in the estuarine environment of Thompson Creek in the south of the Study Area.

POTENTIAL INDIRECT IMPACTS AND MITIGATION

This section identifies the relevant potential indirect impacts to the species that may occur as a result of development under the Plan. Indirect impacts were identified as being relevant to the species if:

- *The indirect impact is identified as a threat in a relevant profile, Conservation Advice, or Recovery Plan, and*
- *The Plan has the potential to introduce or exacerbate the threat in areas which support records and/or mapped habitat for the species*

It describes the mechanism by which each relevant potential indirect impact may affect the species.

Please refer to Chapter 19 for an assessment of how the Plan addresses each indirect impact for this species. Further, please refer to Chapter 17 for a detailed discussion and analysis of indirect impacts and mitigation measures included in the Plan.

RELEVANT POTENTIAL INDIRECT IMPACTS

The Conservation Advice for the Red Knot identifies a range of threats to the species (TSSC, 2016b). Where these threats have the potential to be introduced or exacerbated under the Plan, the Plan includes management strategies to mitigate their impacts.

The following potential indirect impacts (identified as threats) are considered relevant to implementation of the Plan:

- Human disturbance
- Water pollution and changes to hydrological regimes

There are a number of additional threats to the species identified in the Conservation Advice. However, potential indirect impacts associated with these threats are considered unlikely given the landscape context of the site and the ecology of the species. Refer to Section 17.2 of Chapter 17 for a detailed assessment of potential indirect impacts associated with the implementation of the Plan.

Climate change is also identified as a threat to the species. The potential impacts of climate change and relevant mitigation measures under the Plan are outlined in Part 5.

HUMAN DISTURBANCE

Disturbance may result from recreational activities such as fishing, boating, dog walking, four-wheel driving, noise and lighting. While an individual source of disturbance may have a low impact, it is important to consider the cumulative impact of different types of human disturbance on the species (TSSC, 2016b).

As a migratory shorebird, the Red Knot requires suitable foraging opportunities to build up energy stores required for migration. Human disturbance can interrupt the species' feeding or roosting behaviours and may cause the species not to feed or roost in a location that would otherwise provide suitable habitat. Disturbance can also reduce the time the species has available for foraging and resting and increase the time the species spends engaging in vigilance and anti-predator behaviour (TSSC, 2016b).

WATER POLLUTION AND CHANGES TO HYDROLOGICAL REGIMES

The Red Knot has specialised feeding techniques and is susceptible to slight changes in prey sources and foraging environments. Changes to water regimes and water pollution can result in habitat degradation which can affect the suitability of habitat for the Red Knot. The species is particularly sensitive to impacts due to its high site fidelity, tendency to aggregate, high energy demands required for migration and requirement for a network of foraging and roosting habitats (TSSC, 2016b).

RECOVERY PLAN, KEY THREATENING PROCESSES AND THREAT ABATEMENT PLANS

Where applicable, this section discusses the consistency of the Plan with any Recovery Plans and relevant Threat Abatement Plans. The general consistency of the Plan with Threat Abatement Plans is discussed in detail in Section 17.3 of Chapter 17.

CONSISTENCY WITH RECOVERY PLAN

There is no adopted or made Recovery Plan for this species.

KEY THREATENING PROCESSES AND CONSISTENCY WITH THREAT ABATEMENT PLANS

Relevant Key Threatening Processes (KTPs) and any of their associated Threat Abatement Plans (TAPs) have been identified in Table B-10 where they relate to:

- The potential direct impacts of the Plan, or
- The relevant indirect impacts

Table B-10: Relevant Key Threatening Processes and associated Threat Abatement Plans for the Red Knot

Key threatening process	Threat abatement plan
Land clearance	There is no relevant TAP
Loss of climatic habitat caused by anthropogenic emissions of greenhouse gases	There is no relevant TAP
Novel biota and their impact on biodiversity	There is no relevant TAP

WESTERN ALASKAN BAR-TAILED GODWIT *(LIMOSA LAPPONICA BAUERI)*

SPECIES BACKGROUND

This section sets out the basic information about the species. It provides an overview of the species' ecology, distribution, habitat, populations and threats. These provide context for the impact assessment. At the end of the section are links to key species' documents that provide additional background information.

EPBC ACT LISTING	Vulnerable, Migratory (as *Limosa lapponica*) Note that the Bar-tailed Godwit is currently on the Finalised Priority Assessment List (FPAL) and is proposed to have its listing upgraded to Endangered (DAWE, 2021f) A decision is due by 30 October 2023 (DAWE, 2021f)
DESCRIPTION	*Limosa lapponica baueri* (Bar-tailed Godwit) is a large migratory bird with a long neck and very long upturned bill. It has dark barring on the lower white rump, upper tail and lining of the underwing (TSSC, 2016o).
ECOLOGY	Two subspecies of *L. lapponica* regularly occur in Australia: • In the non-breeding season, *L. l. baueri* (listed as migratory and vulnerable) occurs along the north and east coasts of Australia (TSSC, 2016o) • *L. l. menzbieri* (listed as migratory and critically endangered) occurs predominately in Western Australia (TSSC, 2016o) This assessment considers impacts to *L. lapponica baueri*. The subspecies breeds in northern Siberia and Alaska before migrating through the Yellow Sea to Australia and New Zealand. Immature birds often remain in Australia for one or two austral winters before returning to their breeding grounds in the Northern Hemisphere (TSSC, 2016o). The Bar-tailed Godwit has one of the longest non-stop migratory routes recorded for any bird. This makes the species sensitive to changes in intertidal habitats used for feeding to create fuel stores prior to migration. The species feeds on worms, molluscs, crustaceans, insects and some plant material (TSSC, 2016o).
DISTRIBUTION AND HABITAT	In Australia, the species: • Mainly occurs along the north and east coasts • Typically forages in coastal habitats such as large intertidal sandflats, banks, mudflats, estuaries, inlets, harbours, coastal lagoons, and bays • Typically roosts on sandy beaches, sandbars, spits and in near-coastal saltmarsh The Bar-tailed Godwit is thought to have high site fidelity in the non-breeding season (TSSC, 2016o).
POPULATIONS	The global population of *Limosa lapponica* (at a species level) has been estimated to be between 1,100,000 – 1,200,000 individuals, of which it is estimated that 325,000 occur within the East Asian-Australasian Flyway (TSSC, 2016o). Based on the hypothesised distribution of different subspecies of *Limosa lapponica*, it is thought that the East Asian-Australasian Flyway population of *L. lapponica baueri* is 155,000 individuals (of which 61,000 individuals are thought to occur in Australia, while the remaining 94,000 individuals occur in New Zealand) (TSSC, 2016o).
THREATS	The species Conservation Advice has identified the following threats to the species within Australia (TSSC, 2016o): • Ongoing human disturbance • Habitat loss and degradation from pollution • Changes to the water regime • Invasive plants
RELEVANT PLANS AND POLICIES	Conservation Advice *Limosa lapponica baueri* Bar-tailed Godwit (Western Alaskan) (TSSC, 2016o)

SPECIES-SPECIFIC GUIDELINES	There are no species-specific guidelines for this species.
SPRAT LINK	https://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=86380

APPROACH TO BASELINE DATA

This section provides a summary of the baseline information used in the assessment. It sets out:

- *An overview of the habitat mapping for the species within and outside the Growth Areas*
- *An overview of the population mapping for the species*

Please refer to Chapter 13 for further details about the approach to threatened species baseline data, including a description of the different types and sources of data, as well as some discussion on the interpretation and suitability of the data for use in the impact assessment.

HABITAT MAPPING	**WITHIN THE SURVEYED AREAS OF THE GROWTH AREAS**
	N/A. Surveys conducted within the Growth Areas concluded that there is unlikely to be suitable habitat present for this species.
	WITHIN THE UNSURVEYED AREAS OF THE GROWTH AREAS
	N/A. There is unlikely to be suitable habitat present for this species.
	OUTSIDE THE GROWTH AREAS
	There is no modelled habitat available for this species. As a proxy, the modelling for a wader with similar habitat use, the Curlew Sandpiper, has been used to indicate the potential habitat occurrence and distribution for the Western Alaskan Bar-tailed Godwit across the Study Area. The habitat mapping method for the Curlew Sandpiper is as follows: **Habitat important models (HIMs).** Habitat mapping for the species across the broader Strategic Assessment Area and Study Area was prepared using DELWPs HIMs. Refer to Chapter 13 of Part 3 for a detailed description of the baseline mapping, landholder surveys, and HIMs.
POPULATION MAPPING	**RECORD SELECTION**
	Species records were compiled from the VBA and surveys undertaken for the project. The VBA records were filtered to remove records from prior to 1990 for the purpose of the impact assessment.
	RECORD DOWNLOAD DATE
	VBA records for the Bar-tailed Godwit used in this assessment were downloaded in June 2022.
	METHOD FOR IDENTIFYING POPULATIONS
	Given the mobile nature of the species, all records within the Study Area are considered a single population.

OCCURRENCE IN THE STUDY AREA

This section describes the occurrence of the species in the Study Area. It includes reference to a map of records and habitat which can be viewed as a separate file. The map provides critical context for the assessment and should be viewed in conjunction with the text presented in this assessment. This section also provides a qualitative description of where records and habitat occur.

See Map 19-20 for a map of records and habitat across the Strategic Assessment Area.

There are 91 records (979 individuals) of the Western Alaskan Bar-tailed Godwit within the Study Area, with the most record from 2016. The species has not been recorded within the Strategic Assessment Area.

A total of 5,929.7 ha of potential habitat has been mapped within the Study Area. Of this, 12.4 ha is mapped within the Strategic Assessment Area. No habitat is mapped within the Growth Areas.

Mapped potential habitat and 66 records (628 individuals) for the Western Alaskan Bar-tailed Godwit are located along the northern shoreline of Port Phillip Bay, from Limeburners Bay in the west through to the Study Area boundary in the east.

Mapped potential habitat and records are also located at the Lake Connewarre Complex (17 records, 234 individuals) and at Moolap (8 records, 117 individuals).

A smaller area of potential habitat not associated with records occurs in the estuarine environment of Thompson Creek in the south of the Study Area.

POTENTIAL INDIRECT IMPACTS AND MITIGATION

This section identifies the relevant potential indirect impacts to the species that may occur as a result of development under the Plan. Indirect impacts were identified as being relevant to the species if:

- *The indirect impact is identified as a threat in a relevant profile, Conservation Advice, or Recovery Plan, and*
- *The Plan has the potential to introduce or exacerbate the threat in areas which support records and/or mapped habitat for the species*

It describes the mechanism by which each relevant potential indirect impact may affect the species.

Please refer to Chapter 19 for an assessment of how the Plan addresses each indirect impact for this species. Further, please refer to Chapter 17 for a detailed discussion and analysis of indirect impacts and mitigation measures included in the Plan.

RELEVANT POTENTIAL INDIRECT IMPACTS

The Conservation Advice for the Bar-tailed Godwit identifies a range of threats to the species in Australia (TSSC, 2016o). Where these threats have the potential to be introduced or exacerbated under the Plan, the Plan includes management strategies to mitigate their impacts.

The following potential indirect impacts (identified as threats) are considered relevant to implementation of the Plan:

- Ongoing human disturbance
- Pollution and changes to the water regime

Invasive weeds are also identified in the Conservation Advice as a threat to the species. However, potential indirect impacts associated with this threat are considered unlikely given the landscape context of the site and the ecology of the species. Refer to Section 17.2 of Chapter 17 for a detailed assessment of potential indirect impacts associated with the implementation of the Plan.

ONGOING HUMAN DISTURBANCE

Disturbance may result from recreational activities such as fishing, boating, dog walking (particularly unleashed dogs), four-wheel driving, noise, and lighting. While an individual source of disturbance may have a low impact, it is important to consider the cumulative impact of different types of human disturbance on the species (TSSC, 2016o).

As a migratory shorebird, the Bar-tailed Godwit requires suitable foraging opportunities to build up energy stores required for migration. Human disturbance can interrupt the species' feeding or roosting behaviours and may cause the species not to feed or roost in a location that would otherwise provide suitable habitat. Disturbance can also reduce the time the species has available for foraging and resting and increase the time the species spends engaging in vigilance and anti-predator behaviour. Bar-tailed Godwits have been recorded to take flight when humans approached within 10-70 m of them at Phillip Island, Victoria (TSSC, 2016o).

POLLUTION AND CHANGES TO THE WATER REGIME

Pollution and changes to the water regime in habitat used by the Bar-tailed Godwit for foraging and/or roosting can cause indirect loss of habitat for the species through habitat degradation. For instance, anthropogenic nutrient enrichment of wetlands can cause cyanobacterium blooms which impact the prey species of Bar-tailed Godwits. The species is particularly sensitive to impacts due to its high site fidelity, tendency to aggregate, high energy demands required for migration and requirement for a network of foraging and roosting habitats. It is also noted that some sites remain important throughout the year for juveniles who may stay in Australia until maturity is reached (TSSC, 2016o).

RECOVERY PLAN, KEY THREATENING PROCESSES AND THREAT ABATEMENT PLANS

Where applicable, this section discusses the consistency of the Plan with any Recovery Plans and relevant Threat Abatement Plans. The general consistency of the Plan with Threat Abatement Plans is discussed in detail in Section 17.3 of Chapter 17.

CONSISTENCY WITH RECOVERY PLAN

There is no adopted or made Recovery Plan for this species.

KEY THREATENING PROCESSES AND CONSISTENCY WITH THREAT ABATEMENT PLANS

Relevant Key Threatening Processes (KTPs) and any of their associated Threat Abatement Plans (TAPs) have been identified in Table B-11 where they relate to:

- The potential direct impacts of the Plan, or
- The relevant indirect impacts

Table B-11: Relevant Key Threatening Processes and associated Threat Abatement Plans for the Western Alaskan Bar-tailed Godwit

Key threatening process	Threat abatement plan
Land clearance	There is no relevant TAP
Loss and degradation of native plant and animal habitat by invasion of escaped garden plants	There is no relevant TAP
Novel biota and their impact on biodiversity	There is no relevant TAP

C. Background information for the combined fauna assessment: fish

This attachment provides further information about the three fish species addressed in the combined fauna assessment in Section 19-4 of Chapter 19.

The species are:

- Australian Grayling (*Prototroctes maraena*)
- Eastern Dwarf Galaxias (*Galaxiella pusilla*)
- Yarra Pygmy Perch (*Nannoperca obscura*)

The following information is provided for each species:

- Species background, including the species' ecology, distribution, habitat, populations, and threats
- A detailed description of the species' occurrence in the Study Area
- Identification and description of each of the relevant potential indirect impacts to each species due to development under the Plan
- An assessment of consistency of the Plan with the species' Recovery Plan
- Identification of relevant Key Threatening Processes and Threat Abatement Plans for each species

AUSTRALIAN GRAYLING *(PROTOTROCTES MARAENA)*

SPECIES BACKGROUND

This section sets out the basic information about the species. It provides an overview of the species' ecology, distribution, habitat, populations and threats. These provide context for the impact assessment. At the end of the section are links to key species' documents that provide additional background information.

EPBC ACT LISTING	Vulnerable
DESCRIPTION	*Prototroctes maraena* (Australian Grayling) is a small to medium fish reaching a maximum length of 330 mm. It is gray-bronze to olive in colour with a silver belly and has extremely thin and deciduous scales (TSSC, 2021).
ECOLOGY	The species has a maximum life expectancy of up to five years, though rarely lives past 3 years. Males reach sexual maturity at one year of age and females at two years of age. Spawning typically occurs after two years of age (TSSC, 2021). The Australian Grayling is a species that migrates between freshwater and salt water. The larval stage is spent in marine water and the adult life is spent in freshwater. The species migrates downstream to the lower reaches of rivers to spawn. This movement is dependent on specific hydrological cues such as water velocity and temperature. Spawning occurs over a two-week period from late-summer to mid-winter, though the timing is dependent on location and environmental factors. Eggs hatch between 10 and 20 days after being laid (TSSC, 2021). Larvae spend approximately 6 months at sea, after which juveniles will return to the freshwater environment (DCCEEW, 2022). Given a lack of genetic differentiation between Australian Grayling populations, it is likely that juveniles disperse widely. Extensive dispersal may also assist the species in recolonising freshwater habitat where they previously became locally extinct (DCCEEW, 2022). The species lays large numbers of eggs, demonstrating the ability to quickly repopulate following a period of poor environmental conditions (TSSC, 2021). The Australian Grayling is an omnivorous feeder, its diet consists of crustaceans, aquatic insects, their own larvae, aquatic plants and terrestrial insects and insect larvae (TSSC, 2021).
DISTRIBUTION AND HABITAT	The Australian Grayling is endemic to south-eastern Australia (Backhouse, O'Conner and Jackson, 2008). Historically, it was known to occur in freshwater, estuarine and marine reaches of coastal catchments greater than 200 m above sea level in NSW, Victoria, Tasmania and South Australia. Its current distribution has declined from its historical distribution (TSSC, 2021). In Victoria, the species was incorrectly considered extinct up to 1970. Surveys post-1970 have identified Australian Grayling in almost all coastal rivers east of the Hopkins River. Historically, the strongest abundances of Australian Grayling occurred in the Tambo, Mitchell, Tarwin and Yarra catchments (TSSC, 2021). The species migrates between rivers, their estuaries and coastal seas. It is reliant on free access to a range of freshwater, estuarine and marine habitats for its survival. The majority of the species life is spent in freshwaters, where it occurs in rivers and streams in cool, clear waters or turbid water (Backhouse, O'Conner and Jackson, 2008). The Australian Grayling can occur inland and has been reported up to 100 km upstream from the sea. The species larvae and juveniles occur in estuaries and coastal seas, although their precise marine habitat requirements are not well known (DELWP, 2015a). Habitat critical to survival has not been specified, given the wide distribution and range of habitat used by the species throughout its life (Backhouse, O'Conner and Jackson, 2008).
POPULATIONS	The species is considered to occur as a single population in Victoria. A lack of genetic diversity has been observed in coastal rivers of Victoria, and larvae are most likely dispersed during the marine stage of their life cycle (TSSC, 2021). There are no reliable national population estimates for the species. Due to the species' capacity to lay large quantities of eggs, it has been suggested that the population can undergo large fluctuations and has potential to recover following declines in population size (TSSC, 2021). However, the species is also especially vulnerable to disruptions to spawning or recruitment, given

	most individuals spawn only once during their lifetime (Backhouse, O'Conner and Jackson, 2008). The species undergoes large annual fluctuations in population numbers depending on prevailing conditions (DCCEEW, 2022). Important populations are those at the limits of the species range, and those known to contain large breeding populations or occur in areas with extensive spawning habitat. These are considered to be 'source' populations for the species (Backhouse, O'Conner and Jackson, 2008).

THREATS	The species Conservation Advice and Recovery Plan has identified the following threats (Backhouse, O'Conner and Jackson, 2008; TSSC, 2021):
	• Habitat loss and fragmentation, including:
	  ○ Fish passage barriers
	  ○ Altered hydrology, sedimentation and poor water quality
	  ○ Changes to coastal morphology
	• Introduced fish species
	• Climate change, including:
	  ○ Increased disconnection between habitats
	  ○ Extreme weather events
	  ○ Changes in ocean physiology
	  ○ Increased intensity, and frequency of wildfires
	• Disease
	• Recreational and commercial fishing

RELEVANT PLANS AND POLICIES	National Recovery Plan for Australian Grayling *Prototroctes maraena* (Backhouse, O'Conner and Jackson, 2008) Conservation Advice *Prototroctes maraena* Australian Grayling (TSSC, 2021)
SPECIES-SPECIFIC GUIDELINES	Survey guidelines for Australia's threatened fish. EPBC Act survey guidelines 6.4 (DSEWPaC, 2011)
SPRAT LINK	https://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=26179

APPROACH TO BASELINE DATA

This section provides a summary of the baseline information used in the assessment. It sets out:

- *An overview of the habitat mapping for the species within and outside the Growth Areas*
- *An overview of the population mapping for the species*

Please refer to Chapter 13 for further details about the approach to threatened species baseline data, including a description of the different types and sources of data, as well as some discussion on the interpretation and suitability of the data for use in the impact assessment.

HABITAT MAPPING	**WITHIN THE SURVEYED AREAS OF THE GROWTH AREAS**
	Potential habitat for the species has been mapped in the Moorabool River adjacent to the WGGA.
	WITHIN THE UNSURVEYED AREAS OF THE GROWTH AREAS
	N/A. There is unlikely to be suitable habitat present for this species.
	OUTSIDE THE GROWTH AREAS
	Habitat important models (HIMs). Habitat mapping for the species across the broader Strategic Assessment Area and Study Area was prepared using DELWPs HIMs. Refer to Chapter 13 of Part 3 for a detailed description of the baseline mapping, landholder surveys, and HIMs.
	RECORD SELECTION

POPULATION MAPPING	Species records were compiled from the VBA and surveys undertaken for the project. The VBA records were filtered to remove records from prior to 1990 for the purpose of the impact assessment.
	RECORD DOWNLOAD DATE
	VBA records for the Australian Grayling used in this assessment were downloaded in June 2022.
	METHOD FOR IDENTIFYING POPULATIONS
	All records within the Study Area were considered to be a single population. This is because the species occurs as a single population in Victoria (TSSC, 2021).

OCCURRENCE IN THE STUDY AREA

This section describes the occurrence of the species in the Study Area. It includes reference to a map of records and habitat which can be viewed as a separate file. The map provides critical context for the assessment and should be viewed in conjunction with the text presented in this assessment. This section also provides a qualitative description of where records and habitat occur.

See Map 19-21 for a map of records and habitat across the Strategic Assessment Area.

There are 11 records (35 individuals) of the Australian Grayling within the Study Area, all of which were recorded within 1997 or 1998. The species has not been recorded within the Strategic Assessment Area.

There is a total of 1,169.1 ha of mapped potential habitat for the Australian Grayling within the Study Area. Of this, 12.8 ha is located within the Strategic Assessment Area, and 3.5 ha of potential habitat is mapped within the Growth Areas.

Specifically, potential habitat for the Australian Grayling is mapped within the Moorabool River adjacent to the WGGA. Although there are no records of the species in the WGGA, site surveys indicate the presence of suitable habitat for the Australian Grayling within the Moorabool River (EHP, 2021).

Records and habitat of the Australian Grayling occur within the wider Moorabool River catchment. Specifically, all 11 records for this species within the Study Area occur where the Moorabool River meets the Barwon River at Fyansford. Habitat is mapped along the Moorabool River and the Barwon River. Some habitat is also mapped within the Lake Connewarre Complex.

It is understood that the Corangamite Catchment Management Authority are proposing to remove barriers along the Moorabool River which currently prevent fish from accessing habitat upstream to the WGGA within the next 2 to 3 years. With the removal of these barriers, future planning of the WGGA PSPs should assume the presence of the Australian Grayling (EHP, 2021).

Cowies Creek may provide suitable habitat for the species, although habitat is considered to be poor and lacks “many of the key habitat characteristics associated with Australian Grayling” (EHP, 2021). Further, no records of the species occur at Cowies Creek.

Habitat is also mapped at Hovells Creek, although no records occur at this location.

POTENTIAL INDIRECT IMPACTS AND MITIGATION

This section identifies the relevant potential indirect impacts to the species that may occur as a result of development under the Plan. Indirect impacts were identified as being relevant to the species if:

- *The indirect impact is identified as a threat in a relevant profile, Conservation Advice, or Recovery Plan, and*
- *The Plan has the potential to introduce or exacerbate the threat in areas which support records and/or mapped habitat for the species*

It describes the mechanism by which each relevant potential indirect impact may affect the species.

Please refer to Chapter 19 for an assessment of how the Plan addresses each indirect impact for this species. Further, please refer to Chapter 17 for a detailed discussion and analysis of indirect impacts and mitigation measures included in the Plan.

RELEVANT POTENTIAL INDIRECT IMPACTS

The Conservation Advice and Recovery Plan for the Australian Grayling identifies a range of threats to the species (Backhouse, O'Conner and Jackson, 2008; TSSC, 2021). Where these threats have the potential to be introduced or exacerbated under the Plan, the Plan includes management strategies to mitigate their impacts.

The following threats to the Australian Grayling are potentially relevant to implementation of the Plan and are discussed further below:

- Altered hydrology, sedimentation and poor water quality
- Recreational fishing

There are a number of additional threats to the species identified in the Conservation Advice and Recovery Plan. However, potential indirect impacts associated with these threats are considered unlikely given the landscape context of the site and the ecology of the species. Refer to Section 17.2 of Chapter 17 for a detailed assessment of potential indirect impacts associated with the implementation of the Plan.

Climate change is also identified as a threat to the species. The potential impacts of climate change and relevant mitigation measures under the Plan are outlined in Part 5.

ALTERED HYDROLOGY, SEDIMENTATION AND POOR WATER QUALITY

The Australian Grayling depends on water flow triggers for spawning. It chooses its spawning location based on water velocity and temperature. If water velocities are not high enough during the spawning season, the species will not release eggs. Sufficient flows are required to carry larvae to coastal waters, and to signal for juveniles to swim towards freshwater (TSSC, 2021). Reducing and/or altering the seasonality of flows may impact the reproductive success of the species (Backhouse, O'Conner and Jackson, 2008).

The species is also susceptible to negative impacts associated with poor water quality, including altered water temperatures, altered water chemistry, increased turbidity, and increased nutrient and toxin content. Causes of water quality decline include clearing of vegetation and earthworks, fires, nutrient and sediment runoff from urban and agricultural areas, water diversion, impoundment and droughts. The Australian Grayling may not recolonise areas of sustained poor water quality (Backhouse, O'Conner and Jackson, 2008; TSSC, 2021).

The Australian Grayling is likely to be highly susceptible to sedimentation, as gravel is required for spawning. Once a gravel bed is impacted by siltation, it may take time for subsequent flooding to flush out the finer sediments. Given the species has a short life cycle, several missed breeding seasons may have severe impacts on the species (Backhouse, O'Conner and Jackson, 2008).

RECREATIONAL FISHING

The Australian Grayling was once a popular angling species, yet now is protected from all targeted fishing in Victoria, NSW and Tasmania. However, the species is still caught incidentally by recreational fishers which are targeting salmonids using fly-fishing methods. As the Australian Grayling is a thin species with deciduous scales, it is very delicate and is extremely prone to handling stress (TSSC, 2021).

RECOVERY PLAN, KEY THREATENING PROCESSES AND THREAT ABATEMENT PLANS

Where applicable, this section discusses the consistency of the Plan with any Recovery Plans and relevant Threat Abatement Plans. The general consistency of the Plan with Threat Abatement Plans is discussed in detail in Section 17.3 of Chapter 17.

CONSISTENCY WITH RECOVERY PLAN

In accordance with Section 146K of the EPBC Act, this section considers whether the implementation of the Plan is not inconsistent with the species' Recovery Plan. It considers two questions:

- Does the Plan prevent achievement of the objectives of the Recovery Plan?
- Does the Plan prevent implementation of the Recovery Plan actions?

These questions are discussed below.

DOES THE PLAN PREVENT ACHIEVEMENT OF THE OBJECTIVES OF THE RECOVERY PLAN?

The overall objective of the Recovery Plan is to minimise the probability of extinction of the Australian Grayling in the wild, and to increase the probability of important populations becoming self-sustaining in the long term. This overall objective is associated with a series of specific objectives (Backhouse, O'Conner and Jackson, 2008):

1. Identify important populations of Australian Grayling
2. Protect and restore habitat for Australian Grayling
3. Investigate important life history attributes to acquire targeted information for management
4. Investigate and manage threats to populations and habitats
5. Increase awareness of Australian Grayling with resource managers and the public

The outcome under the Plan for the Australian Grayling will not prevent the achievement of any of the objectives of the Recovery Plan.

DOES THE PLAN PREVENT IMPLEMENTATION OF THE RECOVERY PLAN ACTIONS?

The Recovery Plan identifies a set of actions in order to deliver on the objectives. Each action is associated with performance criteria (Backhouse, O'Conner and Jackson, 2008). The Plan will not prevent the implementation of any of these actions, nor will it prevent the achievement of any of the performance criteria.

KEY THREATENING PROCESSES AND CONSISTENCY WITH THREAT ABATEMENT PLANS

Relevant Key Threatening Processes (KTPs) and any of their associated Threat Abatement Plans (TAPs) have been identified in Table C-1 where they relate to:

- The potential direct impacts of the Plan, or
- The relevant indirect impacts

Table C-1: Relevant Key Threatening Processes and associated Threat Abatement Plans for the Australian Grayling

Key threatening process	Threat abatement plan
Land clearance	There is no relevant TAP
Loss of climatic habitat caused by anthropogenic emissions of greenhouse gases	There is no relevant TAP
Novel biota and their impact on biodiversity	There is no relevant TAP

EASTERN DWARF GALAXIAS *(GALAXIELLA PUSILLA)*

SPECIES BACKGROUND

This section sets out the basic information about the species. It provides an overview of the species' ecology, distribution, habitat, populations and threats. These provide context for the impact assessment. At the end of the section are links to key species' documents that provide additional background information.

Note regarding taxonomic revision of *Galaxiella pusilla*

This species is listed as *Galaxiella pusilla* under the EPBC Act. At the time of the species' listing under the EPBC Act, *G. pusilla* was thought to occur from the Mitchell River Basin in Gippsland Victoria to Cortina Lakes in South Australia, including Tasmania (Saddlier, Jackson and Hammer, 2010). However, recent genetic analysis has split this original species into two species: *G. pusilla,* which occurs in eastern Victoria and in Tasmania, and *G. toourtkoourt,* which occurs in western Victoria and South Australia (Coleman, Hoffman and Raaik, 2015).

Differences between *G. pusilla* and *G. toourtkoourt* include morphological and genetic differences. No substantial differences in habitat use or ecological characteristics have been identified between the two species (Coleman, Hoffman and Raaik, 2015).

For this reason, it is considered that descriptions of ecology and habitat use identified within the species' Recovery Plan (Saddlier, Jackson and Hammer, 2010) remain adequate for understanding the species' life cycle and habitat requirements.

Note that the Study Area occurs along the eastern edge of the range of *G. toourtkoourt.* For this reason, the species within the Study Area is *G. toourtkoourt*.

EPBC ACT LISTING	Vulnerable Note that the Eastern Dwarf Galaxias is currently on the Finalised Priority Assessment List (FPAL) and is proposed to have its listing upgraded to Endangered (DAWE, 2021f) A decision is due by 30 October 2023 (DAWE, 2021f)
DESCRIPTION	The Eastern Dwarf Galaxias (*G. toourtkoourt*) is a tiny freshwater fish. Females have been recorded by to 42 mm (more commonly 27-32 mm), and males up to 34 mm (more commonly 25-28 mm). The dorsal and upper sides are pale olive-brown, becoming darker towards the dorsal margin. Its sides and belly are silvery-white(Coleman, Hoffman and Raaik, 2015).
ECOLOGY	The Eastern Dwarf Galaxias spends its entire life cycle is spent in freshwater. It is a free-swimming species, meaning it is not attached to objects or substrates and is able to swim in open water. The species is likely an annual species, as only one year-class has been observed. Further, adults have been observed dying after spawning (Saddlier, Jackson and Hammer, 2010). The species' diet consists of tiny aquatic invertebrates including chironomid larvae, copepods, cladocerans and ostracods (Saddlier, Jackson and Hammer, 2010). Spawning occurs in late winter-spring. Females lay 65 - 250 eggs over a period of 7 – 14 days. Eggs are attached on the underside of aquatic vegetation or on hard surfaces such as timber or rock. Females are attended to by up to three males which fertilise eggs by passing over them. Larvae hatch after 2 – 3 weeks and are 4.5 mm in length (Saddlier, Jackson and Hammer, 2010).
DISTRIBUTION AND HABITAT	*G. toourtkoourt* is distributed from the upper Barwon River (near Barwon Downs) in Victoria west to Cortina Lakes in SA (Coleman, Hoffman and Raaik, 2015). The species is found in swamps, wetlands, shallow lakes, billabongs, small creeks and artificial earthen drains. Habitats are partially shaded and densely vegetated, with shallow water that is still or flows slowly. The species may also occur in the backwaters of faster moving systems. The substrate tends to be mostly fine sediment (clay and silt), or occasionally coarser materials (sand and coarse organic matter deposits). The species can occur in a wide range of water temperatures, oxygen levels, pH levels, salinity and turbidity (Coleman, Hoffman and Raaik, 2015).

POPULATIONS	Populations have been substantially fragmented and depleted historically by wetland modifications and drainage. Localised extinctions and severe declines have been noted in a number of systems (DCCEEW, 2022). At the time of the listing of the species under the EPBC Act, it was known from 110 populations – noting that this includes populations of both *G. pusilla* and *G. toourtkoourt*. Of the 110 populations, 28 occur in South Australia (*G. toourtkoourt*), 23 occur in Tasmania (*G. pusilla*), with the remainder occurring in Victoria (including populations of both *G. toourtkoourt* and *G. pusilla*) (Saddlier, Jackson and Hammer, 2010; Coleman, Hoffman and Raaik, 2015) Populations may be tiny and occur in limited ephemeral habitat while others are large and extensive occurring in permanent waterways (Saddlier, Jackson and Hammer, 2010). Populations experience annual cycles and are absent from known sites are certain times. The distribution and abundance of populations fluctuates, reflecting variability in habitat connectivity desiccation and connectivity, spawning and recruitment success, dispersal and colonisation/recolonisation (DCCEEW, 2022).

THREATS	The species Recovery Plan has identified the following threats (Saddlier, Jackson and Hammer, 2010):
	• Degradation and loss of habitat, due to:
	  ○ Draining of wetlands for development
	  ○ Damage from unrestricted stock access
	  ○ Decreased water quality from increased nutrient runoff, sedimentation and summer water temperatures
	  ○ Ploughing of wetlands when they are dry
	  ○ Damage to crayfish/crayfish burrows (important habitat features) from effects of agricultural pesticides and trampling by stock
	• Alteration to flow regimes
	• Climate change, including decline in rainfall, increased temperature and increased evaporation
	• Introduced aquatic species
	• Illegal collection

RELEVANT PLANS AND POLICIES	National Recovery Plan for the Dwarf Galaxias (*Galaxiella pusilla*) (Saddlier, Jackson and Hammer, 2010)
SPECIES-SPECIFIC GUIDELINES	Survey guidelines for Australia's threatened fish. EPBC Act survey guidelines 6.4 (DSEWPaC, 2011)
SPRAT LINK	https://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=56790

APPROACH TO BASELINE DATA

This section provides a summary of the baseline information used in the assessment. It sets out:

- *An overview of the habitat mapping for the species within and outside the Growth Areas*
- *An overview of the population mapping for the species*

Please refer to Chapter 13 for further details about the approach to threatened species baseline data, including a description of the different types and sources of data, as well as some discussion on the interpretation and suitability of the data for use in the impact assessment.

HABITAT MAPPING	**WITHIN THE SURVEYED AREAS OF THE GROWTH AREAS**
	Potential habitat for the species has been mapped in the Moorabool River adjacent to the WGGA.
	WITHIN THE UNSURVEYED AREAS OF THE GROWTH AREAS
	N/A. There is unlikely to be suitable habitat present for this species.

	OUTSIDE THE GROWTH AREAS	
	Habitat important models (HIMs). Habitat mapping for the species across the broader Strategic Assessment Area and Study Area was prepared using DELWPs HIMs. Refer to Chapter 13 of Part 3 for a detailed description of the baseline mapping, landholder surveys, and HIMs.	
POPULATION MAPPING	**RECORD SELECTION**	
	Species records were compiled from the VBA and surveys undertaken for the project. The VBA records were filtered to remove records from prior to 1990 for the purpose of the impact assessment.	
	RECORD DOWNLOAD DATE	
	VBA records for the Eastern Dwarf Galaxias used in this assessment were downloaded in June 2022.	
	METHOD FOR IDENTIFYING POPULATIONS	
	All records within a single catchment were considered to be a single population.	

OCCURRENCE IN THE STUDY AREA

This section describes the occurrence of the species in the Study Area. It includes reference to a map of records and habitat which can be viewed as a separate file. The map provides critical context for the assessment and should be viewed in conjunction with the text presented in this assessment. This section also provides a qualitative description of where records and habitat occur.

See Map 19-22 for a map of records and habitat across the Strategic Assessment Area.

There is a total of 1,169.1 ha of mapped potential habitat for the Eastern Dwarf Galaxias within the Study Area. Of this, 12.8 ha is located within the Strategic Assessment Area, and 3.5 ha of potential habitat is mapped within the Growth Areas.

Specifically, potential habitat for the Eastern Dwarf Galaxias is mapped within the Moorabool River adjacent to the WGGA. Although there are no records of the species in the WGGA, site surveys indicate the presence of suitable habitat for the species in the Moorabool River (EHP, 2021).

Cowies Creek may provide suitable habitat for the species although the species has not been recorded in this catchment and habitat is considered to be poor (EHP, 2021).

There are no VBA records of the Eastern Dwarf Galaxias within the Study Area. However, the species is known to occur within the upper Barwon River catchment near Barwon Downs, and in the Moorabool River near Batesford (EHP, 2021). It is noted that Batesford is within the Study Area and is near the Strategic Assessment Area. It is possible that there are records of the species in this area which have not been entered into the VBA database.

The Corangamite CMA is proposing to remove in-stream barriers associated with Batesford quarry within the next few years which may allow the Eastern Dwarf Galaxias to access upstream habitat within the Moorabool River. With the removal of these barriers, future planning of the WGGA PSPs should assume the presence of the Eastern Dwarf Galaxias (EHP, 2021).

Outside of the Growth Areas, habitat is mapped along the Moorabool River, the Barwon River and at Hovells Creek. Some habitat is also mapped within the Lake Connewarre Complex.

POTENTIAL INDIRECT IMPACTS AND MITIGATION

This section identifies the relevant potential indirect impacts to the species that may occur as a result of development under the Plan. Indirect impacts were identified as being relevant to the species if:

- *The indirect impact is identified as a threat in a relevant profile, Conservation Advice, or Recovery Plan, and*

- *The Plan has the potential to introduce or exacerbate the threat in areas which support records and/or mapped habitat for the species*

It describes the mechanism by which each relevant potential indirect impact may affect the species.

Please refer to Chapter 19 for an assessment of how the Plan addresses each indirect impact for this species. Further, please refer to Chapter 17 for a detailed discussion and analysis of indirect impacts and mitigation measures included in the Plan.

RELEVANT POTENTIAL INDIRECT IMPACTS

The Recovery Plan for the Eastern Dwarf Galaxias identifies a range of threats to the species (Saddlier, Jackson and Hammer, 2010). Where these threats have the potential to be introduced or exacerbated under the Plan, the Plan includes management strategies to mitigate their impacts.

The following potential indirect impacts (identified as threats) are considered relevant to implementation of the Plan:

- Decreased water quality and alteration to flow regimes
- Illegal collection

There are a number of additional threats to the species identified in the Recovery Plan. However, potential indirect impacts associated with these threats are considered unlikely given the landscape context of the site and the ecology of the species. Refer to Section 17.2 of Chapter 17 for a detailed assessment of potential indirect impacts associated with the implementation of the Plan.

Climate change is also identified as a threat to the species. The potential impacts of climate change and relevant mitigation measures under the Plan are outlined in Section 29.5 of Chapter 29.

DECREASED WATER QUALITY AND ALTERATION TO FLOW REGIMES

Reduced riparian vegetation quality often results in water quality declines with regards to increased nutrient runoff, sedimentation and increased summer water temperatures (Saddlier, Jackson and Hammer, 2010).

The species depends on shallow freshwater habitat, including connectivity between wetlands and more permanent waterbodies such as rivers or creeks. Changes to natural flooding and drying cycles, particularly in shallow creeks and swamps, pose a threat to the species, through altering natural seasonal water levels and affecting habitat connectivity and the species' capacity to seek refuge during dry periods. Modes of development which may negatively impact upon water regimes for the species include catchment clearing (which alters hydrological regimes), water abstraction, and planting of trees such as eucalypts and pines which lower groundwater levels and decrease runoff (Saddlier, Jackson and Hammer, 2010).

ILLEGAL COLLECTION

There is anecdotal evidence to indicate the Eastern Dwarf Galaxias is currently being collected throughout Victoria by enthusiastic aquarists. This has the potential to decrease population sizes and undermine the genetic integrity of wild populations if specimens are released into the wild into different populations (Saddlier, Jackson and Hammer, 2010).

RECOVERY PLAN, KEY THREATENING PROCESSES AND THREAT ABATEMENT PLANS

Where applicable, this section discusses the consistency of the Plan with any Recovery Plans and relevant Threat Abatement Plans. The general consistency of the Plan with Threat Abatement Plans is discussed in detail in Section 17.3 of Chapter 17.

CONSISTENCY WITH RECOVERY PLAN

In accordance with Section 146K of the EPBC Act, this section considers whether the implementation of the Plan is not inconsistent with the species' Recovery Plan. It considers two questions:

- Does the Plan prevent achievement of the objectives of the Recovery Plan?
- Does the Plan prevent implementation of the Recovery Plan actions?

These questions are discussed below.

DOES THE PLAN PREVENT ACHIEVEMENT OF THE OBJECTIVES OF THE RECOVERY PLAN?

The overall long-term objective of the Recovery Plan is to minimise the probability of extinction and ensure long-term survival of Dwarf Galaxias in the wild and to increase the probability of important populations becoming self-sustaining in the long term. This overall objective is associated with a series of specific objectives (Saddlier, Jackson and Hammer, 2010):

- Determine the distribution and abundance of the Dwarf Galaxias
- Determine the genetic and taxonomic status of Dwarf Galaxias populations
- Determine Dwarf Galaxias habitat characteristics and requirements
- Identify and manage potentially threatening processes impacting on Dwarf Galaxias conservation
- Protect key populations across the range of the Dwarf Galaxias
- Determine population trends at key sites
- Investigate key aspects of biology and ecology of the Dwarf Galaxias
- Establish a captive breeding population of Dwarf Galaxias
- Undertake translocations to establish new populations of Dwarf Galaxias
- Undertake community education and communication to increase awareness and involvement

The outcome under the Plan for the Eastern Dwarf Galaxias will not prevent the achievement of any of the objectives of the Recovery Plan.

DOES THE PLAN PREVENT IMPLEMENTATION OF THE RECOVERY PLAN ACTIONS?

The Recovery Plan identifies a set of actions in order to deliver on the objectives. Each action is associated with performance criteria (Saddlier, Jackson and Hammer, 2010). The Plan will not prevent the implementation of any of these actions, nor will it prevent the achievement of any of the performance criteria.

KEY THREATENING PROCESSES AND CONSISTENCY WITH THREAT ABATEMENT PLANS

Relevant Key Threatening Processes (KTPs) and any of their associated Threat Abatement Plans (TAPs) have been identified in Table C-2 where they relate to:

- The potential direct impacts of the Plan, or
- The relevant indirect impacts

Table C-2: Relevant Key Threatening Processes and associated Threat Abatement Plans for the Eastern Dwarf Galaxias

Key threatening process	Threat abatement plan
Land clearance	There is no relevant TAP
Loss of climatic habitat caused by anthropogenic emissions of greenhouse gases	There is no relevant TAP
Novel biota and their impact on biodiversity	There is no relevant TAP

YARRA PYGMY PERCH *(NANNOPERCA OBSCURA)*

SPECIES BACKGROUND

This section sets out the basic information about the species. It provides an overview of the species' ecology, distribution, habitat, populations and threats. These provide context for the impact assessment. At the end of the section are links to key species' documents that provide additional background information.

EPBC ACT LISTING	Vulnerable Note that the Yarra Pygmy Perch is currently on the Finalised Priority Assessment List (FPAL) and is proposed to have its listing upgraded to Endangered (DAWE, 2021f) A decision is due by 30 October 2023 (DAWE, 2021f)
DESCRIPTION	*Nannoperca obscura* (Yarra Pygmy Perch) is a small perch-like fish, up to 75 mm in length. It is olive green above, greenish-brown laterally, and yellow-white underneath (Saddlier and Hammer, 2010).
ECOLOGY	The Yarra Pygmy Perch spends its entire life cycle in freshwater. It is a free-swimming species, meaning it is not attached to objects or substrates and is able to swim in open water (Saddlier and Hammer, 2010). The species is short lived (1 – 5 years), and likely has a low dispersal ability (DCCEEW, 2022). The species diet is comprised of insects, insect larvae and planktonic crustaceans (Saddlier and Hammer, 2010). The breeding ecology of the Yarra Pygmy Perch is not well known, though is assumed to be similar to the Southern Pygmy Perch, which lays non-adhesive eggs over aquatic vegetation and the substrate. Spawning occurs in spring, in water with a temperature of 16 – 24^{0}C (Saddlier and Hammer, 2010). The species is found in small groups, often occurring with the Southern Pygmy Perch. The Yarra Pygmy Perch appears to prefer slightly stronger flows (Saddlier and Hammer, 2010).
DISTRIBUTION AND HABITAT	The species was once more widespread, though has experienced a decline in abundance and distribution since the European settlement of Australia (DCCEEW, 2022). The Yarra Pygmy Perch is distributed from the Bunyip River basin in West Gippsland, through southern Victoria and south-east South Australia, and west near to the mouth of the Murray River. Within this range, the species has a patchy and highly fragmented distribution (Saddlier and Hammer, 2010). In Victoria, it occurs in the following catchments: Corangamite, Glenelg Hopkins, Port Phillip & Westernport, and Wimmera (DELWP, 2015b). The range of the species coincides with Victoria's volcanic region. Most streams are alkaline with a high mineral content (DCCEEW, 2022). The species occurs in slow-flowing or still water, which is characterised by large amounts of aquatic vegetation, including lakes, ponds and slow-flowing rivers (Saddlier and Hammer, 2010). It prefers small-medium sized freshwater streams that are relatively shallow (1 – 2 m) and with a moderate to high flow (DCCEEW, 2022). The fragmented nature of remaining habitat, and habitat variability between seasons and years, makes the species vulnerable to local extinctions. Reduced flooding and loss of habitat linkages reduces the capacity of the species to recolonise habitats (Saddlier and Hammer, 2010).
POPULATIONS	Some populations of the Yarra Pygmy Perch are tiny and occur in limited ephemeral habitat, while others are large and extensive, occurring in permanent waterways (Saddlier and Hammer, 2010). Remnant populations are substantially fragmented and depleted due to wetland drainage, modification and river regulation (DCCEEW, 2022). As of 2010, the species had been recorded from 42 sites across Victoria and South Australia, of these, four were thought to be extinct (Saddlier and Hammer, 2010). In 2002, major Victorian populations were thought to occur between the Barwon River and the South-Australia border (DCCEEW, 2022). However, as few surveys have been recently conducted in Victoria, current population status and trends are unknown (DELWP, 2015b). The species has moderate levels of genetic diversity between sites which implies poor dispersal ability. Four Evolutionary Significant Units have been identified based on genetic criteria: 1. Murray Darling Basin, 2. Glenelg River Basin, Millicent Coast and Mount Emu Creek, 3. Rivers

	including and immediately surrounding the Merri catchment, and 4. Eastern range populations (DELWP, 2015b).

THREATS	The species Recovery Plan has identified the following threats (Saddlier and Hammer, 2010):
	• Degradation and loss of habitat due to:
	  ○ Drainage of wetlands
	  ○ Unrestricted stock access
	  ○ Reduction in water quality due to increased nutrient runoff and sedimentation
	  ○ Ploughing wetlands when they are dry
	• Alteration to flow regimes
	• Climate change, including decline in rainfall, increasing temperatures and increasing evaporation
	• Introducing aquatic species including the Redfin Perch, Brown Trout and Rainbow Trout
	• Illegal collection

RELEVANT PLANS AND POLICIES	National Recovery Plan for the Yarra Pygmy Perch (*Nannoperca obscura*) (Saddlier and Hammer, 2010)
SPECIES-SPECIFIC GUIDELINES	Survey guidelines for Australia's threatened fish. EPBC Act survey guidelines 6.4 (DSEWPaC, 2011)
SPRAT LINK	http://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=26177

APPROACH TO BASELINE DATA

This section provides a summary of the baseline information used in the assessment. It sets out:

- *An overview of the habitat mapping for the species within and outside the Growth Areas*
- *An overview of the population mapping for the species*

Please refer to Chapter 13 for further details about the approach to threatened species baseline data, including a description of the different types and sources of data, as well as some discussion on the interpretation and suitability of the data for use in the impact assessment.

HABITAT MAPPING	**WITHIN THE SURVEYED AREAS OF THE GROWTH AREAS**
	Potential habitat for the species has been mapped in the Moorabool River adjacent to the WGGA.
	WITHIN THE UNSURVEYED AREAS OF THE GROWTH AREAS
	N/A. There is unlikely to be suitable habitat present for this species.
	OUTSIDE THE GROWTH AREAS
	Habitat important models (HIMs). Habitat mapping for the species across the broader Strategic Assessment Area and Study Area was prepared using DELWPs HIMs. Refer to Chapter 13 of Part 3 for a detailed description of the baseline mapping, landholder surveys, and HIMs.
POPULATION MAPPING	**RECORD SELECTION**
	Species records were compiled from the VBA and surveys undertaken for the project. The VBA records were filtered to remove records from prior to 1990 for the purpose of the impact assessment.
	RECORD DOWNLOAD DATE
	VBA records for the Yarra Pygmy Perch used in this assessment were downloaded in June 2022.
	METHOD FOR IDENTIFYING POPULATIONS
	All records within a single catchment were considered to be a single population.

OCCURRENCE IN THE STUDY AREA

This section describes the occurrence of the species in the Study Area. It includes reference to a map of records and habitat which can be viewed as a separate file. The map provides critical context for the assessment and should be viewed in conjunction with the text presented in this assessment. This section also provides a qualitative description of where records and habitat occur.

See Map 19-23 for a map of records and habitat across the Strategic Assessment Area

There is a total of 3,532.7 ha of mapped potential habitat for the Yarra Pygmy Perch within the Study Area. Of this, 31.4 ha is located within the Strategic Assessment Area, and 3.5 ha of potential habitat is mapped within the Moorabool River adjacent to the WGGA.

There are 80 VBA records (725 individuals) of the Yarra Pygmy Perch within the Study Area, the most recent of which was recorded in 2014. The species has not been recorded within the Strategic Assessment Area.

VBA records for this species occur in multiple locations along the Moorabool River (upstream and downstream of the Strategic Assessment Area), along the Barwon River, within Waurn Ponds Creek, within the Lake Connewarre Complex, and along Thompson Creek.

It is reported that there are records of the species immediately adjacent to WGGA in the Moorabool River (EHP, 2021). However, there are no records in this locality on the VBA database. It is possible that there are records of the species in this area which have not been entered into the VBA database.

Outside of the Growth Areas, habitat for the species is mapped along the Moorabool River, Barwon River, Waurn Ponds Creek, Armstrong Creek, and Thompson Creek. Some habitat is also mapped within the Lake Connewarre Complex.

POTENTIAL INDIRECT IMPACTS AND MITIGATION

This section identifies the relevant potential indirect impacts to the species that may occur as a result of development under the Plan. Indirect impacts were identified as being relevant to the species if:

- *The indirect impact is identified as a threat in a relevant profile, Conservation Advice, or Recovery Plan, and*
- *The Plan has the potential to introduce or exacerbate the threat in areas which support records and/or mapped habitat for the species*

It describes the mechanism by which each relevant potential indirect impact may affect the species.

Please refer to Chapter 19 for an assessment of how the Plan addresses each indirect impact for this species. Further, please refer to Chapter 17 for a detailed discussion and analysis of indirect impacts and mitigation measures included in the Plan.

RELEVANT POTENTIAL INDIRECT IMPACTS

The Recovery Plan for the Yarra Pygmy Perch identifies a range of threats to the species (Saddlier and Hammer, 2010). Where these threats have the potential to be introduced or exacerbated under the Plan, the Plan includes management strategies to mitigate their impacts.

The following potential indirect impacts (identified as threats) are considered relevant to implementation of the Plan:

- Reduction in water quality and alteration to flow regimes
- Illegal collection

There are a number of additional threats to the species identified in the Recovery Plan. However, potential indirect impacts associated with these threats are considered unlikely given the landscape context of the site and the ecology of the species. Refer to Section 17.2 of Chapter 17 for a detailed assessment of potential indirect impacts associated with the implementation of the Plan.

Climate change is also identified as a threat to the species. The potential impacts of climate change and relevant mitigation measures under the Plan are outlined in Section 19.5 of Part 5.

DECREASED WATER QUALITY AND ALTERATION TO FLOW REGIMES

Reduced riparian vegetation quality can result in water quality declines through increased sedimentation, nutrient runoff and summer water temperatures (Saddlier and Hammer, 2010).

The species depends on shallow freshwater habitat, including connectivity between wetlands and more permanent waterbodies such as rivers or creeks. Changes to natural flooding and drying cycles, particularly in shallow creeks and swamps, pose a threat to the species, through altering natural seasonal water levels and affecting habitat connectivity and the species' capacity to seek refuge during dry periods. Changes to local water tables can also impact the hydrology of smaller rivers and wetlands. Modes of development which may negatively impact upon water regimes for the species include catchment clearing (which alters hydrological regimes), water abstraction, and planting of trees such as eucalypts and pines which lower groundwater levels and decrease runoff (Saddlier and Hammer, 2010).

ILLEGAL COLLECTION

There is no direct evidence of unauthorised collection of the Yarra Pygmy Perch. However, collection of similar small threatened species by aquaculture enthusiasts has been identified as a potential problem in Victoria. There are web-based publications which detail information relating to husbandry of this species, suggesting collecting may be occurring. Collection of individuals is likely to be damaging to this species which exists in small, restricted populations. Further, trading and potential future release of specimens back into the wild in locations other than from which they were collected could undermine the genetic integrity of wild populations (Saddlier and Hammer, 2010).

RECOVERY PLAN, KEY THREATENING PROCESSES AND THREAT ABATEMENT PLANS

Where applicable, this section discusses the consistency of the Plan with any Recovery Plans and relevant Threat Abatement Plans. The general consistency of the Plan with Threat Abatement Plans is discussed in detail in Section 17.3 of Chapter 17.

CONSISTENCY WITH RECOVERY PLAN

In accordance with Section 146K of the EPBC Act, this section considers whether the implementation of the Plan is not inconsistent with the species' Recovery Plan. It considers two questions:

- Does the Plan prevent achievement of the objectives of the Recovery Plan?
- Does the Plan prevent implementation of the Recovery Plan actions?

These questions are discussed below.

DOES THE PLAN PREVENT ACHIEVEMENT OF THE OBJECTIVES OF THE RECOVERY PLAN?

The overall long-term objective of the Recovery Plan is to minimise the probability of extinction and ensure long-term survival of Yarra Pygmy Perch in the wild and to increase the probability of important populations becoming self-sustaining in the long term. This overall objective is associated with a series of specific objectives (Saddlier and Hammer, 2010):

- Determine the distribution and abundance of the Yarra Pygmy Perch
- Determine the genetic and taxonomic status of Yarra Pygmy Perch populations
- Determine Yarra Pygmy Perch habitat characteristics and requirements
- Identify and manage potentially threatening processes impacting on Yarra Pygmy Perch conservation
- Protect key populations across the range of the Yarra Pygmy Perch
- Determine population trends at key sites
- Investigate key aspects of biology and ecology of the Yarra Pygmy Perch
- Establish a captive breeding population of Yarra Pygmy Perch
- Undertake translocations to establish new populations of Yarra Pygmy Perch
- Undertake community education and communication to increase awareness and involvement

The outcome under the Plan for the Yarra Pygmy Perch will not prevent the achievement of any of the objectives of the Recovery Plan.

DOES THE PLAN PREVENT IMPLEMENTATION OF THE RECOVERY PLAN ACTIONS?

The Recovery Plan identifies a set of actions in order to deliver on the objectives. Each action is associated with performance criteria (Saddlier and Hammer, 2010). The Plan will not prevent the implementation of any of these actions, nor will it prevent the achievement of any of the performance criteria.

KEY THREATENING PROCESSES AND CONSISTENCY WITH THREAT ABATEMENT PLANS

Relevant Key Threatening Processes (KTPs) and any of their associated Threat Abatement Plans (TAPs) have been identified in Table C-3 where they relate to:

- The potential direct impacts of the Plan, or
- The relevant indirect impacts

Table C-3: Relevant Key Threatening Processes and associated Threat Abatement Plans for the Yarra Pygmy Perch

Key threatening process	Threat abatement plan
Land clearance	There is no relevant TAP
Loss of climatic habitat caused by anthropogenic emissions of greenhouse gases	There is no relevant TAP
Novel biota and their impact on biodiversity	There is no relevant TAP

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PUBLIC EXHIBITION VERSION

PART 5: EVALUATION OF THE OUTCOMES OF THE PLAN

PREPARED FOR THE CITY OF GREATER GEELONG

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PART 5: EVALUATION OF THE OUTCOMES OF THE PLAN

27 Introduction

In considering endorsement of the Plan and approval of the classes of actions, the Commonwealth Minister for the Environment and Water (the Minister) must take into account various matters under the EPBC Act relating to the impacts of the development and the conservation benefits of the Plan.

This Part of the SAR:

- Analyses the Plan against the principles of Ecological Sustainable Development (ESD) (see Chapter 28)
- Evaluates the adequacy and acceptability of the Plan in the context of the impacts of the development and in accordance with the regulatory requirements of the EPBC Act (see Chapter 29)

This Chapter sets out:

- The regulatory context for evaluating the Plan
- The overall approach to the evaluation

27.1 REGULATORY CONTEXT OF THE EVALUATION

27.1.1 ENVIRONMENT PROTECTION AND BIODIVERSITY CONSERVATION ACT 1999

Under the EPBC Act, the Minister:

- May endorse a policy, plan or program if satisfied that the SAR 'adequately addresses the impacts' on protected matters to which the agreement (to undertake a strategic assessment) relates (s146(2)(f))
- May approve the taking of actions in accordance with the endorsed policy, plan or program (s146B(1)) subject to a range of considerations under Part 10 Division 1, Subdivision C, including:
    - General considerations under s146F, including any matters relevant to MNES that the Minister considers is relevant to the approval, taking into account the principles of ESD
    - Constraints on decision-making discretion under ss146 G, H, J, K, L and M, including that the Minister must not act inconsistently with the provisions of a recovery plan or threat abatement plan (s146K)

27.1.2 COMMONWEALTH TERMS OF REFERENCE

The Commonwealth Terms of Reference (ToR) under the Strategic Assessment Agreement require the SAR to:

- Evaluate the overall outcomes, commitments and outcomes for protected matters, taking into account likely impacts on protected matters under the Plan (Section 5.1). The evaluation must include (Section 5.2):
    - *a) The extent to which protected matters are represented in the strategic assessment area*
    - *b) The extent to which protected matters are represented in areas to be protected or managed under the Plan*
    - *c) The extent to which any areas to be protected or managed under the Plan will ensure the long-term protection of each protected matter, and the function of key ecosystem services needed for the ongoing viability of protected matters*
    - *d) The extent to which the outcomes, commitments and measures under the Plan address any significant vulnerabilities of protected matters under reasonable climate change scenarios*
    - *e) The likely effectiveness of the outcomes, commitments and measures under the Plan in protecting and managing protected matters and any risks and uncertainties*
    - *f) An assessment of how the Plan meets the Endorsement Criteria* [in the Strategic Assessment Agreement]
- Identify key uncertainties and risks associated with implementing the Plan, responses to these and proposed adaptations to changing circumstances (Section 6.1). Key uncertainties may include:
    - *a) Knowledge gaps in scientific understanding and responding to new knowledge.*

b) *Assumptions made in assessing potential impacts and benefits*

c) *How changes to Commonwealth, State and local government legislation, policies, plans and advice are to be accounted for in the management of the areas impacted by the Plan*

d) *The capacity to ensure the Plan is implemented*

e) *Differences in survey results relating to MNES and how to evaluate and resolve discrepancies*

- Include an evaluation of the adequacy of the Plan's assurance and implementation framework (Section 7.1), including for monitoring actions taken under the Plan and addressing the responsibilities of the Minister and the City in relation to these matters (Section 7.2)

27.2 APPROACH TO THE EVALUATION

Evaluation of the overall outcomes and acceptability of the Plan was undertaken at three levels:

- In relation to the principles of ESD (see Chapter 28)
- In relation to the overall adequacy and acceptability of the Plan in accordance with the requirements of the Strategic Assessment Agreement and ToR (see Chapter 29)
- For individual relevant protected matters under the EPBC Act (see Part 4)

28 Ecologically sustainable development

28.1 INTRODUCTION

Ecologically sustainable development (ESD) is defined as:

> *'using, conserving and enhancing the community's resources so that ecological processes, on which life depends, are maintained, and the total quality of life, now and in the future, can be increased'* (COAG, 1992).

This Chapter:

- Sets out the legal and other requirements for assessing ESD
- Provides an analysis of the Plan against each of the principles of ESD:
  - *Principle 1 – integration of social, economic and environmental considerations*
  - *Principle 2 – precautionary principle*
  - *Principle 3 – intergenerational and intragenerational equity*
  - *Principle 4 – conservation of biodiversity and ecological integrity*
  - *Principle 5 – valuation, pricing and incentive mechanisms*

28.2 REQUIREMENTS FOR ASSESSING ESD

28.2.1 ENVIRONMENT PROTECTION AND BIODIVERSITY CONSERVATION ACT 1999

The EPBC Act incorporates the promotion of ESD within the key objectives of the Act, which states:

> *"The objects of this Act are … to promote ecologically sustainable development through the conservation and ecologically sustainable use of natural resources"*

The Act requires that the Minister consider economic and social matters, including taking the principles of ESD into account, when considering the approval of the taking of actions in accordance with an endorsed program or plan under the EPBC Act (section 146F). The definition of ESD under Section 3A of the EPBC Act is:

Commonwealth definition of ESD – EPBC Act

Part 1 Preliminary

Section 3A Principles of ecologically sustainable development

The following principles are principles of ecologically sustainable development:

(a) decision-making processes should effectively integrate both long-term and short-term economic, environmental, social and equitable considerations;

(b) if there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation;

(c) the principle of inter-generational equity—that the present generation should ensure that the health, diversity and productivity of the environment is maintained or enhanced for the benefit of future generations;

(d) the conservation of biological diversity and ecological integrity should be a fundamental consideration in decision-making;

(e) *improved valuation, pricing and incentive mechanisms should be promoted.*

28.2.2 COMMONWEALTH TERMS OF REFERENCE

The ToR (Section 2.1(e)) requires the SAR to: *"…describe how the principles of ecologically sustainable development (as set out in section 3A of the EPBC Act) are considered and promoted in the development of the Plan".*

28.3 ANALYSIS OF PLAN AGAINST THE PRINCIPLES OF ESD

This section provides an evaluation of the Plan against each of the principles of ESD.

28.3.1 PRINCIPLE 1: INTEGRATION OF SOCIAL, ECONOMIC AND ENVIRONMENTAL CONSIDERATIONS

Principle 1 requires decisions to integrate economic, environmental, social and equitable considerations.

Specifically, the EPBC Act defines Principle 1 of ESD as "decision-making processes should effectively integrate both long-term and short-term economic, environmental, social and equitable considerations" (Section 3A(a)).

GUIDANCE TO ASSIST INTERPRETATION OF PRINCIPLE

There are several matters to consider in balancing economic, environmental and social considerations (Preston, 2016):

- Environmental, economic, social and equitable considerations are interconnected and interdependent, such that changes in one can affect the capacity to achieve the goals of others
- It may not always be appropriate to accord equal weight to economic, environmental, social and equitable considerations. Doing this assumes that ecological processes can always sustain ongoing development. However, there are thresholds at which environmental processes may deteriorate
- Environmental, economic, social and equitable objectives cannot practically be balanced in all decisions made, or for each area of land. For example, some areas may be set aside completely for environmental objectives, whereas other parcels of land may be utilised for intensive economic development

EVALUATION OF PRINCIPLE

The Plan is consistent with Principle 1 of ESD as it:

- Supports the delivery of policies and strategies that integrate social, economic, and environmental considerations and objectives and that address key planning challenges for the Greater Geelong area
- Has been informed by processes that integrate social, economic, and environmental considerations

The Plan has been informed by and supports the delivery of several key planning policies and strategies that aim to address the key planning challenges facing Geelong including:

- Population growth
- Housing affordability and availability
- Protecting the natural environment and amenity

Chapter 6, Part 2 of the SAR provides a description of the key planning challenges and the planning and policy context for the identification and development Growth Areas.

The *Northern and Western Geelong Growth Areas Framework Plan* (the Framework Plan) (The City of Greater Geelong, 2021) is a key element of the City's approach to the key planning challenges. The Framework Plan will guide the future land use and development of the Growth Areas and outlines major land use and development requirements to deliver sustainable new communities that coordinate essential infrastructure and services.

The development supported by the Plan represents the strategic prioritisation and delivery of new urban development to address the long-term growth of the Greater Geelong area and meet social, economic and environmental outcomes for Geelong and the wider region. The Growth Areas are the key focus for urban development over the coming decades and will be centres of economic and social activity.

A range of social, economic and environmental benefits will be provided to Geelong and the wider region through delivery of the Growth Areas including but not limited to:

- Sustainable and diverse mix of housing and accommodation to support future residents and visitors of Geelong
- New employment, training and education opportunities
- New public and private transport networks
- Community open spaces, including recreation reserves and local parks

- Protection and ongoing management of Striped Legless Lizard and Golden Sun Moth within the NGGA Conservation Area and for the Growling Grass Frog and areas of potential habitat for Adamson's Blown-grass within the Cowies Creek Conservation Area

Chapter 8 in Part 2 of the SAR describes the conservation that will be delivered through development of the Growth Areas and Chapter 26 in Part 4 of the SAR provides a detailed analysis of the socio-economic impacts of the Plan.

By supporting the delivery of the Framework Plan and other key planning policies and documents for Geelong and Victoria, the Plan is supporting a long-term strategic planning process that integrates social, economic, and environmental considerations and addresses the key planning challenges facing the Greater Geelong area.

The Plan was also developed through several processes that ensured social, economic, and environmental considerations were effectively integrated in decisions relating to the Plan, including:

- The strategic assessment process – environmental impact assessment processes such as strategic assessments are a well-recognised mechanism to incorporate environmental considerations alongside social, economic, and equitable considerations into policies, plans and programs (Preston, 2016)
- A Structured Decision Making process – this was applied to determine the most suitable layout for urban development and conservation within the Northern Geelong Growth Area. The process provides a systematic method to identify and compare a range of options available for defining the land subject to development, taking into account social, economic, and environmental considerations. It involved five steps:
    - Understanding the decision that needed to be made
    - Identifying what is important when making that decision
    - Developing a range of alternatives to compare
    - Understanding the performance of different alternatives
    - Comparing options and selecting a preferred alternative

28.3.2 PRINCIPLE 2: PRECAUTIONARY PRINCIPLE

Principle 2 is articulated in Section 3A(b) of EPBC Act as: "if there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation".

GUIDANCE TO ASSIST INTERPRETATION OF PRINCIPLE

Principle 2 should be applied when two conditions are met (Preston, 2017):

- There is a threat of serious and irreversible impacts (SAII) to the environment, and
- There is scientific uncertainty as to the environmental damage associated with the threat

Where both these conditions are met, the decision-maker must:

- Assume the environmental damage associated with the threat would occur
- Put in place mitigation to address this damage, including avoidance, mitigation and offset measures

Where there is a threat of SAII, but the impacts associated with the threat are well understood and able to be predicted with certainty, the precautionary principle is not triggered, as scientific uncertainty is not present (Preston, 2017). While measures will still need to be taken to avoid and minimise damage in these cases, these measures are considered to be 'preventative' measures rather than 'precautionary' measures (Preston, 2017).

EVALUATION OF PRINCIPLE

SAII are not specifically defined at a Commonwealth level. The determination of whether the development under the Plan may result in a threat of SAII was made by applying a set of principles and guiding criteria to each protected matter that may be potentially impacted by the Plan. These principles and criteria are derived from guidance on SAII provided under the NSW *Biodiversity Conservation Act 2016* (DPIE, 2019), and are set out in Table 28-1.

Protected matters were considered to be at threat of SAII if they:

- Met at least one of the principles and criteria in Table 28-1, and
- Are potentially impacted by the development under the Plan

Table 28-2 identifies the relevant protected matters that are potentially impacted by the development under the Plan (see Chapter 18) and that are at threat of SAII because they meet one or more of the principles.

Table 28-1: Principles and guiding criteria to determine protected matters at threat of SAII

Principle	Guiding criteria
Protected matter is in a rapid rate of decline	• Generally critically endangered matters where the reason for the listing is a very large reduction in population size or geographic extent, or • Estimated reduction in population size or geographic extent of ≥ 80% in 10 years or three generations, or ≥ 90% since 1750, or ≥ 80% over 50 years
Protected matter has a very small population size, or ecological community is severely degraded	• Generally critically endangered matters where the reason for the listing is a very small size or high degradation or disruption to biotic processes, or • ≤ 250 individuals remaining, or • ≥ 90% of extent of ecological community is subject to very high degradation or disruption of biotic and ecological processes
Protected matter has a very limited geographic distribution	• Generally critically endangered matters where the reason for the listing is a very highly restricted geography distribution, or For species: • Area of Occupancy of ≤ 10 km² or, • Extent of Occurrence of ≤ 100 km² or, • Inhabit ≤ three locations in Victoria For ecological communities: • Extent of Occurrence of ≤ 1000 km²
Protected matter is unlikely to respond to habitat improvement	• Life history traits severely limit the ability to control threats at the site scale (in general, these are species significantly threatened by uncontrollable disease, such as frogs and chytrid fungus), or • Reproductive traits severely limit the ability to increase in abundance or occupy new habitat (in general, these are plants that are sterile or largely clonal with limited capacity to reproduce through seed), or • Relies on habitat components that are unable to be re-created at an offset site (in general this includes caves, rocky areas, or cliff lines)

Table 28-2: Relevant protected matters at threat of SAII

Protected matter	At threat of SAII?	Relevant principle triggered*
Flora		
Lachnagrostis adamsonii (Adamson's Blown-grass)	No	Does not meet the principles/criteria (Murphy, 2010)
Pimelea spinescens subsp. *spinescens* (Spiny Rice-flower)	Yes	Principle 3 – a critically endangered species with a very restricted area of occupancy that is likely to continue to decline due to land clearing and habitat degradation (TSSC, 2003)
Fauna		
Botaurus poiciloptilus (Australasian Bittern)	No	Does not meet the principles/criteria (TSSC, 2019)
Calidris canutus (Red Knot)	No	Does not meet the principles/criteria (TSSC, 2016a)

Protected matter	At threat of SAII?	Relevant principle triggered*
Calidris ferruginea (Curlew Sandpiper)	Yes	Principle 1 – a critically endangered species with a very large reduction in population size (an estimated reduction of ≥ 80% over three generations) (TSSC, 2015)
Calidris tenuirostris (Great Knot)	Yes	Principle 1 – a critically endangered species with a very large reduction in population size (an estimated reduction of ≥ 80% over three generations) (TSSC, 2016b)
Charadrius leschenaultii (Greater Sand Plover)	No	Does not meet the principles/criteria (TSSC, 2016c)
Charadrius mongolus (Lesser Sand Plover)	No	Does not meet the principles/criteria (TSSC, 2016d)
Delma impar (Striped Legless Lizard)	No	Does not meet the principles/criteria based on a review of the SPRAT profile (DCCEEW, 2022)
Galaxiella toourtkoourt (Eastern Dwarf Galaxias) (previously *Galaxiella pusilla*)	No	Does not meet the principles/criteria (Saddlier, Jackson et al., 2010)
Limosa lapponica baueri (Western Alaskan Bar-tailed Godwit)	No	Does not meet the principles/criteria (TSSC, 2016g)
Litoria raniformis (Growling Grass Frog)	Yes	Principle 4 – life history traits severely limit the ability to control threats at the site scale (the species is threatened by chytrid fungus) (Clemann and Gillespie, 2012)
Nannoperca obscura (Yarra Pygmy Perch)	No	Does not meet the principles/criteria (Saddlier & Hammer, 2010)
Neophema chrysogaster (Orange-bellied Parrot)	Yes	Principle 2 – a critically endangered species with a very small population size (about 50 remaining in the wild) (DELWP, 2016)
Neophema chrysostoma (Blue-winged Parrot)	No	Does not meet the principles/criteria (DCCEEW, 2023)
Numenius madagascariensis (Eastern Curlew)	No	Principle 1 – a critically endangered species with a very large reduction in population size (an estimated reduction of ≥ 80% over three generations) (DoE, 2015)
Prototroctes maraena (Australian Grayling)	No	Does not meet the principles/criteria (TSSC, 2021)
Rostratula australis (Australian Painted Snipe)	No	Does not meet the principles/criteria (TSSC, 2013)
Sternula nereis nereis (Australian Fairy Tern)	No	Does not meet the principles/criteria (TSSC, 2011)
Synemon plana (Golden Sun Moth)	No	Does not meet the principles/criteria (DAWE, 2021a)
Threatened ecological communities		
Natural Temperate Grassland	Yes	Principle 1 – a critically endangered ecological community with a very large reduction in geographic extent (an estimated reduction of ≥ 90% since 1750) (DEWHA, 2008a)

Protected matter	At threat of SAII?	Relevant principle triggered*
Ramsar Wetlands		
Port Phillip Bay (Western Shoreline) and Bellarine Peninsula Ramsar Site	Yes	Principle 3 – The Ramsar site is limited to a specific geographic location which influences ecological character (geomorphic setting, climate, and water quality guide the habitat and vegetation supported at the Ramsar site) (DEWHA, 2008b)

*Note – additional principles may also be relevant

An assessment of impacts of the development under the Plan on each of the protected matters identified at threat of SAII is provided in Part 4. For each of these matters, there is some scientific uncertainty as to the specific nature, extent and seriousness of the impacts, and therefore the precautionary principle is triggered.

For these protected matters, the Plan is consistent with the precautionary principle as it:

- Assumes the environmental damage associated with the threat would occur
- Puts in place mitigation to address this damage, including avoidance, mitigation and offset measures

Table 28-3 summarises the avoidance, mitigation and/or offset measures that will be implemented to address the potential damage to each protected matter for which the precautionary principle is triggered.

These commitments and measures are set out in detail in Part 4.

Table 28-3: Mitigation to be implemented to address protected matters at threat of SAII

Protected matter	Potential impact		Is there scientific uncertainty about the impact's damage?	Will mitigation be implemented to address impacts that are uncertain?
	Direct	Indirect		
Pimelea spinescens subsp. *spinescens* (Spiny Rice-flower)	Possible	No	Yes – scientific uncertainty relates to potential occurrence/direct impacts in external infrastructure footprints	Yes – Plan includes commitment to avoid and protect any populations confirmed through surveys (see Part 4)
Calidris ferruginea (Curlew Sandpiper)	No	Yes	Yes – scientific uncertainty relates to indirect impacts (nature and extent of changes to water flows and quality)	Yes – Plan includes commitment to implement standard mitigation measures to address water flows and quality (see Part 4)
Calidris tenuirostris (Great Knot)	No	Yes	Yes – scientific uncertainty relates to indirect impacts (nature and extent of changes to water flows and quality)	Yes – Plan includes commitment to implement standard mitigation measures to address water flows and quality (see Part 4)
Litoria raniformis (Growling Grass Frog)	No	Yes	Yes – scientific uncertainty relates to indirect impacts (nature and extent of changes to water flows and quality)	Yes – Plan includes commitments to protect the population within the Cowies Creek Conservation Area. These include preparation and implementation of an EMP for the Conservation Area, as well as the broader implementation of both standard and specific mitigation measures to address water flows and quality (see Part 4)
Neophema chrysogaster	No	Yes	Yes – scientific uncertainty relates to indirect impacts (nature and	Yes – Plan includes commitment to implement standard mitigation

Protected matter	Potential impact		Is there scientific uncertainty about the impact's damage?	Will mitigation be implemented to address impacts that are uncertain?
	Direct	Indirect		
(Orange-bellied Parrot)			extent of changes to water flows and quality)	measures to address water flows and quality (see Part 4)
Natural Temperate Grassland	Yes	No	Yes – scientific uncertainty relates to potential occurrence/direct impacts in unsurveyed areas and external infrastructure footprints	Yes – Plan includes commitment to avoid to the greatest extent possible and protect any of the ecological community confirmed through surveys, or offset where avoidance is not possible (see Part 4)
Port Phillip Bay (Western Shoreline) and Bellarine Peninsula Ramsar Site	No	Yes	Yes – scientific uncertainty relates to indirect impacts (nature and extent of changes to water flows and quality)	Yes - Plan includes a specific commitment to minimise the indirect impacts of the development on protected matters associated with waterways, riparian areas and wetlands, including the Port Phillip Bay (Western Shoreline) and Bellarine Peninsula Ramsar site (see Part 4)

28.3.3 PRINCIPLE 3: INTERGENERATIONAL AND INTRAGENERATIONAL EQUITY

Principle 3 is articulated in Section 3A(c) of EPBC Act as: "The present generation should ensure that the health, diversity and productivity of the environment is maintained or enhanced for the benefit of future generations".

GUIDANCE TO ASSIST INTERPRETATION OF PRINCIPLE

Principle 3 contains two key elements (Preston, 2016):

- Intergenerational equity – this relates to equity between current and future generations
- Intragenerational equity – this relates to equity within current generations

There are three sub-principles that inform the basis of intergenerational and intragenerational equity (Preston, 2016):

- Conservation of options – this provides that each generation should conserve the diversity and robustness of the resource base to ensure future generations have the same access to alternatives and options when solving problems
- Conservation of quality – this provides that the quality of natural and cultural environments should be maintained, so they are passed on in the same or better condition than they were received
- Conservation of access – this provides that each generation has the right to reasonable and equitable access to natural and cultural resources to improve their own social and economic wellbeing

EVALUATION OF PRINCIPLE

The Plan is consistent with Principle 3 of ESD as it has an objective and strong conservation-related outcomes and establishes a comprehensive conservation program that is designed to achieve this objective and outcomes.

The Plan's objective includes providing for the protection of MNES while supporting development. The Plan's conservation-related outcomes include:

> *Populations of Golden Sun Moth and Striped Legless Lizard are maintained within the NGGA Conservation Area*
>
> *The long-term viability of the important population of the Growling Grass Frog along Cowies Creek is supported through the protection and enhancement of habitat within the WGGA*
>
> *The protection and management of land outside of the Growth Areas makes an important contribution to the recovery efforts for Natural Temperate Grassland, Golden Sun Moth, and Striped Legless Lizard in Victoria*
>
> *Matters of national environmental significance associated with waterways, riparian areas, and wetlands are protected from any notable adverse impacts of development under the Plan*

The Plan's objective and outcomes are consistent with the three sub-principles that inform the basis of intergenerational and intragenerational equity by aiming to conserve areas of highest biodiversity value within the Strategic Assessment Area and ensure the persistence of key threatened species that occur within the Greater Geelong area.

The conservation program has been designed to achieve a strategic outcome for biodiversity and maximise ecological function and resilience at the landscape scale in the Greater Geelong area.

Offsets under the conservation program will greatly increase the level of permanent protection of threatened species and ecological communities in the Greater Geelong area, thereby contributing to the conservation of the area's natural resource base and maintenance of the quality of natural environments.

The Plan includes a range of assurance mechanisms and processes under the Plan's assurance and implementation framework to ensure the achievement of the outcomes over the life of the Plan.

It is important to note that the Plan does not address cultural resources other than areas of biodiversity value. Other cultural resources, such as archaeological, built, and Aboriginal cultural heritage are regulated in Victoria under other legislation and are subject to separate assessment and approval processes that are not part of the Plan.

28.3.4 PRINCIPLE 4: CONSERVATION OF BIODIVERSITY AND ECOLOGICAL INTEGRITY

Principle 4 is articulated in Section 3A(d) of EPBC Act as: "the conservation of biological diversity and ecological integrity should be a fundamental consideration in decision-making".

GUIDANCE TO ASSIST INTERPRETATION OF PRINCIPLE

Section 528 of the EPBC Act provides the following definition of biodiversity:

> *Biodiversity means the variability among living organisms from all sources (including terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part) and includes:*
>
> *a) diversity within species and between species; and*
> *b) diversity of ecosystems.*

As Commonwealth legislation articulates that Principle 4 should be a 'fundamental consideration' in decision making, courts have recognised that Principle 4 is one to which "significant weight should be assigned" (Preston, 2016). Although it is recognised that priority is to be given to the conservation of biodiversity and ecological integrity, this does not mean that a project must be refused if it is likely to impact on these matters (Preston, 2016).

EVALUATION OF PRINCIPLE

The Plan is consistent with Principle 4 of ESD as it:

- Establishes a conservation framework to deliver a conservation program that will:
  - Avoid key areas of high biodiversity value for protected matters
  - Mitigate impacts
  - Offset residual impacts and conserve threatened species and ecological communities
  - Protect significant areas of high biodiversity value in the Greater Geelong area that will achieve a strategic outcome for biodiversity and maximise ecological function and resilience at the landscape scale
- Has been developed through a strategic assessment process that ensured biodiversity was given fundamental consideration in decisions relating to the Plan

The conservation framework, and how it considers and benefits biodiversity, is evaluated in Chapter 29.

The development of the Plan was informed by a strategic assessment process that ensured biodiversity was given fundamental consideration in decisions relating to the Plan. A strategic assessment process provides an improved mechanism to address key landscape-scale conservation challenges over a site-by-site assessment and approval process. Strategic assessments can have the following benefits:

- Enable effort to be focused on the highest biodiversity value areas of the landscape
- Address ecological function and landscape-scale ecological processes, such as habitat connectivity

- Be designed and implemented strategically by consolidating offsets into large and more viable patches
- Be implemented ahead of impacts occurring from development, to help reverse any trend of decline

The strategic assessment process substantially informed the conservation program under the Plan by:

- Providing a comprehensive information base on biodiversity values to inform the development of the Plan
- Identifying key risks to biodiversity values from the impacts of the development
- Informing avoidance, mitigation and offset measures needed to adequately manage impacts
- Informing conservation priorities, including priorities for avoidance and offsets

It is also important to note that the legislation regulating approval of the Plan requires decision-makers to provide significant consideration to biodiversity. Under the EPBC Act, the Minister can only approve the taking of actions in accordance with the endorsed Plan subject to a range of constraints on decision-making, including to not act inconsistently with a recovery plan or threat abatement plan for a protected matter (s 146K).

28.3.5 PRINCIPLE 5: VALUATION, PRICING AND INCENTIVE MECHANISMS

Principle 5 is articulated in Section 3A(e) of EPBC Act as: "improved valuation, pricing and incentive mechanisms should be promoted".

Preston (2016) notes that Principle 5 is designed to account for environmental damage caused by market failure. Market failure occurs where the output of one entity acts as a negative input into one or more other entities without accompanying payment of compensation. Negative outputs are referred to as negative externalities.

Principle 5 emphasises the promotion of mechanisms to internalise the costs of negative externalities. The rationale for this is if the real value of environmental resources is included in the total costs for using those resources, then environmental resources will be more sustainably used, and the risk of exploitation will be reduced.

GUIDANCE TO ASSIST INTERPRETATION OF PRINCIPLE

The element in relation to Principle 5 subject to most guidance relates to the 'polluter pays' principle. This principle is the best-known means for internalising external environmental costs. The principle says that those who generate pollution and waste should bear the costs of containment, avoidance or abatement (Preston, 2016).

Under this principle, the polluter should pay for the costs of (Preston, 2016):

- Preventing pollution or reducing pollution to comply with relevant laws and standards
- Preventing, controlling, abating and mitigating pollution
- Making good any environmental damage caused by pollution
- Making reparation (including compensatory damages and compensatory restoration) for irremediable injury

Evaluation of the Plan in relation to Principle 5 is based on considering whether the Plan has developed mechanisms to achieve internalisation of negative externalities associated with the development under the Plan.

EVALUATION OF PRINCIPLE

The Plan is generally consistent with Principle 5 of ESD as environmental factors have been included in the valuation of assets and services. This has been achieved through:

- Applying the polluter pays principle
- Achieving environmental goals in cost-effective ways

Polluter pays principle

The conservation framework under the Plan includes commitments to:

- Avoid areas of high biodiversity value (preventing or reducing 'pollution')
- Mitigate threats (controlling, abating and mitigating 'pollution')
- Offset impacts (making good any environmental damage caused by 'pollution')

The Plan is consistent with the polluter pays principle as the City proposes to establish funding arrangements to fully recover the costs of conservation from developers (a biodiversity levy) within the Growth Areas.

These arrangements will ensure those who generate 'pollution and waste' bear the costs of 'containment, avoidance or abatement' by imposing the costs of conservation on developers.

Cost-effective environmental goals

The Plan achieves environmental goals to minimise the costs of development and maximise benefits to biodiversity by:

- Using a strategic assessment process to assess and approve the Plan
- Using an existing market-based mechanism to help deliver the conservation framework
- Identifying priority conservation areas to maximise benefits to biodiversity at least cost

Strategic assessments provide a cost-effective mechanism to assess and seek approval for development. Access Economics undertook a cost-benefit analysis of seven strategic assessments based on net present value (NPV) over a 30-year period (2010-11 to 2039-40), comparing site-by-site assessment processes with the alternative strategic assessment process. The analysis (Access Economics, 2011) found that strategic assessments provide a net benefit of:

- $4.5 million for the Australian Government
- $0.57 million for State governments
- $5.92 billion for developers, reflecting the commercial benefits from reducing uncertainty, risk and delays

Across all entities, the NPV of the net benefit for the seven programs was estimated as $5.93 billion.

Use of market-based mechanisms

The Plan proposes to use an existing market-based mechanism under Victorian regulations to deliver a substantial part of the conservation framework through on-title biodiversity security agreements with landholders. This approach ensures efficient delivery of offsets because:

- Land is not required to be purchased – land purchase is expensive in the Greater Geelong area
- The process is competitive – the City is more likely to enter into security agreements with landholders who can deliver conservation outcomes at the least cost (where other factors are equal)
- Security agreements are voluntary, meaning that only willing landholders, who may be more likely to deliver conservation outcomes effectively, will participate in the process

Strategic offsets to maximise benefits

The City considered a number of options for delivering the offsets for the project. The approach to strategic offsetting that is incorporated into the Plan performed the best against a range of evaluation criteria. This is expected to maximise biodiversity benefits at the most cost efficient manner compared to what would happen under a normal project-by-project development scenario.

29 Evaluation of the Plan's adequacy

29.1 INTRODUCTION

The ToR includes requirements for evaluating the adequacy and acceptability of the Plan in the context of the impacts of the development and in accordance with the regulatory requirements of the EPBC Act.

The main requirements for evaluating the Plan are in clauses 5 and 7 of the ToR. These require the SAR to evaluate:

- The overall outcomes, commitments and measures for protected matters, taking into account the likely impacts on protected matters from the development under the Plan (clause 5)
- The adequacy of the Plan's assurance and implementation framework in providing best practice monitoring programs, regular review, public reporting and independent auditing processes (clause 7)

For each of these requirements, the ToR sets out specific matters that must be considered in undertaking the evaluation.

Other evaluation-related requirements of the ToR are included in:

- Clause 4.5(c)(d) – this requires an analysis of the adequacy and likely effectiveness of the outcomes, commitments and measures under the Plan in protecting MNES
- Clause 6.1(d) – this requires analysis of the capacity to implement the Plan

Table 29-1 summarises the evaluation requirements of the ToR and identifies where they are addressed in the SAR.

This Chapter addresses the evaluation requirements of the ToR, and is structured as follows:

- Extent of MNES in the Strategic Assessment Area and in areas to be protected
- How the long-term protection of MNES will be ensured
- Effectiveness of the outcomes, commitments and measures in protecting MNES
- How the Plan addresses vulnerabilities of protected matters to climate change
- Adequacy of the Plan's assurance and implementation framework
- How the Plan meets the Endorsement Criteria in the Strategic Assessment Agreement
- Conclusion

The ToR also requires the SAR to identify key uncertainties and risks associated with implementing the Plan, responses to these and proposed adaptations to changing circumstances (ToR, clause 6.1). This is addressed in Chapter 14.

Table 29-1: Summary of the evaluation requirements of the ToR

ToR evaluation requirement	Section of SAR
5. EVALUATION OF THE OVERALL OUTCOMES OF THE PLAN ***5.1. The Report must evaluate the overall outcomes, commitments and measures for protected matters taking into account likely impacts on protected matters from actions proposed to be taken under the Plan.*** ***5.2. The evaluation must include:***	
a) The extent to which protected matters are represented in the Strategic Assessment Area	Section 29.2
b) The extent to which protected matters are represented in areas to be protected or managed under the Plan	
c) The extent to which any areas to be protected or managed under the Plan will ensure the long-term protection of each protected matter and the ongoing function of any key ecosystem services needed for the ongoing viability of protected matters	Section 29.3
d) The extent to which the outcomes, commitments and measures under the Plan address any significant vulnerabilities of protected matters under reasonable climate change scenarios	Section 29.5

ToR evaluation requirement	Section of SAR
e) The likely effectiveness of the outcomes, commitments and measures under the Plan in protecting and managing protected matters and any risks and uncertainties	Section 29.4
f) An assessment of how the Plan meets the endorsement criteria, as set out in Attachment 2 of the Strategic Assessment Agreement	Section 29.7
7. ASSURANCE AND IMPLEMENTATION FRAMEWORK ***7.1. The Report must include an evaluation of the adequacy of the Plan's Assurance and Implementation Framework which describes the best practice monitoring programs, regular review, public reporting and independent auditing processes proposed to:***	
a) Ensure outcomes, commitments and measures for protected matters contained in the Plan are documented, delivered and adequately resourced throughout the life of the Plan	Section 29.6
b) Ensure the results of monitoring will be used to understand the effectiveness of commitments and measures for protected matters and improve implementation, in particular, to adapt where monitoring demonstrates delivery of commitments and measures are not leading to desired outcomes or where there are risks to protected matters	
c) Ensure new information relating to protected matters, including legislative changes, may be assessed and accounted for in implementation of the Plan	
d) Provide mechanisms that track persons who are relying on a strategic assessment approval to take an action and ensure persons undertaking actions are informed of their obligations under the endorsed Plan and approval	
e) Ensure compliance with the Plan will be monitored and non- compliance will be reported	
f) Provide for a 5-yearly assurance review and report	
7.2. The Report must include an evaluation of the Plan's framework for monitoring actions taken under the Plan and addressing the responsibilities of the Minister and City of Greater Geelong as to these matters.	
4. ASSESSMENT OF THE IMPACTS OF THE PLAN ON PROTECTED MATTERS ***4.5. The Report must include an analysis of the conservation benefits (beneficial impacts) of the Plan, including:***	
c) The adequacy and likely effectiveness of the outcomes, commitments and measures under the Plan in protecting and managing protected matters, including the effectiveness of implementation, funding arrangements and who will be responsible for delivery	Section 29.4 and Section 29.6
d) Available evidence to support conclusions reached regarding the effectiveness of the outcomes, commitments and measures identified in the Plan	Section 29.4
6. ADDRESSING UNCERTAINTY AND RISK ***6.1. The Report must identify key uncertainties and risks associated with implementing the Plan, responses to these and proposed adaptations to changing circumstances. Key uncertainties may include:***	
d) The capacity to ensure the Plan is implemented	Section 29.6

29.2 EXTENT OF MNES

29.2.1 INTRODUCTION

The ToR requires the SAR to include an evaluation of the presence of MNES within the Strategic Assessment Area and the conservation areas to be protected under the Plan (see Table 29-1).

This section identifies the extent to which relevant protected matters occur within the:

- Strategic Assessment Area
- Areas to be protected or managed under the Plan

29.2.2 MNES OCCURRENCE WITHIN THE STRATEGIC ASSESSMENT AREA

Of the 29 protected matters relevant to implementation of the Plan, 20 occur within the Strategic Assessment Area. Of these, 5 are known to occur within the Growth Areas (noting Adamson's Blown-grass only has historical records in the WGGA).

Table 29-2 outlines the extent of threatened species within the Strategic Assessment Area and Growth Areas. Table 29-3 outlines the extent of TECs, Ramsar wetlands, and migratory species within the Strategic Assessment Area and Growth Areas.

Table 29-2: The extent of threatened species within the Strategic Assessment Area and the Growth Areas

Name	Cth listing	Presence within the Strategic Assessment Area		Presence within the Growth Areas	
		Records	Habitat (ha)	Records	Habitat (ha)
Threatened flora					
Adamson's Blown-grass (*Lachnagrostis adamsonii*)	Endangered	9	118.4**	2*	4.9
Spiny Rice-flower (*Pimelea spinescens* subsp. *spinescens*)	Critically Endangered	1	706	0	0
Threatened fauna					
Australasian Bittern (*Botaurus poiciloptilus*)	Endangered	0	40.9	0	0
Australian Fairy Tern (*Sternula nereis nereis*)	Vulnerable	0	5.1	0	0
Australian Grayling (*Prototroctes maraena*)	Vulnerable	0	12.8	0	3.5
Australian Painted Snipe (*Rostratula australis*)	Endangered	0	42.4	0	0
Blue-winged Parrot (*Neophema chrysostoma*)	Vulnerable	0	N/A^	0	N/A^
Curlew Sandpiper (*Calidris ferruginea*)	Critically Endangered, Migratory	0	12.4	0	0
Eastern Curlew (*Numenius madagascariensis*)	Critically Endangered, Migratory	0	3.9	0	0
Eastern Dwarf Galaxias (*Galaxiella pusilla*)	Vulnerable	0	12.8	0	3.5
Golden Sun Moth (*Synemon plana*)	Vulnerable	>2000	879.9**	>2000	766.3**
Great Knot (*Calidris tenuirostris*)	Critically Endangered, Migratory	0	0	0	0
Greater Sand Plover (*Charadrius leschenaultii*)	Vulnerable, Migratory	0	0.5	0	0
Growling Grass Frog (*Litoria raniformis*)	Vulnerable	54	256.3**	50	4.9
Lesser Sand Plover (*Charadrius mongolus*)	Endangered, Migratory	0	2.2	0	0
Orange-bellied Parrot (*Neophema chrysogaster*)	Critically Endangered	0	2.8	0	0

Name	Cth listing	Presence within the Strategic Assessment Area		Presence within the Growth Areas	
		Records	Habitat (ha)	Records	Habitat (ha)
Red Knot (*Calidris canutus*)	Endangered, Migratory	0	5.6	0	0
Striped Legless Lizard (*Delma impar*)	Vulnerable	46	328.3**	45	227.1**
Western Alaskan Bar-tailed Godwit (*Limosa lapponica baueri*)	Vulnerable	0	12.4	0	0
Yarra Pygmy Perch (*Nannoperca obscura*)	Vulnerable	0	31.4	0	3.5

*These are historical records of Adamson's Blown-grass in the Growth Areas and there are no current records

**The extent of habitat for these species is comprised of DELWPs modelled habitat (DELWP, 2017) within unsurveyed areas of the Growth Areas and Strategic Assessment Area, and mapped habitat within surveyed areas (EHP, 2021)

^There is no habitat mapping available for the Blue-winged Parrot. Refer to the detailed impact assessment in chapter 19 for a description of potential habitat in the Study Area

Table 29-3: The extent of TECs, Ramsar wetlands, and migratory species in the Strategic Assessment Area

Name	Cth listing	Presence within the Strategic Assessment Area
Threatened ecological communities		
Natural Temperate Grassland of the Victorian Volcanic Plain	Critically Endangered	An estimated 27– 75.5 ha of the TEC may occur within the Strategic Assessment Area and unsurveyed areas of the NGGA based on the proportion of modelled EVC 132 (DELWP, 2005) which may comprise the TEC (see Chapter 21 for details) An additional 12.7 ha of the TEC has been mapped to occur within the surveyed areas of the Growth Areas
Ramsar wetlands		
The Port Phillip Bay (Western Shoreline) and Bellarine Peninsular Ramsar site	N/A	Areas of the Ramsar site occur outside of the Strategic Assessment Area
Migratory species		
Common Greenshank (*Tringa nebularia*)	Migratory	No habitat mapping available, no records within the Strategic Assessment Area
Double-banded Plover (*Charadrius bicinctus*)	Migratory	No habitat mapping available, no records within the Strategic Assessment Area
Latham's Snipe (*Gallinago hardwickii*)	Migratory	No habitat mapping available, 1 record within the Strategic Assessment Area
Little Tern (*Sternula albifrons*)	Migratory	No habitat mapping available, no records within the Strategic Assessment Area
Marsh Sandpiper (*Tringa stagnatilis*)	Migratory	No habitat mapping available, no records within the Strategic Assessment Area
Red-necked Stint (*Calidris ruficollis*)	Migratory	No habitat mapping available, no records within the Strategic Assessment Area
Sharp-tailed Sandpiper (*Calidris acuminata*)	Migratory	No habitat mapping available, no records within the Strategic Assessment Area

29.2.3 MNES OCCURRENCE IN AREAS TO BE PROTECTED OR MANAGED UNDER THE PLAN

There are two key areas that will be protected and managed under the Plan, in addition to offsets sites outside of the Growth Areas but within the broader Victorian Volcanic Plain bioregion. These two areas are:

- NGGA Conservation Area (avoided land and an offset within the NGGA)
- Cowies Creek Conservation Area (avoided land within the WGGA)

Of the 20 protected matters which occur within the Strategic Assessment Area, 5 are known to occur within the Growth Areas (noting Adamson's Blown-grass only has historical records in the WGGA). These include:

- Adamson's Blown-grass (*Lachnagrostis adamsonii*)
- Golden Sun Moth (*Synemon plana*)
- Growling Grass Frog (*Litoria raniformis*)
- Natural Temperate Grassland of the Victorian Volcanic Plain
- Striped Legless Lizard (*Delma impar*)

Table 29-4 outlines the extent of these threatened species and the TEC within the conservation areas to be protected under the Plan, as well as the offset targets for these matters under the Plan.

Table 29-4: The extent of TECs within the Growth Areas and the conservation areas, and the offset targets

Name	Cth listing	Habitat within the Growth Areas (ha)	Habitat within conservation areas under the Plan (ha)	Offset target (ha)
Threatened flora				
Adamson's Blown-grass (*Lachnagrostis adamsonii*)	Endangered	4.9	4.9	0
Threatened fauna				
Golden Sun Moth (*Synemon plana*)	Vulnerable	766.3	108.6	585
Growling Grass Frog (*Litoria raniformis*)	Vulnerable	4.9	4.9	0
Striped Legless Lizard (*Delma impar*)	Vulnerable	227.1	73.7	375
Threatened ecological communities				
Natural Temperate Grassland of the Victorian Volcanic Plain	Critically Endangered	18.6	0	45

29.3 LONG-TERM PROTECTION OF MNES

The ToR requires the SAR to include an evaluation of how the Plan will ensure long-term protection of protected matters (see Table 29-1).

This Section provides an analysis of how the avoidance of impacts, conservation areas, and the offset sites that will be protected and managed under the Plan will ensure the long-term protection of each protected matter, and the ongoing function of any key ecosystem services needed for the ongoing viability of protected matters.

29.3.1 CONTEXT AND APPROACH

Large areas of grasslands and woodland in the Victorian Volcanic Plain bioregion, including the SAA, have been historically removed or degraded primarily for agricultural activities (DSE, 2003; EHP, 2021). The Growth Areas currently do not contain any formal conservation reserves and most native vegetation remains in areas not subject to historical clearing and within riparian corridors. Native vegetation that remains on agricultural land is typically highly modified and degraded, providing relatively low biodiversity value (EHP, 2021).

The Plan includes a number a of commitments that will help ensure the long-term protection of MNES in the Strategic Assessment Area and wider Victorian Volcanic Plain bioregion. This includes commitments for avoidance, mitigation and offsetting, and commitments to ensure that conservation under the Plan is adequately implemented.

There are two key areas that will be protected and managed under the Plan, in addition to offsets sites outside of the SAA but within the broader Victorian Volcanic Plain bioregion. These two areas are:

- NGGA Conservation Area (avoided land and an offset within the NGGA)
- Cowies Creek Conservation Area (avoided land within the WGGA)

Details of the conservation framework (including the conservation areas and offsets) to be implemented for the Plan are provided in Part 2 of the SAR.

In order to evaluate how the commitments relevant to conservation and offsets will ensure the ongoing protection of protected matters, a range of key factors need to be considered. These include:

- The extent of habitat for threatened species and TECs that is protected, particularly for those most at risk from development under the Plan (this is addressed in Section 29.2)
- The offsets provided and their protection
- When protection is provided
- The size, shape and location of the areas to be protected
- Landscape connectivity including habitat corridors and riparian areas
- Management of key threatening processes and landscape scale threats, such as weeds and pests

The analysis provided in this section is therefore focussed on the following components:

- Offsets provided under the Plan, including the NGGA Conservation Area
- Landscape connectivity and benefits of Cowies Creek Conservation Area
- Management of key threats across the landscape

29.3.2 OFFSETS PROVIDED UNDER THE PLAN, INCLUDING NGGA CONSERVATION AREA

The Plan's commitments for offsetting are set out in Table 29-5.

Table 29-5: Commitments for offsetting under the Plan

No.	Commitment
3	The NGGA Conservation Area will be established in perpetuity to avoid and protect 74 ha of habitat for Striped Legless Lizard and 108 ha of habitat for Golden Sun Moth
4	A Conservation Management Plan will be prepared and implemented for the protection and ongoing management of Striped Legless Lizard and Golden Sun Moth within the NGGA Conservation Area
10	Offset sites will be established in strategic locations to protect and manage a minimum of the following amounts of habitat to support the following MNES: • 45 ha of Natural Temperate Grassland • 375 ha of habitat for Striped Legless Lizard • 585 ha of habitat for Golden Sun Moth
11	Within the first five years of Plan implementation the City of Greater Geelong will secure the following offsets at a minimum: • 100% of the offset requirement for Natural Temperate Grassland • 70% of the offset requirement for Striped Legless Lizard • 50% of the offset requirement for Golden Sun Moth
12	Offset delivery will keep pace with and occur ahead of impacts within the NGGA

No.	Commitment
14	Unavoidable clearing of any areas confirmed through surveys to support MNES within the external infrastructure footprints will be offset in accordance with the EPBC Act Environmental Offsets Policy (DSEWPC, 2012) and associated Offsets Assessment Guide (or equivalent)

The offsets package was developed to provide strong, positive outcomes for MNES by:

- Ensuring offsets are in accordance with the principles of the EPBC Act Environment Offsets Policy (DSEWPC, 2012)
- Maximising the opportunities that are provided by taking a strategic approach to offsetting rather than the usual site-by-site approach
- Mitigating the risks associated with strategic offsetting

A full description of the offsets package is provided in Appendix C to the BCS.

PRINCIPLES OF THE EPBC OFFSETS POLICY

The EPBC Act environmental offsets policy (DSEWPC, 2012) outlines the Australian Government's approach to the use of biodiversity offsets under the Act. The policy establishes ten principles for offsetting.

Clause 3(d) of the endorsement criteria for the EPBC Plan states that "*The Plan must… provide for appropriate offsets in accordance with the principles of the EPBC Act Environment Offsets Policy…*".

The offset package meets the principles of the EPBC offset policy. An analysis of how the offset package meets these principles is set out in Table 29-6 (this table is taken and adapted slightly from Appendix C to the BCS).

Table 29-6: Evaluation of the offset package against the principles of the EPBC offset policy

EPBC offset principles	How the offsets package meets each principle
Suitable offsets must:	

1. Deliver an overall conservation outcome that improves or maintains the viability of the aspect of the environment that is protected by national environment law and affected by the proposed action	The offset package will help deliver an overall conservation outcome that improves or maintains the viability of NTG, SLL and GSM. This is based on:
	• The focus on direct offsets (as per Principle 2) which provides the most tangible conservation gains for MNES
	• Delivery of the offsets by the City as part of a coordinated program (as per Principle 8) which will ensure efficient, effective, timely, and transparent outcomes (as per Principle 7)
	• Appropriate area targets for each MNES that:
	  o Consider conservation status (as per Principle 3)
	  o Are proportionate to the size and scale of residual impacts (as per Principle 4)
	  o Account for the risk of offsets not succeeding (as per Principle 5)
	• Consideration of the predicted average quality of the offset sites
	• Delivery of offsets that are additional to what is already required (as per Principle 6)
	• The landscape nature of the offset package which improves the conservation outcome of offsets. This includes focusing on sites that:
	  o Will protect areas of habitat that would be considered large for each MNES
	  o Are located within a key biodiversity corridor and improves connectivity across the landscape
	  o Connect to an existing conservation reserve
	• The focus on early offsetting for each MNES which will provide the conservation benefits of substantial advanced offsetting
	• The fact that testing and validation of the offset targets using the offset calculator showed that the targets are appropriate and sit within the range of what would be potentially required if the strategic assessment was not in place and offsets were applied under Part 9 of the Act
	This meets Principle 1.

2. Be built around direct offsets but may include other compensatory measures	The offset package is entirely based on direct offsets. This meets Principle 2.

EPBC offset principles	How the offsets package meets each principle
3. Be in proportion to the level of statutory protection that applies to the protected matter	The offsets are proportional to the conservation status of each of the MNES. Both the area and early delivery targets were developed with consideration of conservation status. Where a higher status (e.g., critically engendered versus vulnerable) led to proportionally higher area targets and a greater emphasis on early offsets. While the offset calculator was not used to develop the targets, it was used to test and validate the targets (as described in Appendix C to the BCS). The calculator uses conservation status to help determine the appropriate level of offsets, and the results of the testing confirm that the area targets are appropriate and sit within the range of what would be potentially required if the strategic assessment was not in place and offsets were applied under Part 9 of the Act. This meets Principle 3.
4. Be of a size and scale proportionate to the residual impacts on the protected matter	The offsets are proportionate in size and scale to the residual impacts to NTG, SLL and GSM. This is reflected by the area targets for each MNES which were developed against the criteria set out in Appendix C to the BCS. These criteria included: • The scale and quality of the residual impacts to each MNES. These impacts are described and assessed fully in the SAR • The conservation status for each MNES • The conservation outcome that is required to improve or maintain the viability of each MNES This meets Principle 4.
5. Effectively account for and manage the risks of the offset not succeeding	The offsets package accounts for and manages the risks of the offsets not succeeding. These risks are set out in Appendix C to the BCS and are mitigated through the design of the package. In particular, key aspects of risk mitigation include: • An appropriate funding framework and program to ensure the offsets can be purchased • Analysis of the availability of offsets that provides confidence in the ability to implement the package, combined with a set of contingency steps to ensure offsets are delivered if challenges arise in implementation • An appropriate governance framework to ensure implementation is successful • Mechanisms to maintain the values of the NGGA Conservation Area prior to it being secured This meets Principle 5.
6. Be additional to what is already required, determined by law or planning regulations or agreed to under other schemes or programs (this does not preclude the recognition of state or territory offsets that may be	The proposed offsets are all additional to what is already required. This includes: • The NGGA Conservation Area which will be protected and managed as a conservation reserve in-perpetuity. This was not planned prior to the commencement of the strategic assessment • The external offset sites which will only be selected where they don't have an existing level of protection This meets Principle 6.

EPBC offset principles	How the offsets package meets each principle
suitable as offsets under the EPBC Act for the same action, see section 7.6)	
7. Be efficient, effective, timely, transparent, scientifically robust and reasonable	The offset package is designed to be efficient, effective, timely, transparent, scientifically robust and reasonable as follows: • The package is based on scientifically robust information about each MNES (as set out in the SAR) and about the potential offsets sites. Further scientific information will be collected during implementation to help establish, monitor and manage sites • The commitments and measures to deliver the offsets package meet the SMART principle (Specific, Measurable, Achievable, Relevant, and Time-Bound). This ensures that there is clarity around the implementation of the package and that the offsets will be efficient, effective and timely • The process to develop the offset package is transparent (as discussed for Principle 10) and implementation of offsets will be based on transparent governance, monitoring and reporting (as discussed for Principle 8) • The offset package is designed to provide a positive conservation outcome for MNES and be reasonable to fund and deliver. Testing and validation of the offset targets using the offset calculator showed that the targets are appropriate (and reasonable) and sit within the range of what would be potentially required if the strategic assessment was not in place and offsets were applied under Part 9 of the Act This meets Principle 7.
8. Have transparent governance arrangements including being able to be readily measured, monitored, audited and enforced	As discussed in Appendix C to the BCS, implementation of the offset package is supported by appropriate governance, monitoring, and reporting arrangements. This meets Principle 8.

EPBC offset principles	How the offsets package meets each principle
In assessing the suitability of an offset, government decision-making will be:	
9. Informed by scientifically robust information and incorporate the precautionary principle in the absence of scientific certainty	This principle is largely a matter for DCCEEW as it relates to government decision-making. However, preparation of the documents for the strategic assessment (including the offsets package) is based on scientifically robust information and processes. In addition, the precautionary principle has been applied appropriately to the project as set out in Part 5 of the SAR. This meets Principle 9.
10. Conducted in a consistent and transparent manner	This principle is largely a matter for DCCEEW as it relates to government decision-making. However, the City is working with stakeholders throughout the strategic assessment to ensure transparency and the project will meet all of its statutory obligations around consultation. This meets Principle 10.

STRATEGIC OFFSETS

Strategic assessments offer a range of opportunities to design and implement an offset package that achieves better conservation outcomes than can be achieved through site-by-site assessments. The EPBC Act Guide to Undertaking Strategic Assessments (DSEWPC, 2011) states that the advantages of strategic assessments include the:

- *"Capacity to achieve better environmental outcomes and address cumulative impacts at the landscape level*
- *Coordinated establishment and management of offsets"*

Conservation planning science supports the potential benefits of strategic approaches to offsetting. In particular, improved conservation outcomes (compared to site-by-site projects) that are driven by the opportunities to secure offsets:

- Earlier than would be delivered through site-by-site assessments which helps promote greater improvements to biodiversity (e.g., by the earlier management of threats)
- With better landscape context which also improves conservation outcomes. For example, larger sites and/or sites that are located strategically to enhance biodiversity (e.g., within a biodiversity corridor or adjacent to an existing reserve)

These two factors lead to improved conservation outcomes over time. For example, modelling of the potential benefits of strategic offsetting (early, well located) in a grassland context similar to Geelong showed approximately a 40% better conservation outcome when compared to normal site-by-site offsetting (Gordon *et al.*, 2011). It is important to note that this assumed all offsets being delivered at the commencement of the modelling period.

The offsets package was developed with an emphasis on both:

- Advanced offset delivery: delivery of a significant proportion of the offsets early in the life of the Plan
- Spatially planned offsets: securing offsets in larger sites and in strategic locations of the landscape

Advanced offset delivery

The Commonwealth policy advice places a higher value on offsets that are delivered in advance, termed 'advanced environmental offsets' in *EPBC Environmental Offsets Policy* (the Offsets Policy) (Commonwealth of Australia, 2012a). The Offsets Policy states that advanced environmental offsets deliver a conservation gain within a shorter period and can reduce the overall offset requirements for a project (Commonwealth of Australia, 2012a). The Commonwealth also provides the *Advanced environmental offsets under the EPBC Act* policy statement (the Advanced Offset Policy) (DoEE, 2017), which describes in detail what advanced environmental offsets are and how to use them.

The *Offsets assessment guide* specifically outlines how advanced environmental offsets can improve environmental outcomes compared to status quo offset delivery (see Table 29-7). By prioritising delivery of a large proportion of offsets in advance (within 5 years), the Plan is ensuring that exiting MNES populations and habitat are protected in perpetuity early in the life of the Plan. The risk of loss due to continuing clearance or degradation of habitat is therefore reduced. Additionally, management of the conservation areas and offsets can begin earlier, providing advanced ecological benefits to key ecosystem services needed for the ongoing viability of protected matters.

Table 29-7: Components of the *Offsets assessment guide* which can improve environmental outcomes through the use of advance environmental offsets (Commonwealth of Australia, 2012b)

Offset assessment component	How advanced offsets improve environmental outcomes
Time over which loss is averted (risk-related time horizon)	Is defined as, *"the foreseeable timeframe (in years) over which changes in the level of risk to a proposed offset site can be considered and quantified."* Longer timeframes are better as the conservation measures and protection of the offset sites will be maximised. Advanced environmental offsets can maximise this timeframe as offsets are established earlier.
Time until ecological benefit	Is defined as, *"the estimated time (in years) that it will take for the habitat quality improvement of the proposed offset to be realised."* Shorter time frames are better because ecological benefits will be realised sooner. Advanced environmental offsets can shorten the timeframe to ecological benefit.

Offset assessment component	How advanced offsets improve environmental outcomes
Risk of loss	Is defined as, *"a percentage figure that describes the chance that the habitat on the proposed offset site will be completely lost (i.e., no longer hold any value for the protected matter) over the foreseeable future (either the life of the offset or 20 years, whichever is shorter)."* The establishment of offsets can reduce the risk of habitat loss in the offset sites, as the areas may have otherwise been unprotected and not subject to management. Advanced environmental offsets can therefore reduce the risk of loss as they are secured and protected earlier.

Spatially planned offsets

Strategic offsets also offer an advantage as they can be spatially planned as one combined offsets package. Establishing the offsets as one package allows the offset site locations to be chosen in a complimentary way, both in relation to each other and the surrounding region. This can lead to landscape benefits that may not be achieved through status quo delivery of offsets as these offsets are typically determined individually, over a long period of time, without or with little consideration of the broader landscape. Landscape factors that can be considered during spatial planning of strategic offsets include:

- Size of the offset land
- Location of the offset site in relation to biodiversity corridors
- Connection of the offset site to existing conservation areas

Each of these factors and their potential benefits is discussed below.

Size of the offset land

There are well established relationships between the size of a patch of native vegetation and the size and persistence of populations, with large patches generally supporting more persistent populations than smaller patches (Margules and Pressey, 2000). There are also relationships between the size of a patch and species richness, species dispersal, genetic diversity, persistence of large vertebrates, maintenance of near-natural disturbance regimes, and other important ecological functions (Lindenmayer *et al.*, 2007; Hodgson *et al.*, 2009).

Although some species can maintain function between patches of habitat, other less mobile species benefit from larger patches of retained vegetation. Additionally, larger sites are often less impacted by fragmentation and edge effects, and therefore are at a reduced risk of degradation and loss, which in turn improves ecological outcomes and long-term protection of environmental values.

Location of the offset site

Location of the offset sites can also influence the overall environmental outcomes. If offset sites are strategically placed within the landscape, they can help maintain or even improve connectivity across the landscape. Landscape connectivity benefits genetic diversity and dispersal of fauna across the landscape, leading to wider improvements in population and ecosystem heath and improving the long-term protection of environmental values.

Connection of the offset site to existing conservation areas

In some cases, offset sites can be located adjacent to existing conservation areas, such as state reserves or national parks. This improves ecological outcomes as it increases the patch size of the vegetation and allows for existing species and ecosystems within the conservation area to populate the offset site. Management and protection of the offset site may also be more immediate and effective as the site can be consolidated into the existing conservation area that is already subject to greater protection and management.

Strategic site selection

The City's approach to strategic site selection is designed to address these factors.

The NGGA Conservation Area was designed to capture larger habitat patches in strategic locations in the landscape to maximise likely benefits to biodiversity values (see Part 2). This included habitat patches adjacent to existing patches, or patches connecting or contiguous with other patches of habitat.

Additionally, when determining the offset sites outside the SAA to secure the remaining offsets, sites will be selected that meet at least one of the following strategic landscape criteria:

- Protection of areas of habitat that would be considered large for each MNES
- Located within a key biodiversity corridor and improves connectivity across the landscape
- Connection to an existing conservation reserve

Therefore, by undertaking strategic site selection, the long-term protection of MNES, and the ongoing function of key ecosystem services are maximised.

The City will coordinate offset delivery on behalf of developers, which will help ensure that the offsets are delivered in a strategic manner. The City will also develop strategic landscape criteria to guide the targeting of land suitable for strategic offsets, identify priority offset locations that meet at least one of these criteria, and establish a work program to engage with landholders within those areas to seek agreement to establishing offset sites on their land.

29.3.3 LANDSCAPE CONNECTIVITY OF COWIES CREEK CONSERVATION AREA

As discussed above, offset sites including the NGGA Conservation Area are strategically planned within the landscape to help maximise landscape connectivity. Improved landscape connectivity can lead to population and ecosystem health benefits and improve the long-term protection of environmental values.

Although the Cowies Creek Conservation Area does not function as an offset for the Plan, it still provides for the long-term protection of MNES and ecosystem function. The avoided land contained within the Cowies Creek Conservation Area will be protected and managed early in the life of the Plan (within 5 years) and was selected following the same strategic site selection processes for the offset sites.

Cowies Creek Conservation Area is comprised of a riparian corridor that contains vegetation and various habitat values to MNES. By avoiding and protecting this area, connectivity across the landscape is maintained. Connectivity between populations of Growling Grass Frog is vital for their long-term protection and persistence in the region (see Chapter 19). Riparian corridors are also used by several other species which will therefore also benefit from the ongoing protection of these areas and the ecosystem services they provide.

29.3.4 MANAGING KEY THREATS

The Victorian Volcanic Plain bioregion is subject to range of existing landscape scale threats that will continue to be exacerbated if not adequately managed. The threatening processes that are impacting biodiversity values within the Strategic Assessment Area and surrounding landscape include:

- Habitat loss and fragmentation – given the large amount of historical clearing, protecting and/or restoring remaining areas of native vegetation is important for any future conservation efforts (DSE, 2003)
- Invasive weeds – the Growth Areas contain a high density of weeds and introduced pasture which pose a threat to multiple threatened species either through habitat competition or habitat degradation (DELWP, 2020; EHP, 2021)
- Pest animals – pests including rabbits, hares and foxes are present within the region and pose a threat to multiple threatened species, either through predation, competition or habitat degradation (DELWP, 2020; EHP, 2021)
- Water system modification – all the major watercourses within the Geelong region have experienced environmental impacts from development. These impacts include barriers to movement, changes to hydrological flows, decreased water quality, erosion and degradation of riparian vegetation (Corangamite CMA, 2014; DELWP, 2021)
- Recreational disturbance – recreational activities in estuarine and coastal environments can impact these environments, particularly waterbirds and migratory birds which occur in coastal environments and within the Port Phillip Bay (Western Shoreline) & Bellarine Peninsula Ramsar site (DELWP, 2020)
- Climate change – impacts of climate change are likely to increase in the future, affecting biodiversity through processes such as more intense and longer bushfire seasons and increased drought and flooding (DELWP, 2019)

The impacts and threats identified under the Plan have also been considered with regards to Key Threatening Processes (KTPs) identified under the EPBC Act. The KTPs relevant to the Plan include:

- Land clearance
- Competition and land degradation by rabbits
- Competition and land degradation by unmanaged goats
- Fire regimes that cause declines in biodiversity
- Infection of amphibians with chytrid fungus resulting in chytridiomycosis
- Loss and degradation of native plant and animal habitat by invasion of escaped garden plants
- Novel biota and their impact on biodiversity
- Predation by feral cats
- Predation by European red fox
- Predation, habitat degradation, competition and disease transmission by feral pigs

The Plan recognises that the effective management of landscape scale threats and KTPs is critical to the success of the conservation program under the Plan and the long-term protection of MNES. A range of commitments are therefore provided under the Plan to reduce threats to conservation areas and offsets secured within the bioregion, including:

- Continuing to implement standard mitigation measures to minimise the indirect impacts of the development in accordance with the requirements of the Greater Geelong Planning Scheme
- Implementing specific mitigation measures to minimise the indirect impacts of the development on protected matters associated with waterways, riparian areas and wetlands including:
    - EPBC listed threatened and migratory birds
    - *Galaxiella toourtkoourt* (Little Galaxias)
    - *Litoria raniformis* (Growling Grass Frog)
    - *Nannoperca obscura* (Yarra Pygmy Perch)
    - *Prototroctes maraena* (Australian Grayling)
    - *Lachnagrostis adamsonii* (Adamson's Blown-grass)
    - Port Phillip Bay (Western Shoreline) and Bellarine Peninsula Ramsar site
- Implementing specific mitigation measures to minimise the indirect impacts of the development on the NGGA Conservation Area and Cowies Creek Conservation Area, including:
    - Establishing a conservation interface for the conservation areas
    - Designing and baffling public lighting to prevent light spill and glare within the Cowies Creek Conservation Area
    - Preparing and implementing Construction Environmental Management Plans for construction works on land immediately adjacent to the conservation areas

The mitigation processes under these commitments will be undertaken throughout the implementation of the Plan and will help ensure threats to MNES across the landscape are effectively managed in the long term and ensure the success of conservation areas and offsets established under the Plan.

29.3.5 CONCLUSION

The analysis provided in this section suggests that the commitments and approach to conservation under the Plan will ensure the long-term protection of protected matters and the ongoing function of key ecosystem services needed for the ongoing viability of protected matters. The key mechanisms to ensure this are:

- Protection of offset sites in perpetuity
- The use of strategic offsets to maximise ecological benefit and protection as early as possible
- Maintaining long-term connectivity of high-ecological value riparian zones in the Cowies Creek Conservation Area
- Managing threats to protected matters across to landscape

29.4 EFFECTIVENESS OF THE OUTCOMES, COMMITMENTS AND MEASURES

The ToR requires the SAR to include an evaluation of the adequacy and likely effectiveness of the outcomes, commitments and measures in protecting MNES.

The outcomes, commitments and measures are considered adequate and likely to effectively protect MNES as they:

- Set a high standard of protection for MNES
- Are set within a program logic framework
- Are consistent with the offset mitigation hierarchy

This section addresses the requirements of the ToR under these headings.

29.4.1 SET A HIGH STANDARD OF PROTECTION FOR MNES

The outcomes of the Plan are considered adequate because they set a high standard of protection for MNES consistent with the objectives of the EPBC Act as well as the draft National Environmental Standards for MNES recommended in the Final Report of the Independent Review of the EPBC Act (Professor Graeme Samuel AC, 2020).

The Plan includes two outcomes for MNES that will be directly impacted by the development. These are that:

- *Populations of Golden Sun Moth and Striped Legless Lizard are maintained within the NGGA Conservation Area* (Outcome 1)
- *The protection and management of land outside of the Growth Areas makes an important contribution to the recovery efforts for Natural Temperate Grassland, Golden Sun Moth and Striped Legless Lizard in Victoria* (Outcome 3)

The Plan also includes two outcomes for MNES that may be indirectly impacted by the development. These are:

- *The long-term viability of the important population of the Growling Grass Frog along Cowies Creek is supported through the protection and enhancement of habitat within the WGGA* (Outcome 2)
- *Matters of national environmental significance associated with waterways, riparian areas and wetlands are protected from any notable adverse impacts of development under the Plan* (Outcome 4)

Outcome 2 recognises that the Growling Grass Frog occurs as a metapopulation along Cowies Creek and aims to maintain the metapopulation dynamics with the broader Cowies Creek population downstream of the WGGA.

Outcome 4 recognises that several MNES associated with waterways, riparian areas and wetlands may be indirectly impacted by the development within and downstream of the Growth Areas, including several EPBC listed threatened and migratory birds and fish species, and the Port Phillip Bay (Western Shoreline) and Bellarine Peninsula Ramsar site.

The Plan's outcomes are consistent the draft recommended National Environmental Standards for MNES (Professor Graeme Samuel AC, 2020). The overall outcome of the draft standard for threatened species and ecological communities is that these matters are protected, conserved, managed and recovered over time.

The Plan's outcomes are consistent with this standard because they aim to promote the survival and/or enhance the conservation status of threatened species and ecological communities by:

- Maintaining and improving habitat by avoiding impacts and ensuring no net reduction of habitat
- Maintaining and improving populations by avoiding impacts likely to result in the loss of populations of highly restricted and small/declining species and ensuring no net reduction in populations
- Maintaining and improving ecological communities by ensuring no net reduction of the ecological community

The overall outcome of the draft standards for Ramsar wetlands is that the ecological character of these wetlands is maintained through the conservation, management and wise use of the wetlands.

The Plan's outcomes are consistent with this standard because they aim to prevent detrimental change to the ecological character of the Ramsar site through a commitment that will lead to the identification of risks associated with changes to water quality and hydrology as a result of the development, and the implementation of appropriate measures, standards or targets to avoid and minimise adverse impacts on the Ramsar wetland.

29.4.2 SET WITHIN A PROGRAM LOGIC FRAMEWORK

Clear, measurable and achievable outcomes, commitments and measures are critical for effective implementation of the Plan to allow delivery bodies to understand their obligations under the Plan, allow regulators and the public to understand what is intended to be delivered by the Plan, and enable the success of the Plan to be properly evaluated.

The Plan has a clear and measurable set of outcomes, commitments and measures. These are framed within a program logic or 'outcomes framework' that underpins the Plan. The outcomes framework describes broadly how the Plan will be implemented and the relationships between outcomes and commitments and measures, and how the commitments and measures are expected to lead to the outcomes.

The key components of the outcomes framework are:

- Objective – The contribution that the outcomes of the Plan will make to broader State-wide, regional and local planning policies. It articulates the reason the Plan is being undertaken and the broad goal it is intended to support
- Outcomes – The impacts or changes to environmental and socio/economic conditions that are expected to be achieved because of the delivery of the commitments and that are needed to achieve the overall objective of the Plan
- Commitments – The direct results of implementing the measures that are expected to lead to the outcomes
- Measures – The specific actions that will be undertaken to meet the commitments

By framing the outcomes within a program logic, the Plan provides a way to structure what it will deliver for protected matters in a clear and logical way. A key part of this structure is the categorisation of commitments (and their relevant measures) into categories that relate to the specific components of MNES protection and management under the Plan and their effective implementation. The categories of commitments under the Plan are:

- Delivery of development
- Conservation
- External infrastructure
- Governance
- Funding
- MERI
- Compliance
- Data sharing

These categories make it clear which commitments are relevant to different components of the Plan and its implementation and provide a way to monitor the effectiveness of each component. This supports accountability and transparency by providing the basis and set of benchmarks for monitoring, reporting, and ongoing evaluation and adaptive management of the Plan (DEWHA, 2009c). It allows assumptions about the relationships between the outcomes, commitments and measures to be identified and tested so that implementation can be adaptively improved over time where necessary under changing circumstances (see below).

ADAPTIVE IMPLEMENTATION

In order for the outcomes, commitments and measures to be effective, they need to be adaptive to changing circumstances. The outcomes and commitments are provided in the Plan which will not be changed once the Plan is endorsed under Part 10 of the EPBC Act. In order to provide adaptive implementation of the commitments to achieve the outcomes, three implementation documents are provided for the Plan. The implementation documents are:

- The Northern and Western Geelong Growth Areas Commitments and Measures
- The Northern and Western Geelong Growth Areas Biodiversity Conservation Strategy (BCS)
- The Northern and Western Geelong Growth Areas Funding Program

The measures for the commitments are set out in the Commitments and Measures document and described where relevant in the BCS. These documents may be updated from time to time over the life of the Plan through an adaptive management process in accordance with the Plan's MERI framework. The improvement step of the MERI framework provides the opportunity to adaptively manage implementation of the Plan to ensure the commitments are successfully delivered and the Plan's objective and outcomes are achieved and effective.

Commitments and Measures document

As discussed above, the Plan objectives and outcomes will be achieved through the delivery of a set of commitments and measures that have been developed through an outcomes framework.

Although the outcomes and commitments are set out in the Plan and will not be changed once the Plan is endorsed, the measures to implement the commitments may be updated from time to time over the life of the Plan through an adaptive management process in accordance with the Plan's MERI framework. The measures are set out in the Commitments and Measures document, including the following details for each measure are also provided:

- Responsibility
- Key support partner/s (if relevant)
- Timing

Additionally, the BCS identifies another broad objective focussing on state and local biodiversity, and identifies state level outcomes, commitments and measures to support this objective. Some of the Plan's outcomes are also relevant to the BCS. The commitments and measures for the BCS are also detailed in the Commitments and Measures document.

Biodiversity Conservation Strategy

The purpose of the BCS is to:

- Identify the national, state and local biodiversity values that are present in the Growth Areas and set out a conservation program for providing genuine, long-term positive results for those biodiversity values
- Set out how the conservation elements of the EPBC Plan for the Growth Areas will be implemented including through avoiding and minimising, mitigating, and offsetting residual impacts in accordance with the mitigation hierarchy (DSEWPC, 2012; DELWP, 2017c)
- Guide the preparation of Precinct Structure Plans (PSPs) and subsequent development within the Growth Areas to ensure the outcomes are consistent with State biodiversity policy

Funding Program

The Plan includes a funding framework that will ensure the Plan is adequately funded throughout its life. The funding framework is described in the Plan. The measures that describe how the commitment for funding in the Plan will be implemented are provided in the Commitments and Measures document.

The City is also developing a Funding Program that sets out how the funding framework will be implemented. It describes how measures to achieve the commitments for funding will be implemented. The key commitments that will require funding are those that relate to:

- Offset establishment, management, monitoring and audit
- Securing and managing the NGGA Conservation Area and Cowies Creek Conservation Area
- Implementing conservation measures
- Implementing the MERI framework and compliance framework

29.4.3 CONSISTENT WITH THE OFFSET MITIGATION HIERARCHY

A conservation framework has been developed for the Plan. The purpose of the conservation framework is to ensure:

- Development within the Plan area avoids and minimises, mitigates, and offsets impacts to MNES in accordance with the requirements of the EPBC Act and the Endorsement Criteria set out in Attachment 2 of the Strategic Assessment Agreement
- The Plan's outcomes, commitments and measures to protect and manage MNES are achieved and effective

The conservation framework has been developed in accordance with the offset mitigation hierarchy. The mitigation hierarchy requires impacts on MNES to be firstly avoided and minimised to the greatest extent practicable, and then mitigated. The remaining residual impacts can then be offset (DSEWPC, 2012).

The conservation framework sets out commitments that will be delivered for each of the components of the hierarchy:

- Avoiding and minimising impacts to MNES
- Mitigating impacts to MNES
- Offsetting residual impacts to MNES

AVOIDANCE AND MINIMISATION OF IMPACTS

The commitments for avoidance and minimisation include the protection and ongoing management of two areas of avoided land in the Growth Areas:

- The NGGA Conservation Area in the NGGA which will lead to the avoidance and protection of:
  - 74 ha of habitat for the Striped Legless Lizard
  - 108 ha of habitat for the Golden Sun Moth
- The Cowies Creek Conservation Area in the WGGA which will lead to:
  - Avoidance and protection of all habitat in the WGGA for Growling Grass Frog

These avoidance areas were selected through a strategic approach to ensure landscape connectivity and benefits for MNES were maximised (as explained in Section 29.3).

MITIGATION OF IMPACTS

Development under the Plan has the potential to indirectly impact habitat and populations of MNES within the Growth Areas and within the Plan area outside the Growth Areas. These indirect impacts relate to:

- Altered fire regimes
- Changes to water flows and water quality
- Disturbance due to noise, dust, or light
- Disturbance from increased public access to natural areas
- Fauna mortality and barriers to movement
- Inadvertent impacts on adjacent habitat or vegetation
- Predation or competition by pest or domestic fauna
- Spread of infection or disease
- Spread of weeds

The Plan includes commitments to ensure each of these indirect impacts is mitigated and to ensure effective management of landscape scale threats and KTPs (as explained in Section 29.3.4). These commitments include:

- Continuing to implement standard mitigation measures to minimise the indirect impacts of the development in accordance with the requirements of the Greater Geelong Planning Scheme
- Implementing specific mitigation measures to minimise the indirect impacts of the development on protected matters associated with waterways, riparian areas and wetlands
- Implementing specific mitigation measures to minimise the indirect impacts of the development on the NGGA Conservation Area and Cowies Creek Conservation Area

OFFSETTING RESIDUAL IMPACTS

Development under the Plan will result in residual impacts in the NGGA to Natural Temperate Grassland, Golden Sun Moth and Striped Legless Lizard. The Plan includes commitments to offset these residual impacts which have been designed through a strategic offset approach (as explained in Section 29.3). These commitments include the establishment and management of an offset within the NGGA (the NGGA Conservation Area) and offset sites outside of the SAA within the wider Victorian Volcanic Plain bioregion.

EFFECTIVENESS OF CONSERVATION OUTCOMES, COMMITMENTS AND MEASURES

The mitigation hierarchy is recognised as a best practice standard for addressing the impacts of development on biodiversity at international (OECD, 2016) and national levels (DSEWPC, 2012). By developing the conservation

framework in accordance with the mitigation hierarchy, the Plan has ensured the most appropriate and effective outcomes, commitments and measures to protect and manage MNES.

29.5 CLIMATE CHANGE

29.5.1 INTRODUCTION

The ToR requires the SAR to include an evaluation of the extent to which the Plan addresses significant vulnerabilities of MNES to climate change.

This section discusses:

- Observed impacts and projected climate change scenarios in the region
- The method used to assess the vulnerability of MNES to climate change impacts
- The results of the vulnerability assessment
- The extent to which the plan addresses significant vulnerabilities of protected matters

29.5.2 OBSERVED IMPACTS AND PROJECTED CLIMATE CHANGE SCENARIOS IN THE REGION

Climate change is emerging as one of the most significant threats to biodiversity and ecosystems. The impacts of climate change on biodiversity have been observed globally and include species loss, increases in disease, mass mortality events, climate driven extinctions, and declines in key ecosystem services. In the absence of urgent emission reductions, a wide range of biodiversity values are likely to experience temperatures beyond their natural range. Threatened or unique species are at particular risk in the near term (IPCC, 2022).

The 2020 State of the Climate Report (Commonwealth of Australia, 2020) concluded that Australia's climate has warmed by 1.44 °C (±0.24 °C) on average since 1910. Some of the observed impacts of climate change in Australia include a measured decline in rainfall in southeast and southwest Australia, and an increase in extreme fire weather since 1950 in large parts of the country (Commonwealth of Australia, 2020). Various changes to Victoria's climate have been recorded in recent decades, including increased temperatures, drier conditions, decreased snow cover, and more extreme weather events (DELWP, 2019).

Climate predictions by CSIRO (Clarke *et al.*, 2019) for the Barwon region considered potential climate change impacts under two plausible climate change scenarios*. They projected the following for the region:

- Increases in maximum temperature by a median of 1.4 °C to 1.9 °C by mid century
- Variable rainfall that is declining in winter spring and autumn
- Extreme rainfall events will become more variable and intense
- Sea level is likely to continue rising by 4 mm annually (under high emissions scenario)
- An increase in high fire danger days to 9 days annually (under high emissions scenario)

* The scenarios are based on two of the four Representative Concentration Pathways (RCPs). RCPs are pathways for emissions which are consistent with broad climate outcomes used by the climate modelling industry. The pathways consider land use change, and greenhouse gas and aerosol concentrations. The RCPs are characterised by the level of radiative forcing produced by the end of the 21st century. Radiative forcing refers to the additional heat in the lower atmosphere caused by greenhouse gas emissions (Australian Climate Change Science Program, 2020). The projections for the Barwon region consider possible impacts under two plausible climate scenarios: medium emissions (RCP 4.5), and high emissions (RCP 8.5) (Clarke *et al.*, 2019).

29.5.3 METHOD FOR IDENTIFYING AND ASSESSING THE VULNERABILITY OF MNES TO CLIMATE CHANGE IMPACTS

This section outlines the methods used to identify and assess the vulnerability of MNES to climate change impacts. This includes:

- The vulnerability assessment method for:
  - Threatened species and ecological communities
  - Other MNES including:
    - Migratory species

    - Ramsar Wetlands
- The principles used to evaluate the extent to which the Plan addresses significant vulnerabilities

THREATENED SPECIES AND ECOLOGICAL COMMUNITIES

Literature review

There are no studies which consider the vulnerability of threatened species and ecological communities in the Geelong region to Climate Change. In the absence of targeted research, the vulnerability of threatened species and communities to climate change can be assessed using a variety of frameworks. Broadly, these frameworks aim to capture three major components of vulnerability: exposure, sensitivity and adaptive capacity (Wheatley, Beale et al., 2017). Exposure refers to the extent of climate change likely to be experienced by a species or locale. Sensitivity refers to the degree to which the survival of a species is dependent on the prevailing climate (particularly climatic variables which are likely to be impacted by climate change). Adaptive capacity is the capacity of a species to cope with climate change, through shifting in range, or migrating to more suitable regions (Dawson, Jackson et al., 2011).

(Pacifici, Foden et al., 2015) categorised three main approaches to assessing vulnerability to climate change, including:

- Correlative - relate observed geographic distribution of a species to the current climate, and use this to infer the potential climate-suitable areas for the species under future climate change scenarios
- Mechanistic – uses taxon-specific parameters which provide information on the behaviour of individuals, and the mechanisms they use to cope with a changing climate
- Trait-based – uses species biological characteristics as predictors of extinction risk due to climate change

A review of the strengths and weaknesses of these approaches indicated that trait-based approaches are able to be effectively applied more widely (Pacifici, Foden et al., 2015).

A number of studies have applied a trait based assessment of climate change vulnerability to study groups, including but not limited to birds, amphibians and corals (Foden, Butchart et al., 2013), crayfish (Hossain, Lahoz-Monfort et al., 2018), and sharks and rays (Chin, Kyne et al., 2010). Given that a number of these studies relate to specific taxa, a literature review was conducted to identify a set of traits for use in the vulnerability assessment relevant to a diversity of taxa.

Method used in the assessment

The method used to assess the vulnerability of threatened species and communities relevant to the Plan is a qualitative approach which considers sensitivity and adaptive capacity to climate change. This approach is considered appropriate to identify any significant vulnerabilities of threatened species and communities to climate change because it:

- Captures a range of factors including historical and current population trends and specific habitat or environmental requirements
- Is informed by key policy documents such as Conservation Advices and Recovery Plans
- Can be applied across the diversity of taxa relevant to the Plan

Table 29-8 outlines the traits used in the climate vulnerability assessment.

OTHER MNES

Other MNES which occur within the Study Area include:

- Migratory shorebirds
- Wetlands of International Importance (Ramsar) – The Port Phillip Bay (Western Shoreline) and Bellarine Peninsula Ramsar Site (the Ramsar site)

A desktop review was undertaken to assess the vulnerability of migratory shorebirds and the Ramsar site to climate change. This involved a review of scientific literature, and policy documents and guidelines. The method used to assess the vulnerability of other MNES relevant to the Plan is a qualitative approach. This is considered to be appropriate for the following reasons:

- There are a number of recent, detailed, and specific studies which consider the vulnerability of migratory shorebirds and wetlands to climate change
- The key policy documents for the Ramsar site, the Ecological Character Description and Ramsar Site Management Plan (DELWP, 2018, 2020), are relatively recent documents which consider the implications of climate change as a threat

The results of this review are discussed below.

PRINCIPLES USED TO EVALUATE THE EXTENT TO WHICH THE PLAN ADDRESSES SIGNIFICANT VULNERABILITIES

The goal of adaptation can be defined as reducing the risk of adverse impacts by enhancing the 'resilience' or 'resistance' of ecosystems to change. Resilience strategies attempt to enhance the ability of a system to recover from change, while resistance strategies attempt to enhance the ability of a system to resist change (Heller and Zavaleta, 2009).

Scientists and practitioners have proposed a wide range of principles or strategies to manage the impacts of climate change on biodiversity (Heller and Zavaleta, 2009). A set of commonly recommended key principles can be derived from the literature. These principles are:

- Ensure representativeness and replication
- Protect the largest and most viable areas of biodiversity
- Maintain and improve habitat connectivity
- Reduce the impacts of other threats
- Manage uncertainty through adaptive management

Most of these principles are consistent with general conservation planning principles, and scientists often argue that many conservation planning principles remain robust under a changing climate (e.g., see (Hodgson *et al.*, 2009). Despite this, there are major barriers to implementing conservation planning principles that address the impacts of climate change. These include (Reside, Butt and Adams, 2018):

- Limited understanding of the impact of climate change on key ecosystems, processes, and species
- A lack of guidance on incorporating knowledge into practice
- Insufficient funding for implementing climate change adaptation strategies

Further, in identifying this set of key principles, it is recognised that:

- Measures to facilitate adaptation of biodiversity to climate change are likely to be regional and species-specific
- There may not be scientific consensus on all of these key principles and the relative importance of each

These principles are used to evaluate the extent to which the Plan addresses significant vulnerabilities of MNES.

Table 29-8: Traits used in the vulnerability assessment of relevant threatened species and communities (Steffen *et al.*, 2009; Chin *et al.*, 2010; Foden *et al.*, 2013; Hossain *et al.*, 2018)

Trait	Rationale	Low risk	Medium risk	High risk
1. SENSITIVITY				
1.1 Specialised habitat and/or microhabitat requirements	Species that are less tightly coupled with specific conditions and requirements are more likely to demonstrate resilience as they have a wider range of habitat options available (Foden *et al.*, 2013)	Species has general habitat and/or microhabitat requirements	Species has a low level of specialised habitat and/or microhabitat	Species has highly specialised and/or microhabitat requirements
1.2 Population dynamics, including rarity of species and generational length	The vulnerability of a species will be influenced by the generation length of the species, and the rarity of species (small populations, or small geographic ranges) (Foden *et al.*, 2013). Rarity may also measure a species reproductive capacity, growing times, and recovery times (Chin *et al.*, 2010)	Species has an abundant population, a large geographic range, or non-restrictive generation length	Species has a level of restriction in population size, geographic range, or generation time	Species has a high level of restriction in population size, geographic range, or generation time
1.3 Level of tolerance to environmental thresholds or trigger factors such as temperatures, water availability, and fire	Many species rely on physiological tolerances which are closely related to specific environmental conditions. Further, changes to climate driven triggers may lead to asynchrony and uncoupling with environmental factors (Foden *et al.*, 2013)	Species is not reliant on environmental conditions or triggers for physiological behaviours	Species has a level of reliance on environmental conditions or triggers for physiological behaviours	Species is highly reliant on environmental conditions or triggers for physiological behaviours
2. ADAPTIVE CAPACITY				
2.1 Dispersal capacity	Species with low dispersal rates have a lower adaptive capacity as they are unable to remain within a shifting climate envelope (Foden *et al.*, 2013)	Species has high dispersal rates	Species has moderate dispersal rates	Species has very restricted dispersal rates
2.2 Population trends – historical or recent decline in population, levels of genetic variation	The evolvability of a species will be influenced by the level of genetic diversity, and the size, or fragmentation of populations (Foden, Butchart et al., 2013)	Population is relatively stable, connected, and exhibits a high level of genetic diversity	Population has experienced decline, fragmentation or exhibits limited genetic diversity	Population has experienced significant decline, fragmentation or exhibits extremely limited genetic diversity

29.5.4 RESULTS OF THE CLIMATE VULNERABILITY ASSESSMENT

This section presents the results of the climate change vulnerability assessment for:

- Threatened species and ecological communities
- Migratory species
- Ramsar wetlands

THREATENED SPECIES AND ECOLOGICAL COMMUNITIES

The assessment of the vulnerability of relevant threatened species and ecological communities within the Strategic Assessment Area to climate change impacts indicated that:

- Natural Temperate Grassland is at high risk to climate change impacts
- Two threatened flora species are at high risk to climate change impacts
- Four threatened fauna species are at medium risk to climate change impacts
- Fourteen threatened fauna species are at high risk to climate change impacts

Table 29-9, Table 29-10 and Table 29-11 detail the vulnerability assessment.

Table 29-9: Vulnerability of threatened ecological communities to climate change impacts

Name	Cth status	Physiological and life history traits	Climate change identified as a threat in species Recovery Plan or Conservation Advice	Vulnerability to climate change impacts
Natural Temperate Grassland of the Victorian Volcanic Plain	Critically endangered	• The ecological community has a very restricted distribution • There is less than five per cent of the grassland remaining • The composition and appearance of the TEC is influenced by weather patterns, seasonal variation and land management (TSSC, 2008; Vranjic, 2008)	No	High risk

Table 29-10: Vulnerability of threatened flora to climate change impacts

Scientific name	Common name	Cth status	Physiological and life history traits	Climate change identified as a threat in species Recovery Plan or Conservation Advice	Vulnerability to climate change impacts
Lachnagrostis adamsonii	Adamson's Blown-grass	Endangered	• The species has specific habitat requirements (slow moving creek, depressions and drainage lines that are seasonally inundated or waterlogged) • Geographic range is limited to the south-west of Victoria • Many historical populations have been lost, likely due to extensive vegetation loss in the species range (Murphy, 2010; DCCEEW, 2022)	Yes	High risk
Pimelea spinescens subsp. spinescens	Spiny Rice-flower	Critically Endangered	• The species is slow growing and may live up to 100 years • Seed dispersal distances are limited • Geographic range is limited to the central west of Victoria • Remaining populations are now substantially fragmented and depleted (DEWHA, 2009a; TSSC, 2016f)	No	High risk

Table 29-11: Vulnerability of threatened fauna to climate change impacts

Scientific name	Common name	Commonwealth status	Physiological and life history traits	Climate change identified as a threat in species Recovery Plan or Conservation Advice	Vulnerability to climate change impacts
Botaurus poiciloptilus	Australasian Bittern	Endangered	• The species is able to travel over hundreds of kilometres between wetlands, and is able to move between habitats as suitability changes • Total population is estimated at 1,000 mature individual and the species has experienced declines (Garnett, Szabo et al., 2011; TSSC, 2019)	Yes	Medium risk
Calidris canutus	Red Knot, Knot	Endangered, Migratory	Migratory shorebird (see below for details)	Yes	High risk
Calidris ferruginea	Curlew Sandpiper	Critically Endangered, Migratory	Migratory shorebird (see below for details)	No	High risk
Calidris tenuirostris	Great Knot	Critically Endangered, Migratory	Migratory shorebird (see below for details)	Yes	High risk
Charadrius leschenaultii	Greater Sand Plover	Vulnerable, Migratory	Migratory shorebird (see below for details)	Yes	High risk
Charadrius mongolus	Lesser Sand Plover	Endangered, Migratory	Migratory shorebird (see below for details)	Yes	High risk
Galaxiella pusilla	Eastern Dwarf Galaxias	Vulnerable	• The species has been substantially fragmented and depleted due to wetland modifications • Localised extinctions and severe declines have been noted in a number of systems • The distribution and abundance of populations fluctuates, and may be influenced by habitat connectivity of hydrological systems (Saddlier, Jackson and Hammer, 2010b)	Yes	High risk
Delma impar	Striped Legless Lizard	Vulnerable	• The species has specialised habitat requirements (grassland specialist, only found in areas of native grassland and nearby grassy	No	High risk

Scientific name	Common name	Commonwealth status	Physiological and life history traits	Climate change identified as a threat in species Recovery Plan or Conservation Advice	Vulnerability to climate change impacts
			woodland and exotic pasture, uses rocks, soil cracks and grass tussocks as shelter • Distribution has declined, and the species range within Victoria has contracted to the southern part of the state • The species cannot disperse over long distances • Remaining populations are small and isolated (TSSC, 2016e; DCCEEW, 2022)		
Limosa lapponica baueri	Western Alaskan Bar-tailed Godwit	Vulnerable, listed Migratory at species level	Migratory shorebird (see below for details)	Yes	High risk
Litoria raniformis	Growling Grass Frog	Vulnerable	• The species is highly mobile, travelling up to 1 km within 24 hours • Where populations are restricted to small, permanent waterbodies, the species has limited dispersal indicating high levels of site fidelity. However, when the species occupies ephemeral waterbodies, there is significantly higher levels of dispersal with individuals moving larger distances • The species has suffered a substantial decline in abundance and range • The spatial arrangement (matrix) and level of connectivity amongst waterbodies within the landscape is one of the most important factors which influences the presence of the species at a given site (DEWHA, 2009b; Clemann and Gillespie, 2012; DCCEEW, 2022)	No	High risk
Nannoperca obscura	Yarra Pygmy Perch	Vulnerable	• The species has a low dispersal ability, and there is low genetic diversity between sites • It has experienced decline in abundance and distribution • Remaining habitat is fragmented, and the species is vulnerable to local extinctions • Remnant populations are substantially fragmented and depleted (Saddlier and Hammer, 2010; DELWP, 2015; DCCEEW, 2022)	Yes	High risk

Scientific name	Common name	Commonwealth status	Physiological and life history traits	Climate change identified as a threat in species Recovery Plan or Conservation Advice	Vulnerability to climate change impacts
Neophema chrysogaster	Orange-bellied Parrot	Critically Endangered	• The species has demonstrated low lifespan and survival rates • The remaining population is extremely small, comprised of 50 individuals in the wild • Genetic analysis suggests the wild population has suffered a significant genetic decline (DELWP, 2016)	Yes	High risk
Neophema chrysostoma	Blue-winged Parrot	Vulnerable	• The species is a partial migrant between Tasmania and mainland Australia • Habitat requirements are relatively broad • The population is thought to have declined by 30 – 50 per cent in the past three generations (DAWE, 2020)	Yes	High risk
Numenius madagascariensis	Eastern Curlew	Critically Endangered, Migratory	Migratory shorebird (see below for details)	No	High risk
Prototroctes maraena	Australian Grayling	Vulnerable	• Juveniles of the species disperse widely • The species migrates between rivers, their estuaries and coastal seas. It is reliant on free access to a range of freshwater, estuarine and marine habitats for its survival • The species has a wide distribution and uses a range of habitats throughout its lifecycle • A lack of genetic diversity has been observed in coastal rivers of Victoria • Due to the species' high fecundity, it has been suggested that the population can undergo large fluctuations, and has potential to recover following declines in population size (Backhouse, O'Conner et al., 2008; DCCEEW, 2022; TSSC, 2021)	Yes	Medium risk

Scientific name	Common name	Commonwealth status	Physiological and life history traits	Climate change identified as a threat in species Recovery Plan or Conservation Advice	Vulnerability to climate change impacts
Rostratula australis	Australian Painted Snipe	Endangered	• Relatively little is known about the ecology of this species, as it has few records, unpredictable movements, cryptic habits, and often occurs in reasonably inaccessible areas • The species breeds all year round depending on available suitable wetland conditions, although breeding habitat requirements may be quite specific • Geographic distribution is widespread across Australia (DSEWPaC, 2013; DoEE, 2019; DCCEEW, 2022)	Yes	Medium risk
Sternula nereis nereis	Australian Fairy Tern	Vulnerable	• The species has general habitat requirements (including offshore, estuarine or lacustrine (lake) islands, coastal wetlands, beaches and sand spits) • The population of the Australian Fairy Tern is estimated at 7,450, of which approximately 100 – 150 occur in Victoria • There has been a decline in breeding pairs within Victoria (DAWE, 2020)	Yes	Medium risk
Synemon plana	Golden Sun Moth	Vulnerable	• The species has specific habitat requirements (areas containing, or having once contained, native grassland, open grassy woodlands, and secondary grasslands which retain a component of larval food sources) • The species has limited dispersal abilities • Many known subpopulations are confined to small areas of remnant grassland (DAWE, 2021)	Yes	High risk

MIGRATORY SHOREBIRDS

Thirty-seven species of migratory shorebirds regularly visit Australia during their non-breeding season (from the Austral spring to autumn). The majority of those breed in the northern hemisphere and use the East Asian-Australasian Flyway which stretches from Siberia and Alaska, through east and south-east Asia, to Australia and New Zealand. They depend upon a range of sites along the flyway for breeding, staging, feeding, and roosting. In Australia, coastal and freshwater wetlands provide important habitat (Commonwealth of Australia, 2015). Refer to Chapter 23 for the complete detailed assessment of Migratory shorebirds.

A number of studies have assessed the vulnerability of migratory shorebirds to climate change (Reese and Skagen, 2017; Wauchope *et al.*, 2017; Steen, Skagen and Noon, 2018; Koleček *et al.*, 2021). Potential impacts to migratory shorebirds from climate change may relate to:

- The migratory phase
- Northern breeding ranges
- Non-breeding habitat in the southern hemisphere

The migratory phase

The annual survival of migratory shorebirds is reliant on the migratory period of their lifecycle. During this phase, migratory birds are more frequently exposed to unavoidable or unknown threats and energetic requirements are higher. The reduced availability of resources at stopover sites on the migration route may influence reduced reproduction, body condition, and migration speeds. This will ultimately contribute to population decline (Steen, Skagen and Noon, 2018). There has been a measured decline in populations of migratory shorebirds across Australia associated with the documented loss and degradation of East Asian habitats along the migratory route (Clemens, Rogers et al., 2016).

Migration is an inherently risky process and climate change may cause further complications. The impacts of climate change pose new challenges during species migration. This may include changes to inundation patterns and the functioning of wetland habitats, and the increased strength of tropical storms (Reese and Skagen, 2017; Steen, Skagen and Noon, 2018).

Northern breeding ranges

Many migratory shorebirds occupy northern regions for the breeding phase of their life cycle. These regions are experiencing climate change at a rate of twice the global average. The majority of species are expected to respond to climate change through a shift in distribution typically towards higher elevation or the poles. The shifting distribution of migratory species utilising northern breeding grounds will likely be constrained by the Arctic coastline (Wauchope *et al.*, 2017).

Non-breeding habitat in the southern hemisphere

Non-breeding habitat for migratory shorebirds in the southern hemisphere is also expected to be impacted by climate change. Coastal wetlands and saltmarsh provide important roosting and feeding habitat prior to northern migration. There is evidence that Australian coastal wetlands are showing signs of climate change impacts such as the rapid change in distribution of saltmarsh and mangrove along the Australian Coastline (Saintilan, Rogers et al., 2019).

Potential impacts to migratory shorebirds in the Study Area

The Study Area includes three sections of the Port Phillip Bay (Western Shoreline) and Bellarine Peninsula Ramsar Site (the Ramsar site). The Ramsar site meets the EPBC guidelines for internationally important wetland habitat (DoE, 2017) in that it has supported greater than 20,000 waterbirds annually since 1981 and supports > 1 per cent of the population for 15 species of waterbirds (DELWP, 2020). The Ramsar site provides a diversity of habitat for waterbirds, including important habitat for foraging, roosting, moulting and breeding (DELWP, 2020).

Climate change has been identified as a threat to the Ramsar site in the Ecological Character Description. There are three stressors related to climate change, sea level rise, increased temperature, and increased frequency of storms. Climate change is considered to be a serious threat to the Ramsar site, and adaptation strategies are required (DELWP, 2020). Refer to Chapter 22 for the complete detailed assessment of the Ramsar site.

WETLANDS OF INTERNATIONAL IMPORTANCE (RAMSAR)

Wetlands are recognised as one of the most vulnerable ecosystems to climate change (Finlayson *et al.*, 2017). Studies within Australia have demonstrated the potential for significant impacts on wetlands as a result of climate change over the coming century (Dunlop & Grigg, 2019). Further, the impacts of climate change are considered likely to lead to the significant degradation and loss of wetlands in Victoria (Jin, Cant et al., 2009).

Wetlands are likely to be impacted by climate change through altered hydrological regimes, higher temperatures and evaporation, sea level rise, and increased frequency and intensity of weather events (Jin, Cant and Todd, 2009; DCCEEW, 2021). Climate change impacts may interact with and exacerbate the threat of existing human induced impacts on wetlands including land clearing, water extraction, and urban development (DCCEEW, 2021). As a result, wetlands which have been highly modify or degraded will generally be more vulnerable to climate change impacts (Finlayson *et al.*, 2017).

Coastal wetlands are thought to be particularly vulnerable to climate change given their low-lying positioning at the land-sea interface (Osland *et al.*, 2016; Finlayson *et al.*, 2017). Coastal wetlands are often characterised by the role of foundation plant species which influence ecosystem function. Climate change is likely to have larger effects on ecosystems which have a strong dependency on a small number of foundation species such as salt marshes, mangroves, or kelp beds. Further, coastal wetlands may be particularly vulnerable to climate change due to the more frequent level of abrupt ecological transitions. In coastal wetlands, these macroclimatic thresholds are generally more sensitive to small differences in abiotic conditions. Changes to foundation species and macroclimatic thresholds as a result of climate change will have implications for coastal wetland ecosystem services and resilience (Osland *et al.*, 2016).

As outlined above, climate change has been identified as a threat to the Ramsar site and is considered to be a serious threat (DELWP, 2020). A detailed assessment of the Ramsar site is provided in Part 4.

29.5.5 EXTENT TO WHICH THE PLAN ADDRESSES SIGNIFICANT VULNERABILITIES

This section considers the extent to which the Plan addresses significant vulnerabilities of MNES to climate change against the set of key principles identified in Section 29.5.3. The focus of the analysis is the MNES that are known to occur within the Growth areas. This includes:

- Adamson's Blown-grass (*Lachnagrostis adamsonii*)
- Golden Sun Moth (*Synemon plana*)
- Growling Grass Frog (*Litoria raniformis*)
- Natural Temperate Grassland of the Victorian Volcanic Plain
- Striped Legless Lizard (*Delma impar*)

As outlined in the detailed impact assessments for MNES in Part 4 of the SAR, implementation of the Plan is not expected to put additional pressure on MNES which are not subject to direct impacts. Although it is recognised that many of these matters may have significant vulnerabilities to climate change, the commitments and measures under the Plan are considered appropriate to address any additional pressures related to potential indirect impacts.

ENSURE REPRESENTATIVENESS AND REPLICATION

Representativeness and replication are well established principles of conservation planning. Representativeness refers to the need to protect the full range of biodiversity (e.g., vegetation types). Replication refers to the need to protect multiple examples of each unit of biodiversity in order to spread risk (Margules and Pressey, 2000).

These two principles will continue to be important in facilitating adaptation of biodiversity to climate change (Dunlop and Brown, 2008; Heller and Zavaleta, 2009). Dunlop and Brown argue:

> *By sampling a diversity of communities…[we] are also sampling the underlying geographic diversity of the landscape…Thus, a set of areas that samples a high diversity of communities now will probably also capture a high diversity of communities under future climates, even if the composition of the communities is different in the future*

The Plan supports the implementation of this principle in the region through avoiding a number of MNES which may occur within the Strategic Assessment Area and protecting and conserving habitat for MNES subject to direct impacts.

Of the 20 MNES which have the potential to occur within the Strategic Assessment Area, potential habitat and records of 17 MNES are avoided completely. Three MNES are subject to direct impacts under the Plan including Golden Sun Moth (*Synemon plana*), Striped Legless Lizard (*Delma impar*) and Natural Temperate Grassland. The NGGA Conservation Area provides avoidance of a number of records and mapped habitat for Golden Sun Moth and Striped Legless Lizard. Additional habitat for these species, and areas of Natural Temperate Grassland will be protected in offset areas outside of the Strategic Assessment Area. Offset targets for these MNES are set out in Section 29.3.

The offset package for MNES will contribute to representativeness and replication within the NGGA, and the broader Victorian Volcanic Plain, for the threatened species and TEC subject to direct impacts under the Plan.

PROTECT THE LARGEST AND MOST VIABLE AREAS OF BIODIVERSITY

Another well-established principle of conservation planning is to focus conservation efforts on protecting and restoring large areas of biodiversity. There are well established relationships between the size of a patch of native vegetation and the size and persistence of populations, species richness, species dispersal, genetic diversity, persistence of large vertebrates, maintenance of near-natural disturbance regimes, and other important ecological functions (Lindenmayer *et al.*, 2007; Hodgson *et al.*, 2009).

Scientists argue this principle will continue to be important in facilitating adaptation of biodiversity to climate change. Because habitat loss remains the key threat to biodiversity and relationships between patch size and biodiversity value is well-established, protecting areas of high quality native vegetation and habitats should remain the primary focus of conservation efforts under climate change (Heller and Zavaleta, 2009; Hodgson *et al.*, 2009).

The Plan supports the implementation of this principle in the region by applying a strategic approach to the avoidance, mitigation and offsetting of MNES. Strategic assessments under Part 10 of the EPBC Act provide an opportunity to contribute to this principle by considering the potential impacts and relevant offsetting at the landscape scale.

The Plan provides two key areas of conservation within the Strategic Assessment Area – the NGGA Conservation Area, and the Cowies Creek Conservation Area in the WGGA.

The avoidance and management of the NGGA Conservation Area is considered to contribute to this principle because it:

- Focuses on the areas of native vegetation and habitat within the NGGA that are the most viable
- Provides one contiguous conservation area with a minimised edge to area ratio
- Protects a significant area of native vegetation within the NGGA
- Protects large and connected areas of Golden Sun Moth and Striped Legless Lizard habitat

The avoidance of the Cowies Creek Conservation Area contributes to this principle by protecting all remaining habitat for Growling Grass Frog in the WGGA and managing a corridor that will support MNES at a landscape scale.

Further, the strategic offsetting approach will provide offset areas of large and well connected threatened species habitat and native vegetation.

HABITAT CONNECTIVITY

Maintaining and improving habitat connectivity is often considered the most important strategy to manage the impacts of climate change on biodiversity (Dunlop and Brown, 2008; Heller and Zavaleta, 2009). Despite this, there is much uncertainty about the importance of habitat connectivity in managing the impacts of climate change. Some scientists argue that other, more certain strategies, such as protecting the largest patches of high quality native vegetation, should be prioritised over habitat connectivity (Hodgson *et al.*, 2009):

> *As uncertainties about connectivity tend to be high, and increases in habitat quantity and quality coincidentally improve connectivity, we conclude one should generally provide higher weight in decision-making to actions that increase area and quality [of habitat] Theoretically, we know that populations will sometimes benefit more from a small, well-connected piece of habitat than a larger, more isolated one, but the relative uncertainties and the probability of worse-than-expected outcomes [from improving habitat connectivity] should also affect our decision making…*

The Plan is not considered to significantly disrupt habitat connectivity in the region. The Growth Areas are highly modified due to past and current land use and the level of existing threats in the area (EHP, 2021). MNES values within the Growth Areas are largely fragmented and isolated, and modelled habitat (DELWP, 2017) and native vegetation (DELWP, 2005) suggests that this is consistent across the broader Strategic Assessment Area. Further, the Growth Areas occur near to urbanised areas including Greater Geelong and Lara which are thought to disrupt connectivity in nearby areas.

The Plan is considered to contribute to habitat connectivity by:

- Protecting the connected Growling Grass Frog (*Litoria raniformis*) habitat mapped within Cowies Creek and a riparian corridor that will support connectivity at a landscape scale
- Avoiding and managing a connected area of Striped Legless Lizard (*Delma impar*) and Golden Sun Moth (*Synemon plana*) habitat within the NGGA
- Providing a strategic offset package which aims to contribute to connectivity in the broader landscape

REDUCE THE IMPACTS OF OTHER THREATS

Some scientists argue that given the uncertainty about the impacts of climate change on biodiversity and how best to facilitate adaptation, focusing on reducing key existing threats to biodiversity provides a robust strategy to address climate change. For example, Steffen et al (Steffen *et al.*, 2009) state:

> *A central strategy is giving ecosystems the best possible chance to adapt by enhancing their resilience. Approaches to building resilience include managing appropriate connectivity of fragmented ecosystems…* [and] *implementing more effective control of invasive species, and developing appropriate fire and other disturbance management regimes*

The Plan recognises that the effective management of landscape scale threats is critical to the success of the conservation program under the Plan and to manage the impacts of climate change on biodiversity. The key threats that the Plan is potentially contributing to in the region are largely related to indirect impacts. The Plan includes a range of commitments to address these potential indirect impacts in the Growth Areas and the broader Strategic Assessment Area and Study Area. A detailed assessment of potential indirect impacts is provided in Part 4.

ADDRESS UNCERTAINTY THROUGH ADAPTIVE MANAGEMENT

Adaptive management is an iterative process that seeks to improve management over time by testing hypotheses and learning from the results, and then incorporating lessons learnt into future management actions.

Many scientists argue that given the uncertainty about the impacts of climate change on biodiversity and how best to facilitate adaptation, management within an adaptive framework will be critical to facilitating adaption.

The Plan will be implemented adaptively to ensure the commitments and actions are delivered and the outcomes are achieved efficiently and effectively. Adaptive management will be triggered on the basis of the findings of the evaluations undertaken as part of the monitoring, evaluation and reporting program under the Plan. The approach to adaptive management under the Plan is described in Chapter 7 of the Plan.

29.5.6 CONCLUSION

This section considered the vulnerability of MNES relevant to the Plan in relation to impacts associated with climate change. It is clear that threatened species and communities, migratory species, and Ramsar wetlands are vulnerable to the known and predicted impacts of climate change.

The Plan is not expected to put additional pressure on the MNES which are not subject to direct impacts under the Plan. Although it is recognised that these matters may have significant vulnerabilities to climate change, the commitments and measures under the Plan are considered appropriate to address any additional pressures related to potential indirect impacts.

The extent to which the Plan addresses the vulnerabilities of MNES which occur within the Growth Areas has been assessed against a set of key principles. The key outcomes of this evaluation include that the Plan:

- Supports representativeness and replication of biodiversity by protecting and managing conservation areas within the Growth Areas and providing strategic offsets outside the Growth Areas

- Provides avoidance within the Growth Areas which focuses on the larger and more viable areas of biodiversity and applies a strategic offsetting approach outside of the Growth Areas
- Is not expected to disrupt habitat connectivity within the Strategic Assessment Area, and will contribute to this principle by avoiding and protecting connected areas of habitat within the Growth Areas
- Includes a number of measures to address potential indirect impacts (threats) under the Plan
- Incorporates adaptive management to ensure that outcomes are achieved efficiently and effectively

29.6 ASSURANCE AND IMPLEMENTATION

29.6.1 INTRODUCTION

The ToR requires an evaluation of the effectiveness of the implementation arrangements for the Plan, including the Plan's assurance and implementation framework.

This section addresses these requirements of the ToR under the following headings:

- Effectiveness of implementation and funding arrangements
- Documentation and delivery of commitments
- Improving implementation and accounting for new information
- Monitoring actions taken under the Plan
- Monitoring and reporting on compliance
- Independent 5-yearly assurance review and report

29.6.2 EFFECTIVENESS OF IMPLEMENTATION AND FUNDING ARRANGEMENTS

Key elements of effective implementation of the Plan include:

- Clear delivery framework for implementation
- Robust governance arrangements
- Adequate funding of commitments and measures

CLEAR DELIVERY FRAMEWORK FOR IMPLEMENTATION

An appropriate framework to deliver the Plan is imperative to ensure that development and conservation actions under the Plan are consistent with regulatory requirements. The Plan is a high-level framework that needs to be given effect through delivery mechanisms that turn the high-level requirements of the Plan into specifics. If the delivery framework is unclear or unsuitable, developers will not understand what they need to do at a site or project level to meet the requirements of the Plan and implementation will be ineffective.

The Plan sets out a clear delivery framework for implementation. This will occur primarily through the Victorian planning system established under the P&E Act, and in particular the planning system hierarchy. This includes:

- The Planning Policy Framework
- The Framework Plan
- Urban Growth Zone (UGZ)
- PSPs and Native Vegetation Precinct Plans (NVPPs)
- Planning permits

Several other regulatory frameworks will also support the implementation of the Plan.

The planning system has a key role in ensuring regulated third-parties undertake development under the endorsed Plan in accordance with the Commonwealth approval conditions, and in supporting the implementation of many of the commitments in the Plan, including relating to avoidance and minimisation, mitigation and offsets.

The Plan clearly sets out how each part of the planning system hierarchy is proposed to be used to implement the Plan.

Implementing the Plan through existing regulatory frameworks means the delivery framework for the Plan is well established and understood by stakeholders and legally robust and supports effective compliance.

ROBUST GOVERNANCE ARRANGEMENTS

Governance can be considered as the systems and structures which are in place to ensure compliance, transparency and accountability during implementation of the Plan. Robust governance arrangements are necessary to ensure the Plan is delivered efficiently and effectively and complies with any Commonwealth approval conditions.

The Plan establishes a clear organisational structure for its implementation. This includes:

- The approval holder (The City of Greater Geelong)
- Commonwealth Department of Climate Change, Energy, the Environment and Water (DCCEEW)
- Victorian Government Department of Energy, Environment and Climate Action (DEECA)
- Victorian Government Department of Transport and Planning (DTP)
- Northern and Western Geelong Growth Areas EPBC Plan Executive Committee
- City Implementation Group
- Support partners
- A process of ongoing-stakeholder engagement

The Plan establishes the EPBC Plan Executive Committee as the primary body responsible for overseeing and making key decisions about the implementation of the Plan. The City will prepare Terms of Reference (ToR) to clarify the purpose, responsibilities, membership and decision-making processes for the Executive Committee.

The Plan also establishes an Implementation Group within the City as the primary body responsible for day-to-day implementation of the Plan and to support the EPBC Plan Executive Committee.

The governance structure includes all relevant organisational levels needed for effective implementation, including:

- Regulatory oversight
- Decision-making
- On-ground delivery and implementation
- Stakeholder interests and perspectives

The Plan clearly defines the roles and responsibilities for each key governance body, including in relation to the Plan's other implementation arrangements, such funding, MERI and compliance.

ADEQUATE FUNDING OF COMMITMENTS AND MEASURES

Lack of funding certainty is a key risk for the successfully delivery of strategic assessments. It is critical that the approach and mechanisms for funding the implementation of the commitments and measures over the life of the Plan are clear, feasible and legally robust to provide certainty that the Plan will be successfully implemented.

The City is considering a range of options for funding the Plan and has identified a proposed funding framework informed by initial consultation with key stakeholders, including developers.

The Plan includes a commitment to establish funding arrangements to fund the implementation of the Plan's commitments and measures over the life of the Plan, consistent with the Plan's funding framework.

The key elements of the proposed funding framework are:

- Establishment of an implementation fund to fund the costs of implementing the commitments and measures, including securing and managing offsets for MNES required under the Plan in perpetuity
- Full cost recovery of the costs incurred by the City of implementing the commitments and measures, through a biodiversity levy payable by developers in the Growth Areas
- Establishment of governance and administrative arrangements to administer the implementation fund and the collection and application of the biodiversity levy

A Funding Program developed to give effect to the funding framework is available as part of the package of documents for public exhibition. The Funding Program will be finalised before any development within the Growth Areas proceeds.

29.6.3 DOCUMENTATION AND DELIVERY OF COMMITMENTS

Some previous strategic assessments undertaken in Australia have suffered from unclear, unmeasurable or unfeasible outcomes, commitments and measures. This has resulted in poor conservation outcomes or delays during implementation. Clear and measurable commitments are critical for effective implementation of the Plan to allow delivery bodies to understand their obligations under the Plan, allow regulators and the public to understand what is intended to be delivered by the Plan, and enable the success of the Plan to be properly evaluated.

The Plan has clear and measurable outcomes, commitments and measures. These are framed within a program logic or 'outcomes framework' that underpins the Plan. The outcomes framework describes broadly how the Plan will be implemented and the relationships between outcomes and commitments and measures, and how the commitments and measures are expected to lead to the outcomes.

The Plan includes a MERI framework and a commitment to implement this over the life of the Plan. This will ensure progress in implementing the commitments and measures are documented and reported on.

The outcomes framework underpins the Plan's MERI framework. The outcomes framework supports accountability and transparency by providing the basis and set of benchmarks for monitoring, reporting, and ongoing evaluation and adaptive management of the Plan (DEWHA, 2009c).

Key elements of the MERI framework relevant to the documentation and delivery of commitments are:

- Monitoring over the life of the Plan of both:
  - Implementation of measures and the delivery of commitments
  - Achievement of the Plan's outcomes
- Annual progress reports to report publicly on progress in implementing the commitments and measures and compliance with the Plan and Commonwealth approval conditions

29.6.4 IMPROVING IMPLEMENTATION AND ACCOUNTING FOR NEW INFORMATION

Strategic assessments represent complex, long term programs for managing both development and conservation. Ongoing decisions over the life of a policy, plan or program are necessary to ensure successful implementation.

Given the spatial and temporal scale of the Plan, it is important that it retains sufficient flexibility to ensure that implementation can adapt to changing circumstances over time and still deliver the Plan's outcomes. Monitoring and ongoing evaluation and adaptive management of the Plan is critical for ensuring that:

- Changes to the environmental context, including planning or development priorities, conservation priorities and ecological processes, and legislation and policies, are considered and addressed during implementation of the Plan
- Assumptions about the relationships between the outcomes, commitments and measures, and how measures will deliver the commitments, can be identified and tested so that implementation can be improved
- New information on MNES can be accounted for, such as:
  - New listings of species or threatened ecological communities
  - The re-discovery of a previously considered extinct (in the wild) species
  - New knowledge that changes the understanding about MNES and how to best protect them

The Plan includes a MERI framework and a commitment to implement this over the life of the Plan. The MERI framework will ensure monitoring is used to understand the effectiveness of commitments and measures for MNES and improve implementation where monitoring demonstrates these are not leading to the Plan's outcomes.

Key elements of good adaptive management are (DEWHA, 2009c):

- Clearly defining outcomes
- Undertaking regular data collection/monitoring to track progress
- Completing regular evaluations to investigate cause and effect, efficiency and effectiveness, and test assumptions

- A clear process to consider improvements and adaptive management

The Plan's outcomes framework ensures the Plan's outcomes are clear and measurable, and the Plan's MERI framework includes these other key elements of good adaptive management. It includes:

- Establishing Key Performance Indicators to provide a framework for understanding whether outcomes are being achieved and each commitment is being delivered efficiently and effectively
- Establishing monitoring protocols to ensure monitoring is effective and consistent over the life of the Plan
- Independent five-yearly evaluations and assurance reviews over the life of the Plan
- Trigger points and a clear process to decide adaptive management actions

The independent five-yearly evaluation and assurance review will be the primary trigger point and basis for any necessary adaptive management of the Plan to ensure the outcomes of the Plan are achieved.

Adaptive management may also be triggered by the City on an ad hoc basis in response to issues or opportunities that arise and that need to be addressed immediately. The City will establish criteria to determine when adaptative management should be considered outside the independent five-yearly evaluation and assurance review.

Following completion of the report on the five-yearly assurance review, the City will prepare an adaptive management report that includes recommendations for adaptive management actions for endorsement by the NWGGA EPBC Plan Executive Committee. Recommendations endorsed by the Executive Committee will form the basis of the adaptive management program to be commenced over the following five-year implementation period of the Plan.

The adaptive management process provides a mechanism to ensure new information relating to MNES can be accounted for in implementing the Plan, as it:

- Is undertaken on a regular basis (5-yearly), and can also be triggered on an ad hoc basis
- Includes an investigation into how effective implementation is at protecting MNES and achieving the Plan's outcomes, including consideration of:
  - Are the commitments the best way to achieve the outcomes of the Plan?
  - Are there alternative measures that would better deliver commitments or achieve additional benefits?
  - Do the measures continue to meet best practice standards?
- Requires recommendations to be made to improve implementation, that may take into account any new knowledge that changes the understanding about MNES and how to best protect them

29.6.5 MONITORING ACTIONS TAKEN UNDER THE PLAN

Ensuring compliance is critical to the success of any regulatory process, including the implementation of the Plan.

The Plan includes a compliance framework and a commitment to implement this over the life of the Plan. A key part of the Plan's compliance framework is a development registration system to monitor the taking of actions by regulated third-parties under the endorsed Plan and associated EPBC Part 10 approval.

The Plan includes a commitment to develop this registration system during implementation of the Plan. The development registration system will use an appropriate step in the Victorian planning system as the trigger for registration. This will ensure that the registration system integrates effectively with existing planning and compliance processes for development in the Growth Areas. The registration system will require developers to provide information to the City about their action, including how it is consistent with the requirements of the Plan.

The registration system is an important part of the Plan's compliance framework. It will ensure that:

- The City can monitor developments that are relying on the Part 10 approval
- Regulated third-parties are aware of their responsibilities under the Plan

Consistent with best-practice, the City's primary focus for compliance will be on prevention and avoidance of non-compliance. The development registration system will provide the key mechanism for informing regulated third-parties of their responsibilities under the Plan and supporting this preventative approach to non-compliance.

The compliance framework, along with the Plan's governance framework, also clarifies roles and responsibilities for compliance across DCCEEW and the City. The framework clarifies that:

- DCCEEW is ultimately responsible for ensuring the City achieves the Plan's outcomes and implements the commitments in accordance with the Plan or causes these to be implemented through support partners. DCCEEW can potentially take action to enforce compliance with the Plan under the EPBC Act
- As approval holder, the City is responsible for ensuring regulated third-parties taking approved actions under the endorsed Plan take these actions in accordance with the Commonwealth approval conditions. The City or other appropriate regulatory authority can potentially take action to enforce compliance under the regulatory frameworks used to implement the Plan, including the P&E Act

29.6.6 MONITORING AND REPORTING ON COMPLIANCE

Monitoring and reporting on compliance is important to give regulators and the public confidence that the City is implementing the Plan as it has committed to doing, and that regulated-third parties are complying with Commonwealth approval conditions. It is also important for understanding whether non-compliance may be contributing to any delays or progress in delivering commitments and achieving the Plan's outcomes.

The Plan includes a compliance framework and MERI framework and commitments to implement these over the life of the Plan. The Plan's compliance framework provides for:

- Monitoring compliance and detecting non-compliance
- Notifying DCCEWW of non-compliances
- Reporting on compliance

Monitoring and reporting on compliance will be undertaken in accordance with the Plan's MERI framework. Key Performance Indictors will be established to provide a framework to consider the extent of compliance with Commonwealth approval conditions, and detailed monitoring protocols will be developed for each compliance indicator to ensure monitoring is effective and consistent over the life of the Plan.

The Plan's compliance framework includes a process for notifying DCCEEW about non-compliances in relation to both the delivery of commitments by the City or support partners and regulated third-parties taking approved actions under the endorsed Plan. The notification process ensures:

- DCCEEW is informed of non-compliances as soon as practicable
- The steps to rectify significant non-compliances are clearly set out and agreed between DCCEEW and the City – under the process, the City must provide a plan to DCCEEW setting out the compliance actions proposed to be taken to rectify the non-compliance for those determined to be high-risk under the compliance framework
- DCCEEW is kept up to date about progress in taking any compliance actions – under the process, the City must report to DCCEEW regularly on progress in implementing compliance actions

The City will undertake regular reporting on compliance to ensure transparency and accountability. Reporting on compliance will be undertaken in accordance with the MERI framework. The MERI framework requires compliance to be reported in annual progress reports and five-yearly assurance reports (these will be prepared to report on the results of the five-yearly evaluations and assurance reviews).

29.6.7 INDEPENDENT 5-YEARLY ASSURANCE REVIEW AND REPORT

The Plan includes a MERI framework and a commitment to implement this over the life of the Plan. The Plan's MERI framework provides for an independent evaluation and assurance review to be undertaken every 5 years over the life of the Plan. The five-yearly evaluation and assurance review will determine:

- Compliance with the Commonwealth conditions of approval
- Whether the outcomes of the Plan are being achieved, and if not, the reasons for this
- Progress of the implementation of each commitment and an evaluation of how efficiently and effectively the commitments are being implemented

The results of the independent evaluation and assurance review will be reported in five-yearly assurance reports. These will be made publicly available on the City's website following their preparation.

The Plan's evaluation and assurance review will give regulators and the public confidence that the City is implementing the Plan as it has committed to doing and that this is being done as efficiently and effectively as possible, as it:

- Will be undertaken by an independent party to ensure an impartial assessment
- Will be undertaken regularly over the life of the Plan at intervals appropriate (5-yearly) for monitoring of environmental-related outcomes, such as the status of MNES populations in the NGGA Conservation Area
- Includes an investigation into the level of compliance with Commonwealth approval conditions
- If the Plan's outcomes are not being achieved, includes an investigation into the reasons for this
- Includes an investigation into the efficiency and effectiveness of the implementation of the commitments and provides a mechanism and primary trigger point for any necessary adaptive management of the Plan

29.7 HOW THE PLAN MEETS THE COMMONWEALTH ENDORSEMENT CRITERIA

The Strategic Assessment Agreement provides that, in determining whether to endorse the Plan, the Minister will consider the Plan against the Endorsement Criteria in the agreement to ensure the Plan meets the requirements of the EPBC Act and is able to be adequately implemented.

The ToR requires the SAR to include an assessment of how the Plan meets the Commonwealth endorsement criteria set out in Attachment 2 of the Strategic Assessment Agreement.

Table 29-12 shows where each of the endorsement criteria are addressed in the Plan.

Table 29-12: Where the Plan addresses the endorsement criteria

Endorsement criteria section	Endorsement criteria requirement	Chapter of the Plan
General 1. The Plan must:	a) describe how the Plan is to operate;	**1.2** – Purpose of the Plan **1.3** – Overview of the Plan and supporting documents
	b) use plain English and be written in a way that assists readers who do not have background in or detailed knowledge of the requirements of Part 10 of the EPBC Act;	**Entire Plan** **1.6** – Regulatory context and legal effect of the Plan
	c) provide clarity about legal responsibilities affected by the Plan following endorsement and approval;	**1.6** – Regulatory context and legal effect of the Plan **1.7** – Responsibilities for implementing the Plan **7.3** – Governance framework
	d) incorporate an agreed outcomes framework that uses a consistent hierarchy and language to clearly specify what the Plan (and any supporting documents) will deliver for protected matters. For the purposes of this Agreement and the Terms of Reference (noting that a different framework may be used for the Plan) these include: i) 'outcomes' which represent the highest level of what the Plan will deliver for protected matters, commitments, and measures' ii) 'commitments' which represent what the approval holder (or holders) will do over the life of the Plan to deliver the outcomes iii) 'measures' which represent the specific activities that the approval holder (or holders) will undertake to meet the commitments	**3** – Objective and outcomes of the Plan

Endorsement criteria section	Endorsement criteria requirement	Chapter of the Plan
	e) should allow for flexibility and adaptive management with respect to matters of development and conservation to deal with changes over the timeframe of the approval. This flexibility may be in relation to: i) spatial matters and where approved actions may be undertaken; ii) conservation measures, including which areas of land may be used to meet the approval holder's conservation commitments and how developments in scientific information will be incorporated by the approval holder into the conservation measures; and iii) how the City of Greater Geelong will administer and implement the Plan in the future in conjunction with existing Local Government mechanisms which may change over time;	**4.5** – Changes to the boundaries of land subject to development **7.5** – MERI framework **7.8** – Process for changing the implementation documents
	f) be clear about what aspects of the Plan cannot be altered.	**1.3.2** – Supporting documents **7.8** – Process for changing the implementation documents
Scope 2. The Plan must:	a) provide an approval holder (or holders);	**1.7.1** – Approval holder
	b) describe the role and responsibilities of the approval holder (or holders) and the Commonwealth;	**1.7** – Responsibilities for implementing the Plan **7.3** – Governance framework
	c) define the action or class of actions that are included in the Plan;	**4.3** – Development classes of actions
	d) define persons who can take an action under the Plan;	**4.4** – Persons who can undertake development and their obligations
	e) define the timeframe of the Plan;	**1.5** – Timing for implementation of the Plan
	f) define the spatial area of the strategic assessment;	**1.4** – Area covered by the Plan
	g) define the class of action boundaries;	**4.2** – Location of development
	h) describe the funding arrangements for implementation; and	**7.4** – Funding framework
	i) define matters excluded from the scope of the Plan, including but not limited to: i) actions that have already been found not to be controlled actions under section 75(1) of the EPBC Act; ii) actions that have already been approved under section 133(1) of the EPBC Act; and iii) actions not assessed or specifically excluded from the Plan.	**4.3.6** – Development not covered by the Plan
Environmental management 3. The Plan must:	a) identify the Protected matters that are relevant to the Plan (relevant protected matters);	**5.3** – Relevant protected matters
	b) summarise the expected duration, extent and likely severity of the Impacts to which this Agreement relates;	**5.4** – Avoidance and minimisation of impacts **5.5** – Mitigation of impacts

Endorsement criteria section	Endorsement criteria requirement	Chapter of the Plan
		5.6 – Residual impacts and offsets
	c) describe how the Impacts to which this Agreement relates will be avoided or mitigated and may refer to enhancement or management activities relating to these Protected Matters;	**5.4** – Avoidance and minimisation of impacts **5.5** – Mitigation of impacts **6.3** – Avoidance and minimisation of impacts **6.4** – Mitigation of impacts
	d) provide for appropriate offsets in accordance with the principles of the EPBC Act Environment Offsets Policy, in the event that impacts to protected matters cannot be fully avoided or mitigated;	**5.6** – Residual impacts and offsets **6.5** - Offsets for residual impacts
	e) define clear and measurable outcomes and commitments for the achievement of administrative and regulatory efficiencies, including specific, measurable, achievable, relevant and timely performance indicators to demonstrate progress towards achieving these outcomes and commitments	**3.4** – Outcomes of the Plan **3.5** – Commitments
	f) define clear and measurable outcomes and commitments for the management and conservation of protected matters that are relevant to the Plan, including specific, measurable, achievable, relevant and timely performance indicators to demonstrate progress towards achieving these outcomes and commitments.	**3.4** – Outcomes of the Plan **3.5** – Commitments
Implementation 4. The Plan must include at a minimum, a commitment to develop and outline:	a) an assurance and implementation plan that includes the best practice monitoring programs, regular review, public reporting and independent auditing processes proposed to: i) ensure outcomes, commitments and measures for protected matters contained in the Plan are, documented, delivered and adequately resourced throughout the life of the Plan.	**7** – Assurance and implementation framework
	ii) ensure the results of monitoring will be used to understand the effectiveness of outcomes, commitments and measures for protected matters and improve implementation, in particular, to adapt where monitoring demonstrates delivery of the commitments and measures are not leading to the predicted outcomes or where there are risks to protected matters.	**7.5** – MERI framework
	iii) ensure new information relating to protected matters, including legislative changes, may be assessed and accounted for in implementation of the Plan.	**7.5** – MERI framework (Improvement (adaptive management))
	iv) provide mechanisms that track persons who are relying on a strategic assessment approval to take an action and ensure persons undertaking actions are informed of their obligations under the endorsed Plan and approval.	**7.5** – MERI framework (Monitoring)
	v) detail all governance arrangements including the roles and responsibilities of the Parties and the named approval holder (or holders), including in	**7.3** – Governance framework

Endorsement criteria section	Endorsement criteria requirement	Chapter of the Plan
	the post approval phase, for the implementation of the Plan and Part 10 approval	
	vi) describe how the named approval holder (or holders) will demonstrate and adaptively manage the effectiveness of proposed regulatory, administrative and protected matter outcomes	**7.5** – MERI framework (Improvement (adaptive management))
	vii) ensure compliance with the Plan will be monitored and non-compliance will be reported.	**7.6** – Compliance framework
	viii) provide for a 5-yearly assurance review and report.	**7.5** – MERI framework (five-yearly evaluation and assurance review)
	b) governance processes to ensure that all activities are undertaken in accordance with the Plan;	**4.4** - Persons who can undertake development and their obligations **7.3** – Governance framework
	c) outcomes and commitments for regulatory and administrative efficiencies including for governments and third-party developers	**7.3** – Governance framework
	d) a conservation plan which implements the 'avoidance, mitigation, offset' hierarchy approach;	**5** – Conservation framework **6** – Delivery of external infrastructure
	e) a process for data management and sharing of data; and	**7.7** – Data management process
	f) a process for stakeholder engagement (including with the Commonwealth).	**7.3.5** – Stakeholder engagement strategy
Implementation	5. The information provided for these commitments should be of sufficient detail to enable an assessment of the suitability and effectiveness of the proposed approach.	**Entire Plan** *(see below)*

Table 29-12 shows that all the endorsement criteria have been addressed by the Plan. It is important to note that for section 4 of the endorsement criteria the plan is only required to, *"…include at a minimum, a commitment to develop and outline:"*, an implementation process for each of the relevant criteria. However, for section 5, the endorsement criteria require that, *"The information provided for these commitments should be of sufficient detail to enable an assessment of the suitability and effectiveness of the proposed approach"*.

The Plan addresses these endorsement criteria as it not only provides commitments to develop and outline these implementation processes, it also provides the frameworks that will be implemented through the Plan's implementation

documents. These frameworks provide the details of the proposed approach that will be undertaken to address the commitments of the Plan.

The Plan's implementation documents are:

- The Northern and Western Geelong Growth Areas BCS
- The Northern and Western Geelong Growth Areas Assurance and Implementation Program
- The Northern and Western Geelong Growth Areas Funding Program

The three implementation documents do not form part of the Plan to be endorsed by the Minister under Part 10 of the EPBC Act. These documents, including the detailed measures they contain that describe how each of the commitments in the Plan will be implemented, may be updated from time to time over the life of the Plan. While the commitments will not be changed once the Plan is endorsed, the measures set out in the BCS and the Assurance and Implementation Program may be updated. Part 1 of the SAR provides further details of these implementation documents and their relationship to the Plan.

29.8 CONCLUSION

The Plan is designed to protect MNES while supporting delivery of the development objectives of the NWGGA Framework Plan. It meets the requirements of the EPBC Act including the Strategic Assessment Agreement and the evaluation components of the ToR. In particular, the Plan:

- Is consistent with the principles of ESD
- Includes commitments that:
  - Achieve substantial avoidance of impacts to MNES
  - Adequately mitigate the potential indirect impacts of development
  - Will lead to the protection and management of significant areas of land as part of a strategic approach to both avoidance and offsets. This includes commitments to significant early offsetting in the life of the Plan
- Incorporates a robust assurance and implementation framework to ensure that the outcomes and commitments are delivered successfully

References

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THE CITY OF
GREATER GEELONG

NORTHERN AND WESTERN GEELONG GROWTH AREAS

MAY 2023

DRAFT COMMITMENTS AND MEASURES

CITY OF GREATER GEELONG

ACKNOWLEDGEMENT OF COUNTRY

Greater Geelong is located on the traditional lands of the Wadawurrung people. The land was created by the great ancestor spirit, Bunjil, the wedge-tailed eagle. Wadawurrung territory extends from the great dividing range in the north to the coast around Port Phillip Bay.

The city acknowledges the Wadawurrung people as the traditional owners of this land who to this day practice their culture and uphold the dignity of their ancestors.

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Acronyms and terms

Acronyms	Meaning
BCS	Biodiversity Conservation Strategy
DCCEEW	Commonwealth Government Department of Climate Change, Energy, the Environment and Water (DCCEEW)
DEECA	Victorian Government Department of Environment, Energy and Climate Action
DTP	Victorian Government Department of Transport and Planning
EPBC Act	Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*
KPI	Key Performance Indicator
MERI	Monitoring, evaluation, reporting and improvement
MNES	Matters of National Environmental Significance
NGGA	Northern Geelong Growth Area
NVPP	Native Vegetation Precinct Plan
PSP	Precinct Structure Plan
SAR	Strategic Assessment Report
WGGA	Western Geelong Growth Area
WIK	Works in Kind

Terms / Abbreviations	Definition
BCS guiding principles	A set of principles to guide both the preparation of the BCS and the decisions that will need to be made as part of the strategy's implementation
City Implementation Group	The primary body responsible for day-to-day implementation of the Plan
Conservation Management Plan	The document used to provide for the protection and ongoing management of the biodiversity values within each strategic conservation area
Construction Environmental Management Plans	A plan developed to ensure appropriate environmental management practices are implemented during the construction phase of a project
Cowies Creek Conservation Area	The section of Cowies Creek within the WGGA to be protected and managed for conservation purposes under the Plan
Development land	Specified land within the Strategic Assessment Area where development under the Plan is proposed to occur
Development under the Plan	The broad term used to describe all development occurring under the Plan. This includes land subject to development within the Growth Areas, the External infrastructure corridors, the NGGA Conservation Area, and Cowies Creek Conservation Area
Evaluation Questions	The questions used to evaluate the Plan in regard to the achievement of outcomes and implementation of commitments
External infrastructure	Development comprising the supporting infrastructure and services class of action and the environmental management class of action that is located outside of Growth Areas but within the Strategic Assessment Area
Land subject to development	Development land within the Growth Areas subject to all classes of actions under the Plan

Terms / Abbreviations	Definition
NGGA Conservation Area	Area of land within the NGGA to be avoided for conservation purposes under the Plan
Specific mitigation measures	Additional mitigation measures beyond those delivered through the existing planning system to address specific risks to MNES associated with the implementation of the Plan
Stakeholder engagement strategy	A process for stakeholder engagement to guide the City in undertaking ongoing engagement with key stakeholders over the life of the Plan
Standard mitigation measures	Mitigation measures delivered by the Victorian planning system through the PSP process, existing provisions in the Greater Geelong Planning Scheme, and the planning permit process
Strategic Conservation Area	Areas within the Growth Areas that will be avoided from development and protected and managed for conservation in-perpetuity
The City	The City of Greater Geelong
The Executive Committee	The Northern and Western Geelong Growth Areas EPBC Plan Executive Committee
The Framework Plan	*Northern and Western Geelong Growth Area Framework Plan*
The Growth Areas	Northern and Western Geelong Growth Areas
The Plan	The Northern and Western Geelong Growth Areas EPBC Plan
Works in Kind	A contribution in lieu of payment of the biodiversity levy amount

1 Introduction

The City of Greater Geelong (the City) has identified two key areas for urban growth in Geelong's northwest in the Northern and Western Geelong Growth Areas (the Growth Areas).

The Growth Areas were identified through several State planning strategies for future growth. The City subsequently developed the *Northern and Western Geelong Growth Areas Framework Plan* (the Framework Plan) (The City of Greater Geelong, 2021), which describes the Growth Areas and outlines considerations for their future development until 2047.

Development within the Growth Areas and associated infrastructure development outside the Growth Areas will lead to impacts to biodiversity values protected under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) and impacts on biodiversity values protected under Victorian biodiversity regulations.

1.1 THE STRATEGIC ASSESSMENT

To support development in the Growth Areas and protect matters of national environmental significance (MNES), the City is undertaking a strategic assessment under Part 10 of the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). This enables a landscape scale assessment and approval of a suite of development actions under the EPBC Act and provides the opportunity to deliver improved environmental and development outcomes compared to project-by-project assessments through strategic consideration of biodiversity issues.

As part of the strategic assessment process, the City has prepared the *Northern and Western Geelong Growth Areas EPBC Plan* (the Plan). The Plan ensures development within the Growth Areas, as well as associated infrastructure development outside the Growth Areas, protects MNES and proceeds in accordance with the requirements of the EPBC Act.

The Plan:

- Describes the development (classes of actions) that approval is being sought for under the EPBC Act
- Sets out an objective, and a series of outcomes and commitments to define what the Plan will achieve
- Sets out a conservation framework to address the impacts of the development on MNES, including through avoiding and minimising, mitigating and offsetting residual impacts
- Describes the process for delivering infrastructure outside the Growth Areas
- Sets out an assurance and implementation framework to implement the Plan

The Plan is supported by four documents. These include:

- Three implementation documents:
  - The Northern and Western Geelong Growth Areas Commitments and Measures (this document)
  - The Northern and Western Geelong Growth Areas Biodiversity Conservation Strategy (BCS)
  - The Northern and Western Geelong Growth Areas Funding Program
- A Strategic Assessment Report (SAR)

The three implementation documents contain more information about how the Plan will be implemented. The BCS also addresses how the outcomes of the strategic assessment are consistent with Victorian biodiversity regulations and provides additional outcomes for the protection of State-listed and locally significant biodiversity values.

The Strategic Assessment Report (SAR) has been prepared to assess the impacts of development under the Plan on MNES. The SAR evaluates the adequacy of the Plan's outcomes, commitments and measures in protecting MNES over the life of the Plan.

Figure 1-1 shows the relationship between the documents associated with the strategic assessment.

Figure 1-1: Strategic assessment documents

1.2 OUTCOMES FRAMEWORK AND PURPOSE OF THIS DOCUMENT

The Plan identifies a broad objective, as well as six national level outcomes relating to the protection of MNES under the EPBC Act and socio/economic considerations. The Plan's outcomes represent standards of environmental protection that will be achieved for MNES under the Plan in accordance with the requirements of the EPBC Act.

The BCS identifies an additional broad objective focussing on state and local biodiversity. Some of the Plan's outcomes are relevant to the BCS, but additional state and local specific outcomes are also provided in the BCS.

The Plan and the BCS objectives and outcomes will be achieved through the delivery of a set of commitments and measures.

1.2.1 OUTCOMES FRAMEWORK

The outcomes, commitments and measures were developed as part of an 'outcomes framework' based on program logic principles. The outcomes framework provides a way to structure what the Plan will deliver for the conservation of protected matters in a clear and logical way. It supports accountability and transparency by providing the basis and set of benchmarks for monitoring, reporting, and ongoing evaluation and adaptive management of the Plan.

The outcomes framework is a requirement of the Endorsement Criteria in the Strategic Assessment Agreement.

The outcomes framework for both the Plan and BCS is comprised of four components:

- A broad ***objective***
- ***Outcomes***
- ***Commitments*** to deliver the outcomes
- ***Measures*** to implement the commitments

The definition of each of these in relation to the Plan and BCS is provided in Table 1-1.

The outcomes framework is described in more detail in Chapter 3 of the Plan and Section 2.1 of the BCS.

Table 1-1: Definition of the components of the outcomes framework

Framework component	Definition
Plan objective	The contribution that the outcomes of the Plan will make to broader State-wide, regional and local planning policies. It articulates the reason the Plan is being undertaken and the broad goal it is intended to support
BCS objective	The contribution that the outcomes of the BCS will make to biodiversity
Plan outcomes	The impacts or changes to environmental and socio/economic conditions that are expected to be achieved because of the delivery of the commitments and that are needed to achieve the overall objective of the Plan
BCS outcomes	The positive impacts or changes to biodiversity values that are needed to achieve the overall objective of the BCS. The outcomes are set out in relation to: • National level biodiversity outcomes (these are taken from the Plan) • State and local biodiversity outcomes which are specific to the BCS • An implementation outcome for the BCS
Commitments	The direct results of implementing the measures that are expected to lead to the achievement of the outcomes
Measures	The specific actions that will be undertaken to meet the commitments. Measures are not defined in the Plan. The commitments and measures document provides the full suite of measures needed to implement the biodiversity commitments at all levels

1.2.2 PURPOSE OF THIS DOCUMENT

The outcomes and commitments are set out in the Plan and the BCS. The EPBC outcomes and commitments will not be changed once the Plan is endorsed under Part 10 of the EPBC Act.

The measures to implement the Plan and BCS commitments are set out in this document. This document also provides the following details for each measure:

- Responsibility
- Key support partner/s (if relevant)
- Timing

While the commitments cannot be changed once the Plan is endorsed, the measures set out in this document may be updated from time to time over the life of the Plan through an adaptive management process in accordance with the Plan's MERI framework (see Section 7.5 of the Plan). The improvement step of the MERI framework provides the opportunity to adaptively manage implementation of the Plan to ensure the commitments are successfully delivered and the Plan's objective and outcomes are achieved.

The ability to adapt the measures is therefore an important and necessary characteristic of the outcomes framework, designed to better assure successful delivery of the outcomes and commitments, rather than providing inappropriate lenience or flexibility where environmental diligence and obligations have not been adequately met.

1.3 STRUCTURE OF THIS DOCUMENT

This document is structured as follows:

- Section 2 provides the Plan (national level) objective, outcomes, commitments and measures (some of which are also relevant to the BCS)
- Section 3 provides the BCS (state and local level) objective, outcomes, commitments and measures which are only relevant to the BCS

1.3.1 NUMBERING OF OUTCOMES, COMMITMENTS AND MEASURES

To provide clarity, different numbering systems are used to distinguish the national level versus state and local level outcomes, commitments and measures.

National level outcomes and commitments provided in the Plan and their associated measures are identified using cardinal numbers (e.g. 1, 2, 3 etc).

State and local outcomes, commitments provided in the BCS and their associated measures are identified using Roman numerals (e.g. i, ii, iii etc).

2 Objective, outcomes, commitments and measures under the Plan

This section provides the national level objective and outcomes, as detailed in the Plan. A detailed set of measures is then provided for each of the national level commitments. These measures are to enable adequate implementation of the Plan and the achievement of the outcomes and objective of the Plan.

2.1 OBJECTIVE OF THE PLAN

The objective of the Plan is to:

Provide for the protection of matters of national environmental significance while supporting the delivery of the Northern and Western Geelong Growth Areas Framework Plan and its objectives

2.2 OUTCOMES OF THE PLAN

The outcomes of the Plan are set out in Table 2-1. An explanation, including definition of key terms, is provided at the end of the table.

Table 2-1: Outcomes of the Plan

No.	Outcome
1	Populations of Golden Sun Moth and Striped Legless Lizard are maintained within the Northern Geelong Growth Area (NGGA) Conservation Area
2	The long-term viability of the important population of the Growling Grass Frog along Cowies Creek is supported through the protection and enhancement of habitat within the Western Geelong Growth Area (WGGA)
3	The protection and management of land outside of the Growth Areas makes an important contribution to the recovery efforts for Natural Temperate Grassland, Golden Sun Moth and Striped Legless Lizard in Victoria
4	Matters of national environmental significance associated with waterways, riparian areas and wetlands are protected from any notable adverse impacts of development under the Plan
5	The Plan improves regulatory efficiency by streamlining EPBC Act approvals
6	Implementation of the Plan is effective, timely, and cost efficient

2.2.1 EXPLANATION AND DEFINITION OF KEY TERMS

The following provides a rationale for the outcomes and definition of the key terms.

OUTCOME 1

The populations of Golden Sun Moth and Striped Legless Lizard within the NGGA are two of the key MNES values present. Existing threats in the area continue to degrade habitat and reduce the long-term viability of these populations. The Plan will protect, restore and actively manage some existing areas of habitat within the NGGA to ensure that these species persist in the area.

In this context, the meaning of the term 'maintained' is defined as and would consider to be achieved where, over the life of the Plan:

- The extent of mapped habitat is shown to be the same or greater than that presented in the SAR
- Both species continue to be recorded within the NGGA Conservation Area

OUTCOME 2

The population of the Growling Grass Frog (GGF) within the WGGA is one of the key MNES values present within the Growth Area. The species displays classical metapopulation dynamics. In relation to the Growth Areas, this means that the population recorded within the WGGA occurs as part of a larger metapopulation within Cowies Creek made up of discrete populations connected by migration. These discrete populations can naturally change over time and go locally extinct (for instance, due to flooding events) and then be recolonised from connected populations. As a result, the continued persistence of the WGGA population is dependent on both the presence and retention of suitable habitat, as well as the persistence of the downstream, connected populations that form the Cowies Creek metapopulation.

A range of external factors could influence the persistence of the broader metapopulation and many of these factors are outside the control or influence of the Plan. The Plan therefore provides for the protection, restoration and management of GGF habitat within the WGGA Cowies Creek Conservation Area with the aim of supporting the long-term persistence of this population over time, but without being able to commit to its continued persistence.

In this context, the meaning of the term 'supported' is defined as and would consider to be achieved where the extent and condition of suitable GGF habitat within the Cowies Creek Conservation Area is improved over the life of the Plan compared to that presented in the SAR.

OUTCOME 3

Protected areas supporting large or important occurrences of Natural Temperate Grassland, Golden Sun Moth, and Striped Legless Lizard are needed for the recovery of these MNES in the long-term. The Plan represents a critical opportunity to deliver larger occurrences of these matters in good condition due to the strategic nature and coordinated implementation of the offset program.

In this context, the meaning of the term 'important contribution to the recovery efforts' is defined as and would consider to be achieved where: offsets delivered for each MNES outside of the Growth Areas are in good condition and of a large size relative to the remaining extent of available habitat within Victoria.

OUTCOME 4

There are a number of MNES associated with habitat areas outside and downstream of the Strategic Assessment Area. The risks to these values are generally considered to be low as a result of development within the Growth Areas and measures to mitigate and manage potential downstream impacts are expected to avoid any notable adverse impacts.

To demonstrate, monitor and manage to this outcome, a number of technical studies will be undertaken as part of implementation to ensure that precincts are designed and developed in a way which avoids notable adverse impacts to downstream values.

In this context, the meaning of the term 'protected from any notable adverse impacts' is defined as and would considered to be achieved where, prior to final design and development of each precinct: relevant downstream MNES values are identified; the meaning of notable adverse impacts to those values are defined; necessary mitigation and management measures to avoid notable impacts are stipulated in a set of guidelines to be addressed as part of development; and a monitoring and adaptive management program is implemented over the life of the Plan to ensure that notable adverse impacts are being avoided.

OUTCOME 5

Regulatory efficiency is an outcome that is required as part of the Endorsement Criteria under the Strategic Assessment Agreement. The Plan will deliver regulatory efficiency through the single Part 10 assessment and approval process which will ensure that future activities consistent with the classes of action do not require separate referral, assessment and approval under Parts 7, 8 and 9 of the EPBC Act. Design of the key elements of the Plan, including the commitments and MERI framework, will streamline the regulatory processes during implementation by removing the ongoing approval role of the Commonwealth government where State and local processes can adequately meet the requirements of the Plan.

OUTCOME 6

Lessons learnt from previous Part 10 Strategic Assessment processes point to the importance of effective implementation and its role in ensuring the MNES related outcomes are delivered. Timeliness and cost efficiency are key elements of good implementation which will help to ensure fair and equitable processes that facilitate the support and buy in from stakeholders needed to deliver on the outcomes of the Plan

2.3 COMMITMENTS AND MEASURES FOR THE PLAN

The commitments and measures for the Plan are set out in Table 2-2, including responsibility, support partner/s and timing.

Table 2-2: Commitments and measures for the Plan

No.	Commitment	No.	Measure	Responsibility	Key support partner(s)	Timing
Delivery of development						
1	Development within the Strategic Assessment Area will proceed in accordance with any Commonwealth approval conditions and generally in accordance with the EPBC Plan and NWGGA Biodiversity Conservation Strategy	1	Prepare PSPs for each precinct within the growth areas in consideration of the Plan and the BCS	City of Greater Geelong	DTP	At PSP preparation stage for each precinct
		2	Incorporate relevant Plan commitments and associated measures as PSP Requirements and Guidelines for each precinct	City of Greater Geelong	-	At PSP preparation stage for each precinct
		3	Prepare schedules to the Urban Growth Zone for each precinct and specify requirements for permit applications, conditions that must be included on permits, and decision guidelines to give effect to the relevant Plan commitments and measures	City of Greater Geelong	DTP	At planning scheme amendment stage for the relevant precinct
2	Proposed minor changes to the boundaries of land subject to development will meet the eligibility for consideration and be in accordance with the process for considering changes set out in Section 4.5 of the Plan	4	Review planning proposals that require a boundary change to the land subject to development against the eligibility for consideration in Section 4.5 of the Plan, and advise proponents of their eligibility or how the planning proposal could be adjusted	City of Greater Geelong	-	At PSP preparation stage for each precinct
		5	Undertake ecological surveys within the proposed new land subject to development for all protected matters with the potential to occur. Surveys must be undertaken by a qualified ecologist in accordance with relevant guidelines	Project proponent	City of Greater Geelong	At PSP preparation stage for each precinct
		6	Prepare a report assessing the potential direct and indirect impacts of the planning proposal requiring the boundary change on protected matters. The report must demonstrate how impacts are avoided and minimised, mitigated, and offset in accordance with the offsets	Project proponent	City of Greater Geelong	At PSP preparation stage for each precinct

No.	Commitment	No.	Measure	Responsibility	Key support partner(s)	Timing
			mitigation hierarchy and the EPBC Act Offsets Policy (DSEWPC, 2012)			
		7	Provide the report to the EPBC Plan Executive Committee and DCCEEW for consideration and comment	City of Greater Geelong	DCCEEW	At PSP preparation stage for each precinct
		8	If the planning proposal within the proposed new land subject to development will impact MNES or proposes to modify the boundaries of the NGGA Conservation Area or the Cowies Creek Conservation Area, the change must be endorsed by DCCEEW. Other changes will be endorsed by the City Implementation Group	City of Greater Geelong	DCCEEW	At PSP preparation stage for each precinct
		9	Once the boundary change is endorsed: • Relevant maps in the BCS will be updated • The PSP will show the new boundary of land subject to development • The boundary change will be reported in the annual progress report for that year	City of Greater Geelong	-	At PSP preparation stage for each precinct
Conservation						
3	The NGGA Conservation Area will be established in perpetuity to avoid and protect 74 ha of habitat for Striped Legless Lizard and 108 ha of habitat for Golden Sun Moth	10	Identify the conservation area in relevant PSPs as land to be protected for conservation in urban structure maps of the precinct	City of Greater Geelong	-	At PSP preparation stage for each precinct
		11	Apply an appropriate environment zone to the conservation area under the Greater Geelong Planning Scheme	City of Greater Geelong	-	At planning scheme amendment stage for the relevant precinct
		12	Identify native vegetation in the conservation area as to be retained within the relevant NVPPs	City of Greater Geelong	-	At PSP preparation stage for each precinct
		13	The City to purchase Stage 1 of the NGGA Conservation Area	City of Greater Geelong	Relevant landholder(s)	By the end of year 5 of Plan implementation

No.	Commitment	No.	Measure	Responsibility	Key support partner(s)	Timing
		14	The City to purchase Stage 2 of the NGGA Conservation Area	City of Greater Geelong	Relevant landholder(s)	At the time of subdivision of adjacent land
		15	Secure the conservation area under in-perpetuity, on-title agreements consistent with the security requirements of the *Guidelines for the removal, destruction or lopping of native vegetation* (DELWP, 2017c)	City of Greater Geelong	Relevant landholder(s)	At the time the land is purchased
4	A Conservation Management Plan will be prepared and implemented for the protection and ongoing management of Striped Legless Lizard and Golden Sun Moth within the NGGA Conservation Area	16	Prepare a Conservation Management Plan in accordance with the Commonwealth *Environmental Management Plan Guidelines* (DoE, 2014), and include the following information in the plan: • Objectives of the plan • Boundary of the conservation area • Native vegetation to be retained as identified in the NVPP • Extent and condition of habitat and records for Striped Legless Lizard and Golden Sun Moth • Management actions and arrangements to protect Striped Legless Lizard and Golden Sun Moth, including methods, standards and techniques, roles and responsibilities, timing for implementation, funding and monitoring and reporting	City of Greater Geelong	DEECA	Within 1 year of securing of the conservation area
		17	Include objectives in the Conservation Management Plan that are consistent with: • Protecting habitat supporting populations of the Striped Legless Lizard and Golden Sun Moth	City of Greater Geelong	DEECA	Within 1 year of securing of the conservation area

No.	Commitment	No.	Measure	Responsibility	Key support partner(s)	Timing
			• Improving the condition of habitat for the Striped Legless Lizard and Golden Sun Moth • Increasing the area of occupied habitat for the Striped Legless Lizard through regeneration or restoration of suitable areas			
		18	Provide a draft of the Conservation Management Plan to the EPBC Plan Executive Committee and DCCEEW for consideration and comment prior to its finalisation and approval by the City of Geelong	City of Greater Geelong	-	Finalisation and approval within 6 months of providing the draft to the EPBC Plan Executive Committee and DCCEEW
		19	Implement the Conservation Management Plan over the life of the Plan	City of Greater Geelong	-	Following approval of the Conservation Management Plan by the City of Greater Geelong
5	The Cowies Creek Conservation Area will be established in perpetuity to avoid and protect habitat needed to support the continued persistence of the Growling Grass Frog in the WGGA	20	In designing the Creamery Road PSP, confirm the boundaries of the Cowies Creek Conservation Area currently shown in the BCS to ensure the conservation area includes all areas of habitat that may be needed to support the continued persistence of the Growling Grass Frog within the WGGA, including areas of habitat that may be used for breeding, foraging and movement	City of Greater Geelong	Corangamite CMA	At PSP preparation stage for each precinct
		21	Identify the conservation area in relevant PSPs as land to be protected for conservation in urban structure maps of the precinct	City of Greater Geelong	-	At PSP preparation stage for each precinct
		22	Apply an appropriate environment zone to the conservation area under the *Greater Geelong Planning Scheme* (The City of Greater Geelong, 2022)	City of Greater Geelong	-	At planning scheme amendment stage for the relevant precinct

No.	Commitment	No.	Measure	Responsibility	Key support partner(s)	Timing
		23	Identify native vegetation in the conservation area as to be retained within the relevant NVPPs	City of Greater Geelong	-	At PSP preparation stage for each precinct
		24	Conservation area to be vested to the City as part of subdivision of the subject land	City of Greater Geelong	Relevant landholder(s)	At the time of subdivision of adjacent land
		25	Conservation area to be established as part of the City's reserve program	City of Greater Geelong	Relevant landholder(s)	At the time of subdivision of adjacent land
6	A Conservation Management Plan will be prepared and implemented for the protection and ongoing management of Growling Grass Frog and areas of potential habitat for Adamson's Blown-grass within the Cowies Creek Conservation Area	26	Prepare a Conservation Management Plan in accordance with the Commonwealth *Environmental Management Plan Guidelines* (DoE, 2014), *Growling Grass Frog Habitat Design Standards* (DELWP, 2017b), *Growling Grass Frog Crossing Design Standards* (DELWP, 2017a) and to address the requirement in the Framework Plan to develop a Master Plan for the corridor. Include the following information in the plan: • Objectives of the plan • Boundary of the conservation area • Native vegetation to be retained as identified in the NVPP • Growling Grass Frog records and habitat • Potential habitat for Adamson's Blown-grass • Any locations suitable for public access points, walking paths/trails, and passive recreation • Any locations suitable for water management assets and associated infrastructure • Management actions and arrangements to protect Growling Grass Frog and its habitat, including methods, standards and	City of Greater Geelong	DEECA	Within 1 year of securing of the conservation area

No.	Commitment	No.	Measure	Responsibility	Key support partner(s)	Timing
			techniques, roles and responsibilities, timing for implementation, funding and monitoring and reporting • Management actions and arrangements to maintain suitability of the area for Adamson's Blown-grass, including the use of appropriate indigenous species for revegetation			
		27	Include objectives in the Conservation Management Plan that are consistent with: • Protecting high quality instream habitat • Improving the condition of lower quality instream habitat • Protecting terrestrial habitat in buffer areas adjacent to the creek • Regenerating areas of terrestrial habitat that are degraded • Potentially providing for the creation of off-stream habitat, where appropriate and beneficial to the species	City of Greater Geelong	DEECA	Within 1 year of securing of the conservation area
		28	Undertake the following actions if monitoring shows declines in the Cowies Creek Growling Grass Frog population: • Instigate further information gathering to try and determine the causes of the declines • Determine restorative actions based on the causes of decline. These may include: changes to how water quantity and/or quality are managed; management actions in the corridor to restore habitat; and/or creation of new habitat features (e.g. off-stream ponds)	City of Greater Geelong	DEECA	If monitoring shows declines in the Cowies Creek Growling Grass Frog population

No.	Commitment	No.	Measure	Responsibility	Key support partner(s)	Timing
			• Increase monitoring intensity to determine if restorative actions are working			
		29	Provide a draft of the Conservation Management Plan to the EPBC Plan Executive Committee and DCCEEW for consideration and comment prior to its finalisation and approval by the City of Geelong	City of Greater Geelong	-	Within 1 year of securing the conservation area
		30	Implement the Conservation Management Plan over the life of the Plan	City of Greater Geelong	-	Following approval of the Conservation Management Plan by the City of Greater Geelong
7	Standard mitigation measures will continue to be implemented to minimise the indirect impacts of the development on MNES in accordance with the requirements of the *Greater Geelong Planning Scheme* (The City of Greater Geelong, 2022), as updated from time to time, and generally in accordance with the Framework Plan (The City of Greater Geelong, 2021)	31	Continue to include standard mitigation measures as requirements and guidelines in PSPs and/or as conditions on permits, as appropriate, to mitigate the following indirect impact types: • Altered fire regimes and increased fire risk • Changes to water flows and quality • Disturbance from increased public access to natural areas • Fauna disturbance due to noise, dust and light • Fauna mortality, displacement, and barriers to movement • Inadvertent impacts on adjacent habitat or vegetation • Predation/competition/land degradation by pests/domestic fauna • Spread of infection/disease • Spread of weeds	City of Greater Geelong	-	At PSP preparation stage (for conditions included as requirements and guidelines in PSPs) and at the planning permit stage (for conditions included as permit conditions)

No.	Commitment	No.	Measure	Responsibility	Key support partner(s)	Timing
8	The following additional specific mitigation measures will be implemented to minimise the indirect impacts of development on the NGGA Conservation Area and Cowies Creek Conservation Area: • Establish a conservation interface for the conservation areas • Design and baffle public lighting to prevent light spill and glare within the Cowies Creek Conservation Area • Prepare Construction Environmental Management Plans for construction works on land immediately adjacent to the conservation areas	32	Identify a conservation interface between urban development and the boundaries of the NGGA Conservation Area and Cowies Creek Conservation Area in plans within relevant PSPs. The conservation interface should be established in accordance with relevant principles and standards in the Biodiversity Conservation Strategy for Melbourne's Growth Corridors (DEPI, 2013)	City of Greater Geelong	-	At PSP preparation stage for the relevant precinct
		33	Include the design and baffle of public lighting to prevent light spill and glare within the Cowies Creek Conservation Area as a requirement or guideline in PSPs and/or as a condition on permits for land use, subdivision and development, as appropriate	City of Greater Geelong	-	At PSP preparation stage for the relevant precinct
		34	Include the preparation of a Construction Environmental Management Plan on land immediately adjacent to the NGGA Conservation Area and Cowies Creek Conservation Area as a requirement or guideline in PSPs and/or as a condition on permits for land use, subdivision and development, as appropriate. The purpose of these plans is to ensure that appropriate measures are put in place to mitigate the potential indirect impacts of construction on the MNES values within the Conservation Areas. The Plans should stipulate the measures that will be undertaken and the monitoring and reporting that will be undertaken to ensure appropriate implementation	City of Greater Geelong	-	At PSP preparation stage (for conditions included as requirements and guidelines in PSPs) and at the planning permit stage (for conditions included as permit conditions)
		35	Monitor and report on the inclusion of the specific mitigation measures in PSPs and as conditions on permits, as part of the monitoring	City of Greater Geelong	-	As part of annual progress reporting

No.	Commitment	No.	Measure	Responsibility	Key support partner(s)	Timing
			program and annual progress reporting under the MERI framework			
9	Additional specific mitigation measures will be implemented to minimise the indirect impacts of the development on MNES associated with waterways, riparian areas and wetlands including: • EPBC listed threatened and migratory birds • *Galaxiella toourtkoourt* (Little Galaxias) • *Litoria raniformis* (Growling Grass Frog) • *Nannoperca obscura* (Yarra Pygmy Perch) • *Prototroctes maraena* (Australian Grayling) • *Lachnagrostis adamsonii* (Adamson's Blown Grass) • Port Phillip Bay (Western Shoreline) and Bellarine Peninsula Ramsar site	36	Undertake relevant technical studies to understand the key risks from development on protected matters associated with Hovells Creek and the Moorabool River. These studies will: • Address potential risks associated with changes to water quality and hydrology as a result of development within the Growth Areas • Identify appropriate measures, standards or targets to avoid and minimise adverse impacts on protected matters including, as relevant: o Water quality parameters o Water retention and flow management requirements o Limits on extraction or use o Habitat buffer requirements o Monitoring and reporting These studies will be undertaken in consultation with relevant stakeholders, regulators and experts	City of Greater Geelong	Corangamite CMA and other key stakeholders	Prior to PSP preparation for the relevant precincts
		37	Prepare guidelines based on the results of the technical studies to guide the preparation of PSPs and decisions on planning permits and permit conditions to ensure risks to protected matters in relation to indirect and downstream impacts are adequately managed	City of Greater Geelong	Corangamite CMA and other key stakeholders	Prior to PSP preparation for the relevant precincts
		38	Undertake a planning scheme amendment or other appropriate process to ensure the	City of Greater Geelong	DTP	Prior to PSP preparation for the relevant precincts

No.	Commitment	No.	Measure	Responsibility	Key support partner(s)	Timing
			guidelines are considered during the preparation of PSPs and in decisions on planning permits and permit conditions			
		39	Ensure that the design of stormwater infrastructure and ongoing stormwater management is sympathetic to and does not notably alter habitat for the Growling Grass Frog within downstream reaches of Cowies Creek	City of Greater Geelong	DTP	Prior to PSP preparation for the relevant precincts
10	Offset sites will be established in strategic locations to protect and manage a minimum of the following amounts of habitat to support the following MNES: • 45 ha of Natural Temperate Grassland • 375 ha of known habitat for Striped Legless Lizard • 585 ha of known habitat for Golden Sun Moth	40	Develop strategic landscape criteria to guide the targeting of land suitable for strategic offsets that considers: • Locating sites in areas of habitat that would be considered large for each MNES • Locating sites within key biodiversity corridors • Locating sites adjacent to or connected to existing conservation reserves	City of Greater Geelong	-	Within the first 3 months of Plan implementation
		41	Identify priority offset locations that meet at least one of the strategic landscape criteria and establish a work program to engage with landholders within those areas to seek agreement to establishing offset sites	City of Greater Geelong	Landholders	Within the first 6 months of Plan implementation
		42	Confirm the presence and extent of Natural Temperate Grassland and known habitat for Striped Legless Lizard and Golden Sun Moth and other biodiversity values of the offset sites through field surveys undertaken in accordance with relevant survey guidelines	City of Greater Geelong	-	Prior to agreeing with the landholder to secure the land as an offset site
		43	Secure offset sites under in-perpetuity, on-title agreements consistent with the security requirements of the *Guidelines for the removal,*	City of Greater Geelong	-	Following confirmation of biodiversity values of

No.	Commitment	No.	Measure	Responsibility	Key support partner(s)	Timing
			destruction or lopping of native vegetation (DELWP, 2017c)			the offset site through surveys
		44	Prepare an offset management plan for each offset site and undertake and report annually on management actions in accordance with the requirements of the *Guidelines for the removal, destruction or lopping of native vegetation* (DELWP, 2017c)	Landholders	City of Greater Geelong	Following securing the land as an offset site
11	Within the first five years of Plan implementation the City of Greater Geelong will secure the following offsets at a minimum: • 100% of the offset requirement for Natural Temperate Grassland • 70% of the offset requirement for Striped Legless Lizard • 50% of the offset requirement for Golden Sun Moth	45	Monitor and track the rate of offset delivery to ensure that the offset targets for the first five years of Plan implementation are being met	City of Greater Geelong	-	Throughout the first five years of Plan implementation
		46	Implement the following contingency steps if the rate of offset delivery is not on track for meeting the targets by year five of Plan implementation: • The City will notify DCCEEW about the issue • The City will make every effort to secure the necessary offsets to meet the necessary rate of offset delivery within 12 months of the issue being identified • If at year five of Plan implementation the offset targets have not been met, the City will pause development approvals within the NGGA until sufficient offsets are secured to meet the five-year targets	City of Greater Geelong	-	If monitoring shows that the rate of offset delivery is not on track for meeting the targets for the first five years of Plan implementation
12	Offset delivery will keep pace with and occur ahead of impacts within the NGGA	47	Monitor and track the rate of development within the NGGA and the associated impacts to Natural Temperate Grassland, Striped Legless Lizard and Golden Sun Moth using the baseline ecological data used for the strategic assessment	City of Greater Geelong	-	As development proceeds

No.	Commitment	No.	Measure	Responsibility	Key support partner(s)	Timing
		48	Secure offset sites at a rate that is faster than the rate of impacts to Natural Temperate Grassland, Striped Legless Lizard and Golden Sun Moth	City of Greater Geelong	-	As development proceeds
		49	Implement the following contingency steps if the rate of offsets is not ahead of the rate of impacts to Natural Temperate Grassland, Striped Legless Lizard and Golden Sun Moth: • The City will notify DCCEEW about the shortfall and outline proposed steps to remedy the issue • The City will make every effort to secure the necessary offsets within 12 months of a shortfall being identified • If the necessary offsets cannot be secured within the 12-month period, the City will pause development approvals within the NGGA until sufficient offsets are secured to address the level of impact to MNES	City of Greater Geelong	-	If monitoring shows that the rate of offsets is not ahead of the rate of impacts to NTG, SLL or GSM
External infrastructure						
13	External infrastructure development will be designed and located to avoid impacts to MNES and native vegetation. The following specific avoidance outcomes will be delivered: • Spiny Rice-flower – any confirmed population or part of the population must be avoided and will be protected, maintained and managed to ensure the persistence of that population in the long-term	50	Undertake targeted surveys within the external infrastructure footprints for all protected matters with the potential to occur. This may include, but not be limited to: • Natural Temperate Grassland • Spiny Rice-flower • Adamson's Blown-grass • Striped Legless Lizard • Golden Sun Moth Surveys must be undertaken prior to development to inform the detailed planning and design phase of each infrastructure project, and in accordance with relevant survey	Project proponent	City of Greater Geelong	Prior to development of each external infrastructure project

No.	Commitment	No.	Measure	Responsibility	Key support partner(s)	Timing
	• Other MNES – any confirmed population or occurrence that would be considered important or notable (for instance, due to size, condition or potential contribution to the recovery of the MNES) must be avoided and will be protected, maintained and managed to ensure the persistence of that population or occurrence in the long-term. Impacts to all other populations or occurrences will be avoided and minimised as far as practical		guidelines or standards (including published survey guidelines for MNES)			
		51	Prepare maps showing the location of any protected matters recorded within the external infrastructure footprints to inform the detailed design of each infrastructure project and the avoidance that is proposed to occur within the infrastructure footprint	Project proponent	City of Greater Geelong	Prior to development of each external infrastructure project
		52	Provide a report to the EPBC Plan Executive Committee and DCCEEW that includes the location of any protected matters within the external infrastructure footprints and demonstrates avoidance outcomes in accordance with the requirements of the commitment	Project proponent	City of Greater Geelong	Prior to development of each external infrastructure project
		53	Monitor and report on residual impacts within the external infrastructure footprints as part of the monitoring program and annual progress reporting under the MERI framework	City of Greater Geelong	Project proponent	Within 6 months following construction impacts of each external infrastructure project as part of annual progress reporting
		54	Should any important populations or occurrences of MNES be avoided within the external infrastructure footprints, develop a Conservation Management Plan to ensure appropriate roadside management of avoided areas. This plan will address potential indirect impacts associated with the spread of weeds, fire regimes, removal of rocks or other habitat features and inappropriate road maintenance works such as slashing, grazing, clearing, herbicide application, and soil disturbance from vehicle traffic	Project proponent	City of Greater Geelong	Prior to development of each external infrastructure project

No.	Commitment	No.	Measure	Responsibility	Key support partner(s)	Timing
14	Unavoidable clearing due to the external infrastructure development of any areas confirmed to support MNES will be offset in accordance with the EPBC Act Environmental Offsets Policy and associated Offsets Assessment Guide (or equivalent) (Commonwealth of Australia, 2012; DSEWPC, 2012)	55	Determine offset requirements in accordance with the EPBC Act Environmental Offsets Policy and associated Offsets Assessment Guide (or equivalent) (Commonwealth of Australia, 2012; DSEWPC, 2012) based on the surveys conducted for the external infrastructure footprints and in consultation with DCCEEW	Project proponent	City of Greater Geelong, DCCEEW	Prior to development of each external infrastructure project
		56	Secure and manage offset sites in accordance with the eligibility, security and offset management requirements of the *Guidelines for the removal, destruction or lopping of native vegetation* (DELWP, 2017c)(or equivalent). Secure offsets following project proposal endorsement from DCCEEW and prior to the commencement of works	Project proponent	City of Greater Geelong, DCCEEW	Following endorsement of the project proposal by DCCEEW and prior to development of each external infrastructure project
		57	Provide a report to the EPBC Plan Executive Committee that shows the location of any MNES within the external infrastructure footprints that will be directly impacted and the proposed offsets for these impacts, including security and management arrangements.	Project proponent	City of Greater Geelong	Prior to development of each external infrastructure project
Governance						
15	Governance arrangements will be established to implement the Plan, consistent with the Plan's governance framework	58	Establish an NWGGA EPBC Plan Executive Committee as the primary body responsible for overseeing and making key decisions about the implementation of the Plan	City of Greater Geelong	DCCEEW, DEECA, DTP	Within the first 3 months of Plan implementation
		59	Prepare Terms of Reference to set out the purpose, responsibilities, membership and decision-making processes for the NWGGA EPBC Plan Executive Committee for approval by the Commonwealth Environment Minister	City of Greater Geelong	DCCEEW	Draft provided to DCCEEW within the first month of Plan implementation

No.	Commitment	No.	Measure	Responsibility	Key support partner(s)	Timing
		60	Establish an Implementation Group within the City's Planning and Economy Group (or equivalent group) as the primary body responsible for day-to-day implementation of the Plan	City of Greater Geelong	-	At beginning of Plan implementation
		61	Consider establishing formal agreements with key support partners to formalise roles and responsibilities	City of Greater Geelong	Support partners identified in the Plan	Any agreements established within the first 6 months of Plan implementation
16	A Stakeholder Engagement Strategy will be developed to guide engagement with key stakeholders on implementation of the Plan	62	Include the following in the Stakeholder Engagement Strategy: • Engagement objectives and principles • Key stakeholders and their interests in the Plan • Engagement processes and tools, including an implementation schedule • How the results of engagement will be used to inform improvements to implementation of the Plan, including through the 5-yearly independent evaluation and assurance reviews • Reporting requirements on results of engagement to be included in annual progress reports	City of Greater Geelong	-	Draft provided to DCCEEW within the first 3 months of Plan implementation
Funding						
17	Funding arrangements will be established to fund the implementation of the Plan's commitments and measures over the life of the Plan, consistent with the Plan's funding framework	63	Establish an implementation fund to fund the costs of implementing the Plan's commitments and measures	City of Greater Geelong	-	Prior to development proceeding in the Growth Areas
		64	Establish a biodiversity levy payable by developers in the Growth Areas to fully recover the costs incurred by the city in implementing the Plan's commitments and measures	City of Greater Geelong	-	Prior to development proceeding in the Growth Areas

No.	Commitment	No.	Measure	Responsibility	Key support partner(s)	Timing
		65	Determine and implement an appropriate mechanism to collect the biodiversity levy	City of Greater Geelong	-	Prior to development proceeding in the Growth Areas
		66	Further consider, and if determined to be appropriate, establish arrangements to allow developers to provide a Works in Kind (WIK) contribution in lieu of the biodiversity levy	City of Greater Geelong	-	Prior to development proceeding in the Growth Areas
		67	Establish governance and administrative arrangements to administer the implementation fund and the collection and application of the biodiversity levy	City of Greater Geelong	-	Prior to development proceeding in the Growth Areas
MERI						
18	A MERI program will be implemented over the life of the Plan, consistent with the Plan's MERI framework	*Monitoring*				
		68	Develop Key Performance Indicators for each outcome and commitment in the Plan	City of Greater Geelong	-	Within the first 12 months of Plan implementation
		69	Develop monitoring protocols for each Key Performance Indicator to set out how monitoring will be undertaken	City of Greater Geelong	-	Within the first 12 months of Plan implementation
		70	Establish baseline data for each outcome and commitment based on the data captured from the first monitoring event	City of Greater Geelong	-	Within the first 12 months of Plan implementation
		71	Monitor the implementation of commitments and measures annually in accordance with the monitoring protocols	City of Greater Geelong	-	Annually over life of the Plan
		72	Monitor the achievement of outcomes annually or 5-yearly in accordance with the monitoring protocols	City of Greater Geelong	-	Annually or 5-yearly over life of the Plan

No.	Commitment	No.	Measure	Responsibility	Key support partner(s)	Timing
		73	Record monitoring data for each monitoring event in an appropriate and readily accessible data management system	City of Greater Geelong	-	Annually over life of the Plan
		Evaluation				
		74	Refine and finalise the draft Evaluation Questions in the Assurance and Implementation Framework prior to the first 5-yearly evaluation	City of Greater Geelong	-	Prior to the first 5-yearly evaluation
		75	Undertake independent 5-yearly evaluations to: • Determine whether the outcomes of the Plan are being achieved, and if not, the reasons for this • Determine how efficiently and effectively the commitments and measures are being implemented • Make any recommendations for improving the implementation of the Plan as part of adaptive management	City of Greater Geelong (responsible for engaging independent party)	-	Within 12 months after the first full 5 years following Commonwealth approval of the actions/classes of actions for the development under the Plan, and then within that timeframe every five years following this over the life of the Plan – at year 10, 15, 20 and 25 of the Plan's implementation
		76	Include recommendations in the 5-yearly evaluations for improving the implementation of the Plan where necessary	City of Greater Geelong (responsible for engaging independent party)	-	As part of the 5-yearly evaluations
		77	Review the adequacy of Key Performance Indicators and monitoring protocols as part of the 5-yearly evaluations	City of Greater Geelong (responsible for engaging independent party)	-	As part of the 5-yearly evaluations

No.	Commitment	No.	Measure	Responsibility	Key support partner(s)	Timing
		78	Undertake an end of Plan evaluation to determine whether: • The Plan's objective was achieved • The Plan's outcomes were achieved • Commitments and measures in the Plan were implemented effectively and efficiently	City of Greater Geelong (responsible for engaging independent party)	-	Within 12 months of the end of Plan implementation
		Reporting				
		79	Prepare annual progress reports to provide information on: • Progress in implementing the commitments and measures • Progress in delivering the development in accordance with the Commonwealth approvals • Revenue and expenditure of funds to implement the Plan • Compliance issues and actions taken	City of Greater Geelong	-	Within 6 months after the end of the first full financial year following Commonwealth approval of the actions/classes of actions for the development under the Plan, and then within that timeframe every year following this over the life of the Plan
		80	Prepare independent five-yearly assurance reports to present the results of the five-yearly evaluations and assurance review	City of Greater Geelong (responsible for engaging independent party)	-	Within 12 months after the first full 5 years following Commonwealth approval of the actions/classes of actions for the development under the Plan, and then within that timeframe every five years following this over the life of the Plan – at year 10, 15, 20 and 25 of the Plan's implementation

No.	Commitment	No.	Measure	Responsibility	Key support partner(s)	Timing
		81	Prepare an independent final report for the Plan to present the results of the end of Plan evaluation	City of Greater Geelong (responsible for engaging independent party)	-	Within 12 months of the end of Plan implementation
		82	Make annual progress reports, 5-yearly assurance reports, and the final report for the Plan publicly available on the City's website and provide these reports to the NWGGA EPBC Plan Executive Committee for review and comment prior to public release	City of Greater Geelong	-	Within 1 month following the completion and approval of each of the reports
		Improvement				
		83	Undertake independent 5-yearly evaluations to form the primary trigger point and basis for any necessary adaptive management of the Plan	City of Greater Geelong (responsible for engaging independent party)	-	As part of the 5-yearly evaluations
		84	Establish criteria to determine trigger points for when adaptative management should be considered outside the independent five-yearly evaluation and assurance review process	City of Greater Geelong	-	Within the first 12 months of Plan implementation
		85	Prepare adaptive management reports every 5 years for the NWGGA EPBC Plan Executive Committee that includes recommendations for adaptive management actions for endorsement by the committee and a response to recommendations made in the independent five-yearly assurance report	City of Greater Geelong	-	Every 5 years within 3 months following completion of the draft five-yearly assurance report
		86	Commence implementation of adaptive management actions endorsed by the NWGGA	City of Greater Geelong	-	Commence implementation within 5

No.	Commitment	No.	Measure	Responsibility	Key support partner(s)	Timing
			EPBC Plan Executive Committee over the following five-year implementation period of the Plan			years of endorsement of the adaptive management actions in accordance with the timing specified in the adaptive management reports
		87	Amend the measures or other parts of the implementation documents where necessary to reflect and give effect to the endorsed recommendations	City of Greater Geelong	-	Within 12 months of endorsement of the recommendations
		88	Publish the endorsed adaptive management actions and the proposed timing for implementation of these actions on the City's website, including the reasons why any recommendations in the draft five-yearly assurance report are not being implemented	City of Greater Geelong	-	At the same time as the final five-yearly assurance reports
19	A development registration system will be developed and implemented to track development under the EPBC Part 10 approval	89	Develop a draft outline for a development registration system that sets out: • How the City will monitor developments using the EPBC Part 10 approval • Processes to ensure regulated third-parties (developers) are aware of their responsibilities under the Plan • The trigger points for registration using an appropriate step in the Victorian planning system • The information that developers are required to provide to the City about their action, including how it is consistent with the requirements of the Plan	City of Greater Geelong	Developers	Within the first 12 months of Plan implementation
		90	Provide the draft outline of the registration system to the EPBC Plan Executive Committee and DCCEEW for consideration and comment	City of Greater Geelong	Developers	Finalisation and approval within 6 months of providing the draft to the

No.	Commitment	No.	Measure	Responsibility	Key support partner(s)	Timing
			prior to its finalisation and approval by the City of Geelong			EPBC Plan Executive Committee and DCCEEW
Compliance						
20	A compliance program will be implemented over the life of the Plan, consistent with the Plan's compliance framework	91	Develop a series of educational materials to inform the public about the Plan and help support regulated third parties to comply with the Commonwealth approval conditions	City of Greater Geelong	-	Within the first 6 months of Plan implementation
		92	Collect compliance monitoring data in accordance with the MERI Framework, including through establishing Key Performance Indicators for compliance and developing monitoring protocols for each compliance KPI	City of Greater Geelong	Other relevant regulatory authorities	Annually over life of the Plan
		93	Create and fund a position for one additional compliance officer to support the City's existing compliance team	City of Greater Geelong	-	Within the first 3 months of Plan implementation
		94	Undertake a compliance risk assessment to prioritise compliance issues into risk categories and update the assessment every 5 years to respond to any changes in risks as part of the five-yearly evaluation	City of Greater Geelong	-	Within the first 6 months of Plan implementation
		95	Develop a decision framework to guide the taking of compliance action against regulated third-parties in a way that is proportionate to the risk, as determined through the compliance risk assessment	City of Greater Geelong	Other relevant regulatory authorities	Within the first 12 months of Plan implementation
		96	Where a potential non-compliance is identified in relation to the delivery of commitments or measures that the City or a support partner is responsible for: • Notify DCCEEW of the non-compliance as soon as possible	City of Greater Geelong	Other relevant regulatory authorities	As soon as reasonably possible following any non-compliance

No.	Commitment	No.	Measure	Responsibility	Key support partner(s)	Timing
			• If the non-compliance is identified as high risk, provide DCCEEW with a plan setting out the compliance actions proposed to be taken to rectify the non-compliance and the timing for implementing these actions within 3 months • For other non-compliance risk categories, undertake compliance actions appropriate to the risk category and respond to any requirements of DCCEEW in relation to the non-compliance within a reasonable timeframe • Report to DCCEEW regularly on progress in implementing the compliance actions			
		97	Where a potential non-compliance is identified in relation to a regulated third-party taking approved actions under the endorsed Plan: • Undertake an initial assessment of the potential non-compliance • Notify DCCEEW of the non-compliance following the initial assessment as soon as possible • Respond to the non-compliance in accordance with the decision framework for taking compliance action • Report to DCCEEW regularly on progress in implementing the compliance actions	City of Greater Geelong	Other relevant regulatory authorities	As soon as reasonably possible following any non-compliance
		98	Undertake regular reporting on compliance in accordance with the MERI Framework, including: • Reporting in annual progress reports on: • Any measures taken by the City to support voluntary compliance	City of Greater Geelong	Other relevant regulatory authorities	Annually for annual progress reports or five-yearly for independent assurance reports

No.	Commitment	No.	Measure	Responsibility	Key support partner(s)	Timing
			• Number of non-compliances for the reporting period and the nature of the non-compliance • Any compliance action taken by the City or other relevant responsible regulatory authority to each high-risk non-compliance and the outcomes of the compliance action taken • Reporting in five-yearly independent assurance reports on: • Analysis and key findings on extent of compliance with the Commonwealth conditions of approval • Any recommendations for improving the implementation of the Plan, including compliance			
Data sharing						
21	A data management and sharing agreement will be developed to set out how data associated with the Plan will be managed and shared	99	Prepare a draft data sharing agreement for review and comment by DCCEEW	City of Greater Geelong	-	Within the first 12 months of Plan implementation

3 Objective, outcomes, commitments and measures under the BCS

This section provides the state and local level objectives and outcomes, as detailed in the BCS. A detailed set of measures is then provided for each of the commitments under the BCS. These measures are to enable adequate implementation of the BCS and achievement of the outcomes and objective of the BCS.

Although some national level outcomes, commitments and measures (provided in Section 2) are also relevant to the BCS, they are not repeated in this section.

3.1 OBJECTIVE OF THE BCS

The objective of the BCS is to:

Provide genuine, long-term, positive outcomes for the national, state and local biodiversity values that are present within the Growth Areas

3.2 OUTCOMES OF THE BCS

The outcomes specific to the BCS are set out in Table 3-1. These outcomes recognise that the national level outcomes will also provide a range of benefits to state and local values, and seek to minimise duplication by focusing on the additional positive impacts or changes to biodiversity values that are needed at the state and local level.

Table 3-1: Outcomes specific to the BCS

No.	Outcome
i	Strategic conservation areas within the Growth Areas are protected and managed to provide for the long-term protection of biodiversity values
ii	Opportunities to further protect and enhance biodiversity and connectivity within the Growth Areas are delivered during precinct planning
iii	Biodiversity offsets for impacts to state values are calculated at the precinct scale and provided as development proceeds
iv	Implementation of the BCS is effective, timely, and cost efficient

3.3 COMMITMENTS AND MEASURES FOR THE BCS

The commitments and measures specific to the BCS are set out in Table 3-2, including responsibility, support partner/s and timing.

Table 3-2: Commitments and measures specific to the BCS

No.	Commitment	No.	Measure	Responsibility	Key support partner(s)	Timing
i	Strategic Conservation Areas will be confirmed and protected through the PSP process	i	Confirm the boundaries of the Strategic Conservation Areas relating to the Moorabool River Corridor and the Barwon River Corridor through the PSP process. In doing this, ensure the corridors: • Incorporate as much of the key biodiversity values associated with each river corridor as possible • Reflect the relevant priorities or standards in the *Corangamite Waterway Strategy 2014-2022* (Corangamite CMA, 2014) • Include a minimum of 50 m of riparian land from the top of bank either side of the waterways	City of Greater Geelong	DEECA	At PSP preparation stage for the relevant precinct
		ii	Identify the strategic conservation areas in relevant PSPs as land to be protected for conservation in urban structure maps of the precinct	City of Greater Geelong	-	At PSP preparation stage for the relevant precinct
		iii	Apply an appropriate environment zone to the strategic conservation areas under the *Greater Geelong Planning Scheme* (The City of Greater Geelong, 2022)	City of Greater Geelong	-	At PSP preparation stage for the relevant precinct
		iv	Identify native vegetation in the strategic conservation areas as to be retained within the relevant NVPPs	City of Greater Geelong	-	At PSP preparation stage for the relevant precinct
		v	Strategic conservation areas to be vested to the City as part of subdivision of the subject land	City of Greater Geelong	Landholders	At the time of subdivision of the adjacent land
		vi	Strategic conservation areas to be established as part of the City's reserve program	City of Greater Geelong	-	At the time of subdivision of the adjacent land

No.	Commitment	No.	Measure	Responsibility	Key support partner(s)	Timing
		vii	Individual detailed master plans that outline the protection and enhancement of river and creek corridors will be prepared and incorporated within the relevant Precinct Structure Plan including: • Barwon River, between Geelong Ring Road and Merrawarp Road • Moorabool River, between Midland Highway and Geelong-Ballarat Railway • Moorabool River (and deviation channel), between Geelong Ring Road and Midland Highway and including Dog Rocks Sanctuary and Moorabool River Reserve	City of Greater Geelong	-	At PSP preparation stage for the relevant precinct
ii	Opportunities for further avoidance of impacts to biodiversity values within the biodiversity opportunity areas will be considered through the PSP process	viii	Apply the BCS guiding principles relating to biodiversity opportunity areas and refer to the relevant precinct profiles in the BCS to identify locations that can provide co-benefits for biodiversity. Incorporate these areas into each PSP. Where relevant or necessary, confirm the values of the biodiversity opportunity areas through surveys or site visits prior to defining these areas as part of each PSP	City of Greater Geelong	-	At PSP preparation stage for the relevant precinct
		ix	Confirm any native vegetation to be retained in the biodiversity areas in the NVPP for each precinct	City of Greater Geelong	DEECA	At PSP preparation stage for the relevant precinct
		x	Define the purpose, biodiversity management actions and design requirements for locations that can provide co-benefits for biodiversity and incorporate these into permit conditions or similar	City of Greater Geelong	DEECA	At PSP preparation stage for the relevant precinct
iii	Investigation areas within the WGGA will be confirmed as either:	xi	Use detailed ecological survey data to confirm the biodiversity values of the investigation areas	City of Greater Geelong	DEECA	At PSP preparation stage for the relevant precinct

No.	Commitment	No.	Measure	Responsibility	Key support partner(s)	Timing
	• Strategic conservation areas • Biodiversity opportunity areas • Areas not suitable for biodiversity protection and rather suitable for development		within the WGGA, in accordance with relevant survey guidelines or standards			
		xii	Apply the BCS guiding principles relating to strategic conservation areas to identify locations that should be protected, managed and restored. Implement relevant measures relating to Commitments i, iv and v for any locations identified as strategic conservation areas	City of Greater Geelong	DEECA	At PSP preparation stage for the relevant precinct
		xiii	Apply the BCS guiding principles relating to biodiversity opportunity areas to identify locations that can provide co-benefits for biodiversity. Implement relevant measures relating to Commitment ii for any locations identified	City of Greater Geelong	-	At PSP preparation stage for the relevant precinct
		xiv	Amend mapping within the BCS to confirm the location of the strategic conservation areas and the biodiversity opportunity areas	City of Greater Geelong	-	At PSP preparation stage for the relevant precinct
iv	Conservation Management Plans will be prepared and implemented for the protection and ongoing management of biodiversity values within each of the strategic conservation areas	xv	Where appropriate, undertake ecological surveys of the strategic conservation areas to inform development of the Conservation Management Plan and establish year 1 baseline data	City of Greater Geelong	Relevant landholder(s)	At the time the land is secured
		xvi	Include the following information in the Conservation Management Plans for the Moorabool River Corridor and Barwon River Corridor (as well as any additional Strategic Conservation Areas identified through Commitment iii): • Boundary of the conservation area • Native vegetation to be retained as identified in the NVPP	City of Greater Geelong	Corangamite CMA	Within 1 year of establishment of the conservation areas

No.	Commitment	No.	Measure	Responsibility	Key support partner(s)	Timing
			• Any locations suitable for public access points, walking paths/trails, and passive recreation • Any locations suitable for water management assets and associated infrastructure • Management actions and arrangements to protect and restore biodiversity values, including methods, standards and techniques, roles and responsibilities, timing for implementation, funding and monitoring and reporting			
v	The following additional specific mitigation measures will be implemented to minimise the indirect impacts of the development on the environmental values of the strategic conservation areas: • Establish a conservation interface for each strategic conservation area • Design and baffle public lighting to prevent light spill and glare within the strategic conservation areas • Prepare Construction Environmental Management Plans for construction works on land immediately adjacent to the strategic conservation areas	xvii	Identify a conservation interface between urban development and the boundaries of each strategic conservation area in plans within relevant PSPs. The conservation interface should be established in accordance with relevant principles and standards in the *Biodiversity Conservation Strategy for Melbourne's Growth Corridors* (DEPI, 2013)	City of Greater Geelong	-	At PSP preparation stage for the relevant precinct
		xviii	Include the design and baffle of public lighting as a requirement or guideline in PSPs and/or as a condition on permits for land use, subdivision and development, as appropriate	City of Greater Geelong	-	At PSP preparation stage for the relevant precinct
		xix	Include the preparation of Construction Environmental Management Plans for construction works on land immediately adjacent to the strategic conservation areas as a requirement or guideline in PSPs and/or as a condition on permits for land use, subdivision and development, as appropriate	City of Greater Geelong	-	At PSP preparation stage (for conditions included as requirements and guidelines in PSPs) and at the planning permit stage (for conditions included as permit conditions)
		xx	Monitor and report on the inclusion of the specific mitigation measures in PSPs and as	City of Greater Geelong	-	As part of annual progress reporting

No.	Commitment	No.	Measure	Responsibility	Key support partner(s)	Timing
			conditions on permits, as part of the monitoring program and annual progress reporting under the MERI framework			
vi	State offsets to compensate for the loss to biodiversity from the removal of native vegetation will be provided in accordance with the *Guidelines for the removal, destruction or lopping of native vegetation* (DELWP, 2017c)	xxi	Undertake surveys within each PSP prior to development	City of Greater Geelong	DEECA	At PSP preparation stage for the relevant precinct
		xxii	Determine State offset requirements at the precinct level in accordance with the *Guidelines for the removal, destruction or lopping of native vegetation* (DELWP, 2017c)	City of Greater Geelong	DEECA	At PSP preparation stage for the relevant precinct
		xxiii	Confirm State offset requirements through the NVPP for each precinct	City of Greater Geelong	DEECA	At PSP preparation stage for the relevant precinct
		xxiv	Secure offsets in accordance with the eligibility, security and offset management requirements of the *Guidelines for the removal, destruction or lopping of native vegetation* (DELWP, 2017c) (or equivalent). Secure offsets prior to the commencement of works.	Project proponent	City of Greater Geelong	Prior to development

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THE CITY OF
GREATER GEELONG

NORTHERN AND WESTERN GEELONG GROWTH AREAS

MAY 2023

DRAFT BIODIVERSITY CONSERVATION STRATEGY

CITY OF GREATER GEELONG

ACKNOWLEDGEMENT OF COUNTRY

Greater Geelong is located on the traditional lands of the Wadawurrung people. The land was created by the great ancestor spirit, Bunjil, the wedge-tailed eagle. Wadawurrung territory extends from the great dividing range in the north to the coast around Port Phillip Bay.

The city acknowledges the Wadawurrung people as the traditional owners of this land who to this day practice their culture and uphold the dignity of their ancestors.

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Abbreviations and terms

Acronyms	Meaning
BCS	Biodiversity Conservation Strategy
DCCEEW	Commonwealth Government Department of Climate Change, Energy, the Environment and Water (DCCEEW)
DEECA	Victorian Government Department of Environment, Energy and Climate Action
DTP	Victorian Government Department of Transport and Planning
EPBC Act	Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*
FPAL	Finalised priority assessment list
IBRA	Interim Biogeographic Regionalisation for Australia
KPI	Key Performance Indicator
LGA	Local Government Authority
MERI	Monitoring, evaluation, reporting and improvement
MNES	Matters of National Environmental Significance
NGGA	Northern Geelong Growth Area
NVPP	Native Vegetation Precinct Plan
P&E Act	Victorian *Planning and Environment Act 1987*
PPF	Planning Policy Framework
PSP	Precinct Structure Plan
SAR	Strategic Assessment Report
TEC	Threatened ecological community
ToR	Terms of Reference
UGZ	Urban Growth Zone
VPP	*Victoria Planning Provisions*
WGGA	Western Geelong Growth Area
WIK	Works in Kind

Terms / Abbreviations	Definition
BCS guiding principles	A set of principles to guide both the preparation of the BCS and the decisions that will need to be made as part of the strategy's implementation
Biodiversity areas	Biodiversity areas support biodiversity values within the Growth Areas and provide opportunities to protect, manage and restore biodiversity. Biodiversity Areas are identified in the BCS as either: • Strategic Conservation Areas • Biodiversity Opportunity Areas • Investigation Areas
Biodiversity Opportunity Area	Areas within the Growth Areas which may be suitable for less intensive use or development, such as open space or waterways, and where opportunities may exist for providing co-benefits for biodiversity

Terms / Abbreviations	Definition
City Implementation Group	The primary body responsible for day-to-day implementation of the Plan
Conservation Management Plan	The document used to provide for the protection and ongoing management of the biodiversity values within each strategic conservation area
Construction Environmental Management Plans	A plan developed to ensure appropriate environmental management practices are implemented during the construction phase of a project
Cowies Creek Conservation Area	The section of Cowies Creek within the WGGA to be protected and managed for conservation purposes under the Plan
Development land	Specified land within the Strategic Assessment Area where development under the Plan is proposed to occur
Development under the Plan	The broad term used to describe all development occurring under the Plan. This includes land subject to development within the Growth Areas, the External infrastructure corridors, the NGGA Conservation Area, and Cowies Creek Conservation Area
Evaluation Questions	The questions used to evaluate the Plan in regard to the achievement of outcomes and implementation of commitments
External infrastructure	Development comprising the supporting infrastructure and services class of action and the environmental management class of action that is located outside of Growth Areas but within the Strategic Assessment Area
Investigation Area	Areas in the precincts of WGGA outside of EPBC strategic assessment area where comprehensive field surveys have not been undertaken and where data is not yet sufficient to determine the precise location and type of biodiversity areas. Investigation Areas will be confirmed at the PSP stage as either: • Strategic Conservation Areas • Biodiversity Opportunity Areas • Areas not suitable for biodiversity protection and therefore suitable for development
Land subject to development	Development land within the Growth Areas subject to all classes of actions under the Plan
NGGA Conservation Area	Area of land within the NGGA to be avoided for conservation purposes under the Plan
Specific mitigation measures	Additional mitigation measures beyond those delivered through the existing planning system to address specific risks to MNES associated with the implementation of the Plan
Stakeholder engagement strategy	A process for stakeholder engagement to guide the City in undertaking ongoing engagement with key stakeholders over the life of the Plan
Standard mitigation measures	Mitigation measures delivered by the Victorian planning system through the PSP process, existing provisions in the Greater Geelong Planning Scheme, and the planning permit process
Strategic Conservation Area	Areas within the Growth Areas that will be avoided from development and protected and managed for conservation in-perpetuity
The City	The City of Greater Geelong
The Executive Committee	The Northern and Western Geelong Growth Areas EPBC Plan Executive Committee
The Framework Plan	*Northern and Western Geelong Growth Area Framework Plan*
The Growth Areas	Northern and Western Geelong Growth Areas
The Minister	Commonwealth Minister for the Environment

Terms / Abbreviations	Definition
The Plan	The Northern and Western Geelong Growth Areas EPBC Plan
Works in Kind	A contribution in lieu of payment of the biodiversity levy amount

1 Introduction

The City of Greater Geelong (the City) has identified two key areas for urban growth in Geelong's northwest, known as the Northern and Western Geelong Growth Areas (the Growth Areas). The Growth Areas were identified through several State planning strategies for future growth. The City subsequently developed the *Northern and Western Geelong Growth Areas Framework Plan* (the Framework Plan) (The City of Greater Geelong, 2021). The Framework Plan describes the existing site context of the Growth Areas and sets out:

- Broad future urban structure of the Growth Areas, including potential areas suitable for environmental protection
- Vision and set of urban development objectives for each Growth Area
- A set of actions to be implemented through future planning processes

Development within the Growth Areas will lead to impacts to biodiversity values of national, State and local significance. This Biodiversity Conservation Strategy (BCS) has been developed to address these impacts and guide the delivery of positive outcomes for the biodiversity values that are present within the Growth Areas.

The Victorian planning system under the *Planning and Environment Act 1987* (P&E Act) is the key delivery framework for the implementation of the BCS and the development within the Growth Areas.

To further support development in the Growth Areas and protect matters of national environmental significance (MNES), the City is undertaking a strategic assessment under Part 10 of the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). This enables a landscape scale assessment and approval of a suite of development actions under the EPBC Act and provides the opportunity to deliver improved environmental and development outcomes compared to project-by-project assessments through strategic consideration of biodiversity issues.

To give effect to the strategic assessment process, the City has prepared the *Northern and Western Geelong Growth Areas EPBC Plan* (the EPBC Plan). The BCS forms an implementation document for this Plan.

For further information and context about the strategic assessment, please refer to the NWGGA:

- EPBC Plan for a full description of the strategic assessment including development, conservation, and assurance
- Strategic Assessment Report (SAR) for a detailed assessment of the impacts of development in the Growth Areas on MNES and evaluation of the commitments and measures to address these impacts
- Funding Program for details about how implementation of the Plan will be funded
- Commitments and Measures document for the specific commitments and measures that will be implemented

1.1 PURPOSE OF THE BCS

The purpose of the BCS is to:

- Identify the national, state and local biodiversity values that are present in the Growth Areas and set out a conservation program for providing genuine, long-term positive results for those biodiversity values
- Set out how the conservation elements of the EPBC Plan for the Growth Areas will be implemented including through avoiding and minimising, mitigating, and offsetting residual impacts in accordance with the mitigation hierarchy (DSEWPC, 2012; DELWP, 2017c)
- Guide the preparation of Precinct Structure Plans (PSPs) and subsequent development within the Growth Areas to ensure the outcomes are consistent with State biodiversity policy

The Growth Areas have been identified as key locations for urban growth in Geelong and some level of impact to biodiversity is unavoidable within this context. This strategy focuses conservation efforts on the most important biodiversity values and integrating actions to improve biodiversity within urban areas where this is appropriate.

The BCS satisfies the delivery of two key actions (Action N1.3.1 and W1.3.1) of the Framework Plan for the protection of biodiversity in the Growth Areas. The Framework Plan states that an "overarching biodiversity conservation strategy will be prepared for the growth area[s] that provides high level guidance for the management of nationally and state significant biodiversity values…The strategy will spatially identify how outcomes for matters of national environmental significance will be delivered…" (The City of Greater Geelong, 2021).

While the BCS helps identify how the conservation elements of the EPBC Plan will be implemented, it does not form part of the Plan to be endorsed by the Minister under Part 10 of the EPBC Act.

1.2 AREA COVERED BY THE BCS

The area covered by the BCS is the same as for the Framework Plan and is shown in Figure 1-1.

The area covers 5,342.8 ha and includes the:

- Northern Geelong Growth Area (NGGA) – this covers 2,103.9 ha and occurs in the Lovely Banks locality
- Western Geelong Growth Area (WGGA) – this covers 3,238.9 ha and occurs in the Bell Post Hill/Batesford localities

Not all the WGGA is addressed in the EPBC Plan which only covers the Creamery Road and Batesford North precincts of that Growth Area. It is envisaged that separate Commonwealth assessment and approval processes will occur for the remaining WGGA land comprising the Batesford South, McCanns Lane, and Merrawarp Road precincts.

The BCS also does not address the area that relates to the external infrastructure class of action which will occur outside the Growth Areas, and which is dealt with in the EPBC Plan.

1.3 OVERVIEW OF IMPLEMENTATION

The Victorian planning system under the P&E Act is the key delivery framework for the implementation of the BCS and the development within the Growth Areas.

The Victorian planning system hierarchy provides a framework for decision-making for the use and development of land in greenfield areas. The hierarchy relevant to the Growth Areas includes:

- The Planning Policy Framework
- *Northern and Western Geelong Growth Area Framework Plan* (the Framework Plan) (The City of Greater Geelong, 2021)
- Greater Geelong Planning Scheme and Urban Growth Zone (UGZ)
- PSPs and Native Vegetation Precinct Plans (NVPPs)
- Planning permits

Table 1-1 summarises how each part of the planning system hierarchy is proposed to be used to implement the BCS. A more detailed description of each of the elements of the hierarchy is provided in Appendix A, along with a description of other regulations and City policies relevant to the BCS and the development in Growth Areas.

Table 1-1: Summary of how each part of the planning system hierarchy will be used to implement the BCS

Part of planning system hierarchy	Summary of implementation approach	Implementation mechanism
PPF	The PPF is the policy content of planning schemes and provides overarching policy to guide land use, subdivision and development in Victoria. The PPF includes Clause 12, which includes an objective and strategies to protect and enhance Victoria's biodiversity A planning authority must take into account the PPF when preparing an amendment to a planning scheme. A responsible authority must take into account and give effect to the PPF when it makes a decision under the planning scheme, such as a decision to grant a permit for development	The PPF will be given effect in the Growth Areas through the development of PSPs, planning permits, and other decision-making
Framework Plan	The Framework Plan was prepared as part of the City's plan to address the long-term growth in Geelong is incorporated into the Greater Geelong Planning Scheme at Clause 11.02 The Framework Plan will inform the subsequent preparation of more detailed PSPs to be prepared for each precinct within the Growth Areas	Planning scheme amendment

Part of planning system hierarchy	Summary of implementation approach	Implementation mechanism
	Policy will be introduced into the Greater Geelong Planning Scheme to give effect to the commitments in the BCS	
PSPs	The City will prepare PSPs for each of the nine precincts within the Growth Areas in accordance with the strategies in Clause 11.02-2L 'Northern and Western Geelong Growth Areas' of the Geelong Planning Scheme PSPs will be prepared over approximately 10 to 15 years. Each PSP will be a self-contained project and will be incorporated into the planning scheme via a planning scheme amendment process PSPs will include requirements and guidelines for the development of the precinct to give effect to commitments in the BCS, as appropriate PSPs will also identify the strategic conservation areas (see Chapter 4) as to be protected for conservation in the urban structure maps for the precinct PSPs are implemented primarily through planning permits. They inform the preparation and assessment of permit applications and the conditions that may be placed on planning permits	Planning scheme amendments to incorporate PSPs and NVPPs into the planning scheme
NVPPs	NVPPs will be used to assess and manage the impacts of native vegetation removal in the Growth Areas to meet State biodiversity policy requirements. NVPPs will be prepared for each precinct containing native vegetation in conjunction with the preparation of PSPs The purpose of an NVPP is to ensure no net loss to biodiversity because of the removal of native vegetation. This is to be achieved by applying the three-step approach in the *Guidelines for the removal, destruction or lopping of native vegetation* (DELWP, 2017c) (Native Vegetation Guidelines), which is: • Avoid the removal of native vegetation • Minimise impacts from the removal of native vegetation • Provide an offset to compensate for the residual impacts NVPPs for precincts containing native vegetation will identify the vegetation in the strategic conservation areas as to be retained and the remaining native vegetation as to be removed, and will specify the offsets needed to meet State biodiversity policy	
Planning permits	Planning permits will be granted generally in accordance with the PSP, and in accordance with the requirements of the relevant Urban Growth Zone schedule and other requirements of the planning scheme	-

1.4 STRUCTURE OF THE BCS

The BCS is structured as follows:

- Section 2 defines the biodiversity outcomes that will be delivered and the principles that guide both the preparation and implementation of the BCS
- Section 3 describes the biodiversity values and threats relevant to the Growth Areas
- Section 4 describes the conservation program relating to the Growth Areas
- Section 5 summarises the approach to assurance for the BCS
- The Appendices provide a range of detail to support the BCS

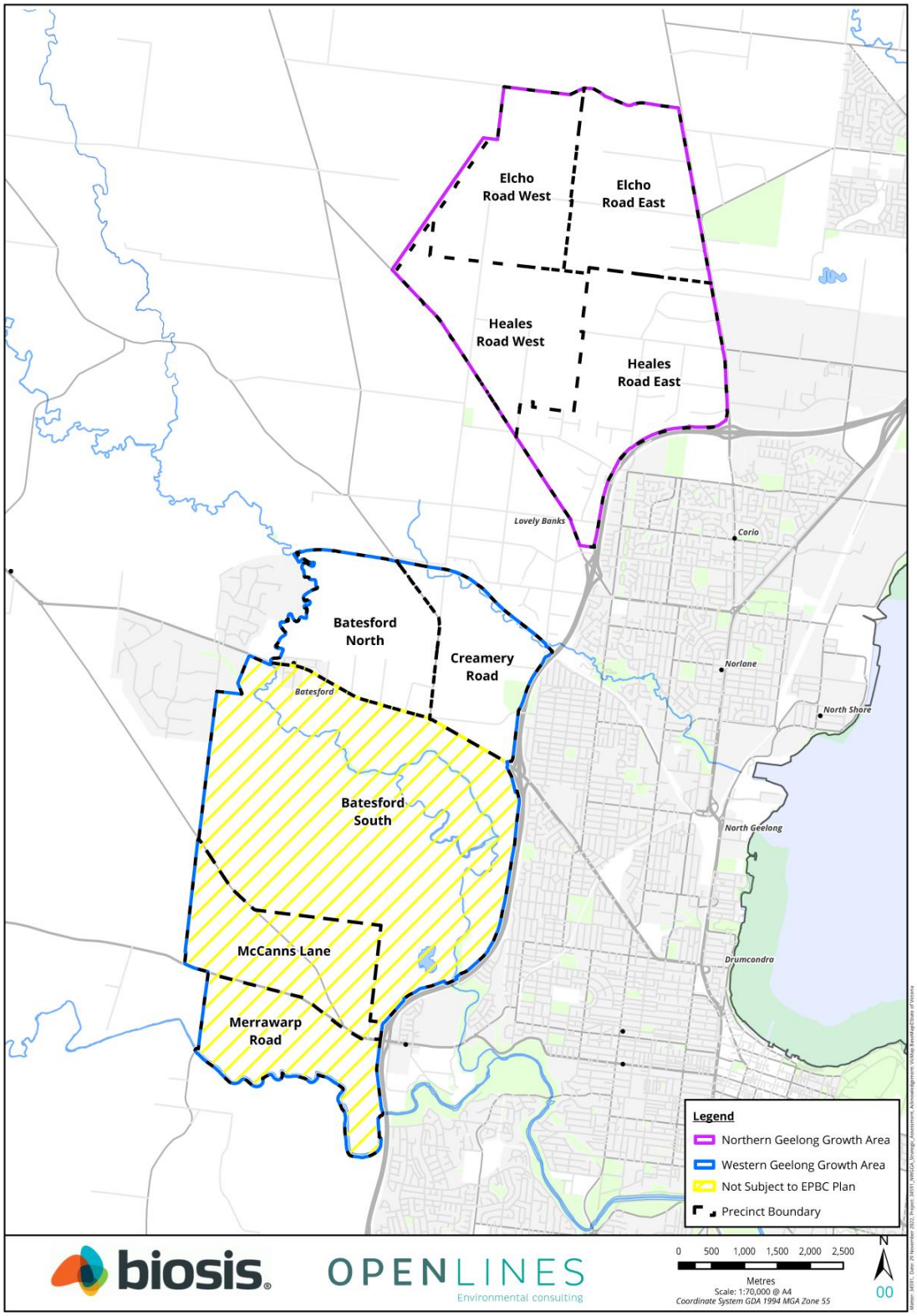

Figure 1-1: Area covered by the BCS

2 Biodiversity outcomes and guiding principles

2.1 BIODIVERSITY OUTCOMES

This section describes the outcomes that will be provided for the biodiversity values within the Growth Areas. It describes the outcomes framework that is used, and sets out the biodiversity outcomes for national, state and local values that will be achieved through implementation of the BCS.

2.1.1 OUTCOMES FRAMEWORK

The BCS applies an outcomes framework to clearly set out what will be achieved for biodiversity. The framework is based on program logic principles and aligns with the framework used in the EPBC Plan. It supports accountability and transparency by providing the basis and set of benchmarks for monitoring, reporting, and ongoing evaluation and adaptive management of the BCS.

The outcomes framework for the BCS is comprised of four components:

- A broad ***objective*** which identifies the contribution that the outcomes of the BCS will make to biodiversity
- ***Outcomes*** which are the positive impacts or changes to biodiversity values that are needed to achieve the overall objective of the BCS. The outcomes are set out in relation to:
  - National level biodiversity outcomes (these are taken from the EPBC Plan)
  - State and local biodiversity outcomes which are specific to the BCS
  - An implementation outcome for the BCS
- ***Commitments*** which are the direct results of implementing the measures that are expected to lead to the achievement of the outcomes. Some commitments are drawn from the EPBC Plan and others are specific to the BCS
- ***Measures*** which are the specific actions that will be undertaken to meet the commitments. Measures are not defined in the EPBC Plan. The BCS defines the full suite of the measures needed to implement the commitments at all levels

2.1.2 NUMBERING OF OUTCOMES, COMMITMENTS AND MEASURES

To provide clarity, different numbering systems are used to distinguish the national level versus state and local level outcomes, commitments and measures.

National level outcomes and commitments provided in the Plan and their associated measures are identified using cardinal numbers (e.g., 1, 2, 3 etc).

State and local outcomes, commitments provided in the BCS, and their associated measures are identified using Roman numerals (e.g., i, ii, iii etc).

2.1.3 OBJECTIVE

The objective of the BCS is to:

> ***Provide genuine, long-term, positive outcomes for the national, state and local biodiversity values that are present within the Growth Areas***

This objective is supported by outcomes, commitments and measures.

2.1.4 NATIONAL LEVEL BIODIVERSITY OUTCOMES

The national level outcomes for biodiversity are defined in the EPBC Plan. Table 2-1 presents the outcomes 1 to 4 from the EPBC Plan that relate directly to biodiversity.

Table 2-1: National level biodiversity outcomes (taken from the EPBC Plan)

No.	Outcome
1	Populations of Golden Sun Moth and Striped Legless Lizard are maintained within the NGGA Conservation Area
2	The long-term viability of the important population of the Growling Grass Frog along Cowies Creek is supported through the protection and enhancement of habitat within the WGGA
3	The protection and management of land outside of the Growth Areas makes an important contribution to the recovery efforts for Natural Temperate Grassland, Golden Sun Moth, and Striped Legless Lizard in Victoria
4	Matters of national environmental significance associated with waterways, riparian areas, and wetlands are protected from any notable adverse impacts of development under the Plan

2.1.5 STATE AND LOCAL LEVEL BIODIVERSITY OUTCOMES

The state and local level biodiversity outcomes that will be achieved through implementation of the BCS are set out in Table 2-2. These outcomes recognise that the national level outcomes will also provide a range of benefits to state and local values and seek to minimise duplication by focusing on the additional positive impacts or changes to biodiversity values that are needed at the state and local level.

Table 2-2: State and local level biodiversity outcomes

No.	Outcome
i	Strategic conservation areas within the Growth Areas are protected and managed to provide for the long-term protection of biodiversity values
ii	Opportunities to further protect and enhance biodiversity and connectivity within the Growth Areas are delivered during precinct planning
iii	Biodiversity offsets for impacts to state values are calculated at the precinct scale and provided as development proceeds

2.1.6 IMPLEMENTATION OUTCOME

The implementation outcome for the BCS is set out in Table 2-3.

Table 2-3: Implementation outcome

No.	Outcome
iv	Implementation of the BCS is effective, timely, and cost efficient

2.1.7 COMMITMENTS AND MEASURES

The commitments and measures to deliver the outcomes are discussed throughout Section 4 and provided in full in the Commitments and Measures document.

2.2 GUIDING PRINCIPLES

A set of principles were developed to help guide both the preparation of the BCS and the decisions that will need to be made as part of the strategy's implementation. The principles build on the work undertaken for the Melbourne Strategic Assessment's BCS (DEPI, 2013) and are consistent with, and support the:

- Goals, principles and directions of the City's Environment Strategy (The City of Greater Geelong, 2020) for protecting and enhancing the region's biodiversity
- Objectives and actions of the Framework Plan (The City of Greater Geelong, 2021) for protecting biodiversity and waterways within the Growth Areas

The guiding principles of the BCS are focused on providing genuine, long-term, positive outcomes for the national, State and local biodiversity values that are present within the Growth Areas. They were applied in preparing the BCS and will also be considered and applied as each precinct is planned. For example, application of the principles led to the design of the NGGA Conservation Area to protect and restore areas of native vegetation, as well as habitat for the Golden Sun Moth and Striped Legless Lizard.

The principles are set out below under the following categories:

- Consultation and engagement
- Decision-making
- Mitigation hierarchy
- Conservation planning
- Implementation

2.2.1 CONSULTATION AND ENGAGEMENT

- Consult with the community during preparation and implementation of the BCS
- Collaborate with the Wadawurrung Traditional Owners and use traditional knowledge of country to improve biodiversity planning and management practices
- Increase community understanding and involvement in biodiversity conservation activities

2.2.2 DECISION-MAKING

- Consider the protection and enhancement of biodiversity early in decision-making processes and at a strategic level to improve biodiversity outcomes and address cumulative impacts of urban development within the Growth Areas
- Use the best available ecological information to make decisions. This includes information from detailed ecological surveys, historical species records, native vegetation and species habitat modelling, and expert advice
- Ensure decisions around protecting and enhancing biodiversity are focused on achieving genuine, long-term biodiversity benefits. This includes the application of conservation planning principles (see Section 2.2.4)
- Consider relevant biodiversity policy guidelines and plans, including actions statements under the FFG Act and conservation advices and recovery plans under the EPBC Act

2.2.3 MITIGATION HIERARCHY

In accordance with both Commonwealth and State biodiversity laws, mitigate impacts on biodiversity through a hierarchy of:

- First – avoid impacts
- Second – minimise impacts
- Third – offset where residual adverse impacts are unavoidable

2.2.4 CONSERVATION PLANNING

STRATEGIC CONSERVATION AREAS

Identify strategic conservation areas within the Growth Areas by prioritising areas that:

- Support remnant biodiversity patches larger than 10 hectares
- Provide connectivity across the landscape. For example, waterways and larger connected patches of vegetation
- Are considered likely to be viable in the long-term. For example, this includes areas that:
  - Are in better condition and trend
  - Have the potential to be restored
  - Have the potential to be managed effectively
- Support threatened ecological communities and/or habitat for threatened species
- Support multiple biodiversity values

BIODIVERSITY OPPORTUNITY AREAS

Identify opportunities for additional biodiversity protection and restoration in the Growth Areas through:

- Integrating biodiversity into urban landscapes through planning and design processes
- Restoring biodiversity to parks, roadsides, reserves, waterways, and streetscapes using Ecological Vegetation Classes, natural regeneration techniques and indigenous plants of local provenance
- Restoring habitat into urban landscapes through the establishment of indigenous tree, shrub and understory plantings and other habitat elements such as wetlands, logs, rocks and stags
- Restoring degraded waterways and wetlands to create habitat and ecologically healthy water flows

STRATEGIC OFFSETS

Where offsets are needed, apply a strategic approach to maximise opportunities for:

- The early delivery of a significant proportion of the offset liability
- Securing and managing areas of land that meet at least one of the following strategic landscape criteria:
  - Protection of larger land parcels compared to typical project-by-project offsets
  - Located within a key biodiversity corridor and improves connectivity across the landscape
  - Connected to an existing conservation reserve

2.2.5 IMPLEMENTATION

Design the BCS to ensure that it will be successfully implemented. This includes consideration of the:

- Administrative efficiency and complexity of the BCS
- Funding arrangements for implementation
- Governance arrangements for implementation
- Risks around the delivery of offsets over the life of the BCS

3 Biodiversity values and threats

This section describes the biodiversity values and the threats to those values within the Growth Areas. It provides:

- Discussion of the landscape context within which the Growth Areas occur
- Description of the national, State and local biodiversity values within the Growth Areas
- An overview of the key threats to biodiversity within the Growth Areas

3.1 LANDSCAPE CONTEXT

3.1.1 BIOREGION

The Growth Areas sit within the Southern Volcanic Plains bioregion. The bioregion is characterised by broad basaltic plains, interspersed with areas of lakes and swamps. Native grasslands occur in areas where basalts are older and more weathered to produce heavy clays which are generally fertile yet poorly drained. Younger occurrences of relatively unweathered lava flows occur as stony rises, and support thin soils and woodland vegetation (Dahlhaus *et al.*, 2003; Williams, 2022).

3.1.2 GEOLOGY AND SOIL

The Victorian Volcanic Plains was created by volcanic activity which occurred between approximately 4.5 million to 10,000 years ago. Volcanic activity was mostly from many small volcanoes which created lava flows of basalt, which filled in valleys and created broad plains. There are some occurrences of more explosive eruptions in the region which created circular craters which today contain lakes and swamps (Williams, 2022).

Today, the geology of the Growth Areas is dominated by areas of basalt, interspersed with areas of alluvial deposits (associated with the Moorabool River) and aeolian deposits (associated with Cowies Creek). The areas of basalt are characterised as plains with poorly developed drainage and with shallow bedrock. Aeolian deposits tend to be characterised as plains with unconsolidated sedimentary deposits, and areas of alluvium are described as unconsolidated sediment occurring as terraces, floodplains, and coastal plains (DELWP, 2022).

3.1.3 TOPOGRAPHY AND SURFACE HYDROLOGY

The topography of the NGGA is varied. A largely flat, elevated area occurs in the north-western and central areas of the Growth Area. Along the eastern section of the Growth Area, an escarpment occurs, with the landscape falling steeply towards the east, draining into the Hovells Creek catchment, upstream of Limeburners Bay. In the south-west of the Growth Area, the land slopes downwards towards the south-west, draining into the Cowies Creek catchment.

The topography of the WGGA is also varied. The central area of the WGGA is largely flat. The north-eastern corner of the Growth Area slopes towards the north-east, draining into the Cowies Creek catchment. The western section of the Growth Area is steep and drains westwards, into the catchment of the Moorabool River. A small section of the south-eastern corner of the Growth Area slopes gently towards the south-east, also flowing into the catchment of the Moorabool River.

There are three catchments which the Growth Areas are hydrologically linked to via overland flow (see Figure 3-1):

- Moorabool River catchment, which occurs to the south of the Growth Areas. The Moorabool River flows south, joining the Barwon River at Fyansford. The Barwon then continues to flow south, into the Lake Connewarre Complex. This wetland complex then drains into the ocean at Barwon Heads
- Hovells Creek catchment, which occurs to the east of the northern half of the Strategic Assessment Area. This catchment contains Limeburners Bay, and drains southward into Corio Bay
- Cowies Creek catchment, which occurs to the east of the central and southern half of the Strategic Assessment Area. This creek does not contain wetlands and drains eastward into Corio Bay

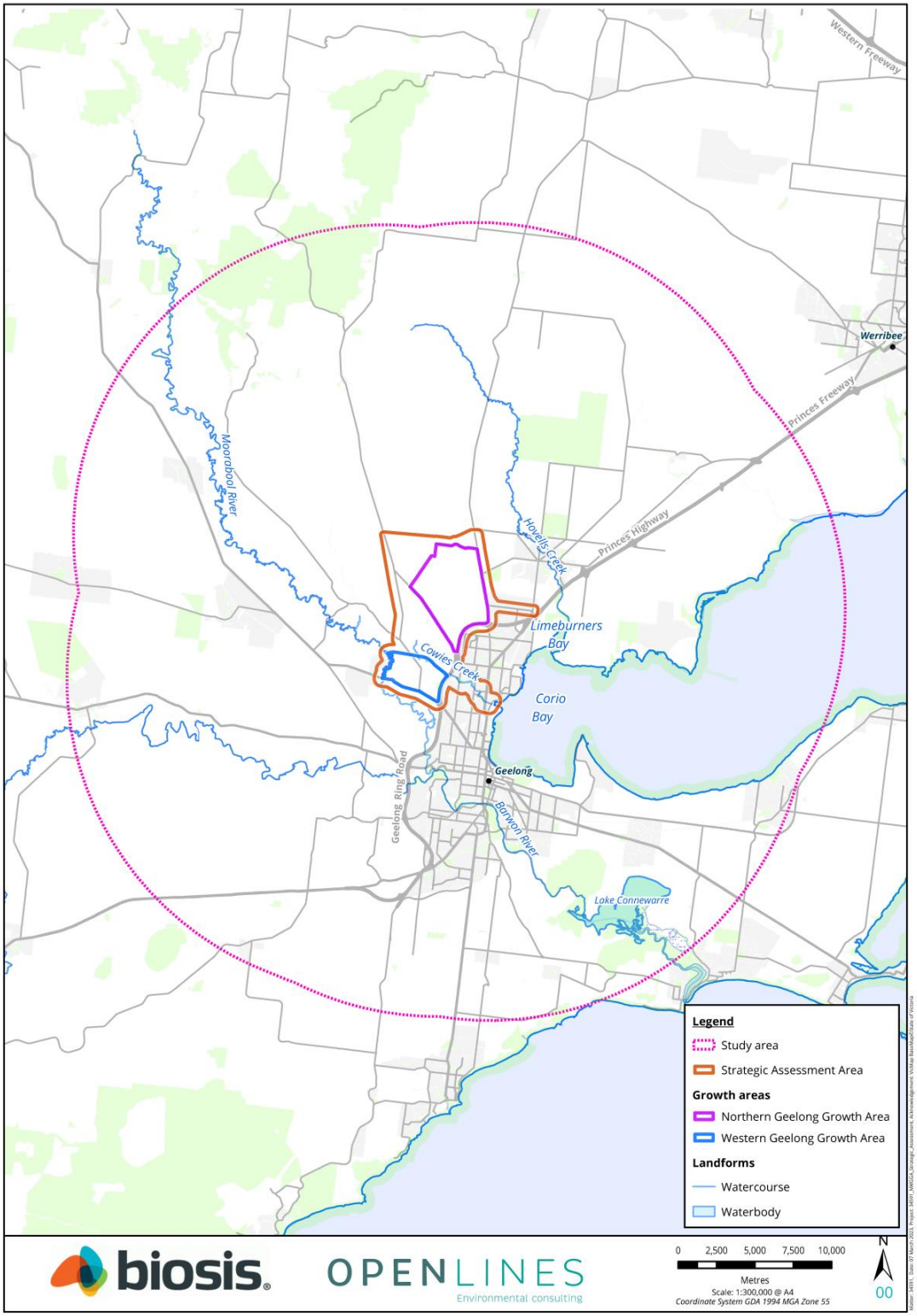

Figure 3-1: Key landforms

3.1.4 PAST AND CURRENT LAND USE

The traditional owners of the land are the Wadawurrung Aboriginal people, a recognised tribe consisting of 25 clans (family groups), which form part of the larger Kulin Nation of Aboriginal people. The Country known now as Geelong was occupied for at least 45,000 years by traditional owners prior to European Settlement (Rowe, 2021).

There are a number of registered Aboriginal places across the Growth Areas, comprised mostly of stone artefacts. There has been limited archaeological investigation within the Growth Areas, and the available data may not accurately reflect land use by the Wadawurrung people. Preliminary Aboriginal site sensitivity mapping has indicated areas of high archaeological potential along the waterways on the WGGA and one area in the NGGA near to a registered stone artefact (The City of Greater Geelong, 2021).

Today, the Growth Areas primarily include land which has been developed for agricultural purposes. The NGGA is largely open treeless pasture, primarily used for pastoral and cropping activities, in conjunction with rural residential housing. The WGGA includes a mix of existing land uses, including agriculture, recreation reserves, Council-managed reserves, rural and medium density housing, and educational facilities. The Batesford quarry is located within the centre of the WGGA, which has been used for mineral extraction since 1888.

3.1.5 PARKS, RESERVES OR OTHER PROTECTED AREAS

Due to substantial agricultural land use and intensification, the Southern Volcanic Plains bioregion has become one of the bioregions most depleted of native vegetation in Victoria. As of 2003, only 4.5 per cent of the bioregion still had a cover of native vegetation. Further, as of 2003, less than 1.2 per cent of the Southern Volcanic Plains bioregion was in a formal conservation reserve (DSE, 2003).

There are minimal parks, reserves or other protected areas within the Growth Areas (see Figure 3-2), however the following do occur:

- A community use recreation area approximately 0.3 hectares in size along the Moorabool River just north of Midland Highway
- Dog Rocks Flora and Fauna Sanctuary – an 83 hectare area of bushland with frontage to the Moorabool River

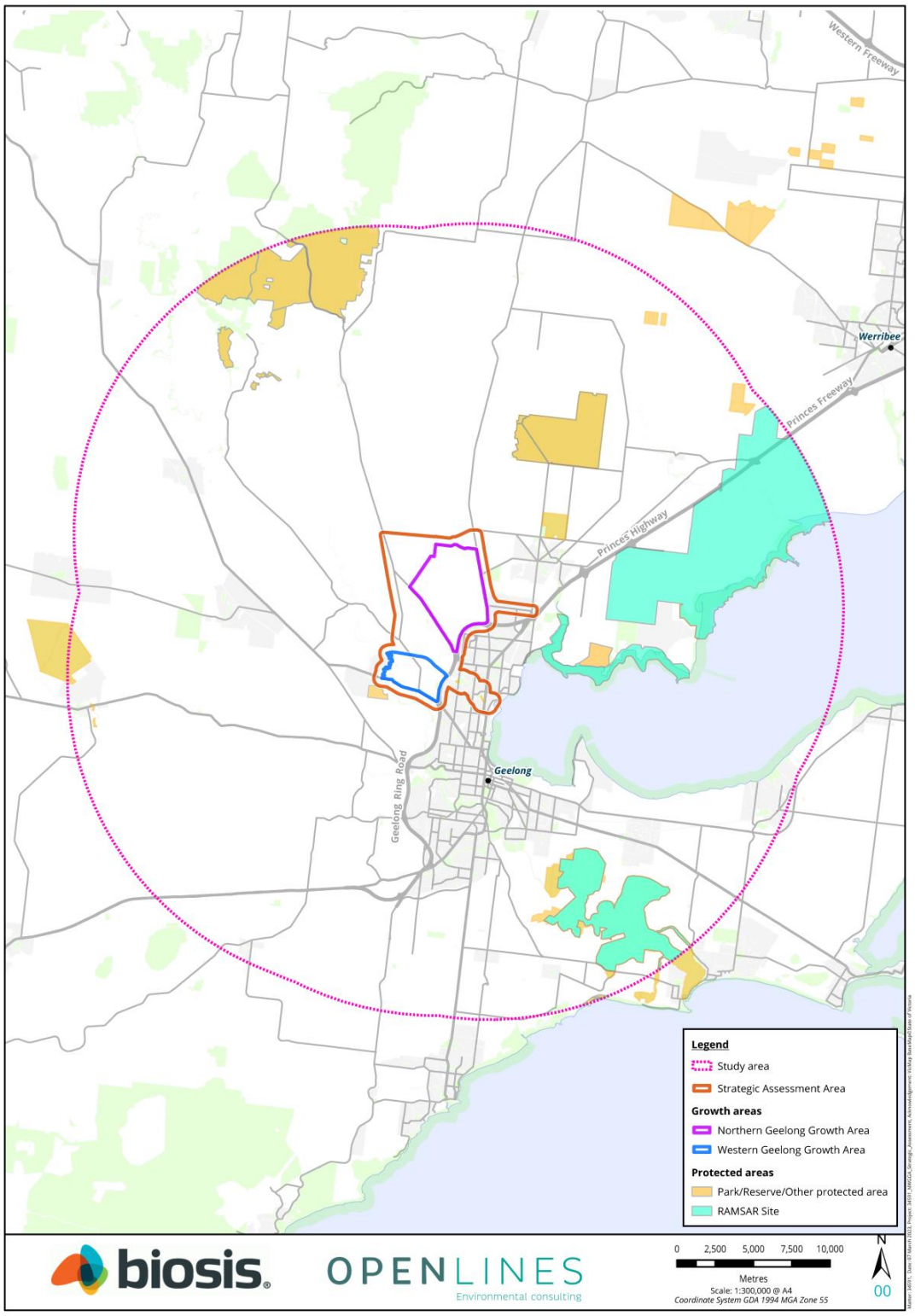

Figure 3-2: Protected areas

3.1.6 BIODIVERSITY CORRIDORS SURROUNDING THE GROWTH AREAS

Biodiversity corridors surrounding the Growth Areas are mostly concentrated along riparian corridors, with remnant grassland occurring in modified agricultural context much like within the Growth Areas.

Cowies Creek and the Moorabool and Barwon Rivers contain several ephemeral and minor tributaries which feed into wetland areas that support native flora and fauna habitat on private and public land with various grades of active conservation management.

Remnant indigenous vegetation and fauna in the Growth Areas are considered important to the biodiversity of the wider locality. Without appropriate management, losses resulting from direct and indirect degradation processes will inevitably mean the loss of most biodiversity. Waterways within the Growth Areas will undoubtedly play a significant role in the conservation and management of vital vegetation and habitat.

3.2 BIODIVERSITY VALUES WITHIN THE GROWTH AREAS

3.2.1 ASSESSMENT OF THE GROWTH AREAS

The biodiversity values of parts of the Growth Areas are documented within *Existing Ecological Conditions: Northern and Western Geelong Growth Areas*, July 2021, prepared by Ecology and Heritage Partners (EHP, 2021).

Between November 2019 and December 2020, over 200 person days were spent surveying native vegetation, ecological communities and significant flora and fauna species. Site assessments were restricted to parcels/properties where access was permitted. These areas are referred to as the 'surveyed areas'. This resulted in a total of approximately 33% of the NGGA and 13% of the WGGA (area subject to the EPBC Plan) not being subject to on-ground assessments, referred to as the 'unsurveyed areas'.

In January 2022, the City provided an opportunity for those with land included within the EHP 2021 assessment area to supply further information for consideration in the development of the Part 10 Strategic Assessment. The intention was for additional information to be submitted for consideration where landholders had concerns with mapping anomalies and/or assumptions. The City assessed submissions against set evaluation criteria, which led to minor changes to the EHP 2021 dataset.

No City-commissioned biodiversity assessments have been undertaken for the southern portion of the WGGA not subject to the EPBC Plan. For this area and for the unsurveyed areas subject to the EPBC Plan, a combination of VBA observations, DEECA modelling, and desktop review and interpretation informs current understandings. Detailed desktop and on-ground assessment will need to occur to better understand the biodiversity values of this area prior to planning and development.

3.2.2 OVERVIEW

The condition of the environment within the Growth Areas varies. Most of the area is highly modified due to agricultural land use and is largely dominated by non-native species. Native vegetation and terrestrial fauna habitat are limited to areas which have not been historically subject to cropping, and to riparian corridors. Where native vegetation is present, much of it is highly modified with a low diversity of native species and lacking in suitable vegetation structure (EHP, 2021).

The existing level of disturbance within the Growth Areas is consistent with the broader landscape trend within the Southern Volcanic Plains bioregion, where the vast majority of the bioregion has been developed for agriculture (DSE, 2003).

Despite this, the Growth Areas support a range of biodiversity values in areas which have been subject to reduced levels of historical disturbance. These values are documented below and are discussed in relation to the following attributes:

- Native vegetation
- Flora
- Fauna
- Waterways and wetlands

3.2.3 NATIVE VEGETATION

ECOLOGICAL VEGETATION CLASSES

Six Ecological Vegetation Classes (EVCs) have been either recorded or are modelled to occur within the Growth Areas. These include:

- Low Rainfall Plains Grassland (EVC_132_63)
  - Contiguous patches mapped within the northern portion of the NGGA. Scattered patches mapped throughout the remaining balance of the NGGA, particularly along the eastern and southern portion of the Growth Area
  - Plains Grassland EVC 132 within the WGGA subject to the Plan is mostly scattered throughout, with some larger patches concentrated in the east, west and southern portion
  - Within the southern portion of the WGGA not subject to the EPBC Plan, Plains Grassland EVC 132 is modelled to occur surrounding the Dog Rocks Flora and Fauna Sanctuary and Moorabool River
- Plains Grassy Woodland (EVC 55)
  - Plains Grassy Woodland EVC 55 was not recorded within the surveyed areas of the Growth Areas. This is consistent with extant (2005) DEECA modelled mapping
  - Fragmented areas of Plains Grassy Woodland EVC 55 are modelled to occur within the southern portion of the WGGA not subject to the EPBC Plan. An isolated area of modelled Plains Grassy Woodland EVC 55 is also located within the north-eastern portion of the WGGA subject to the EPBC Plan. These areas were unable to be accessed to determine their presence as they are contained within private rural properties
  - Extant (2005) DEECA modelled mapping shows that contiguous Plains Grassy Woodland EVC 55 occurs west of the Batesford quarry, and west of the WGGA and Moorabool River which is not subject the EPBC Plan
- Creekline Grassy Woodland (EVC 68) (WGGA)
  - Creekline Grassy Woodland EVC 68 occurs along Cowies Creek frontage within the northern portion of the WGGA subject to the EPBC Plan
  - Creekline Grassy Woodland EVC 68 assessed within the WGGA subject to the EPBC Plan has been recorded with a habitat score of 0.18 (EHP, 2021)
- Grassy Woodland (EVC 175)
  - A large area of contiguous Grassy Woodland EVC 175 is located outside of the WGGA extent that is subject to the EPBC Plan. This area is located 1 kilometre northwest of the Batesford quarry and adjoins to Stream Bank Shrubland EVC 851
- Floodplain Riparian Woodland (EVC 56) (WGGA)
  - Modelled Floodplain Riparian Woodland EVC 56 is mapped along the Moorabool River frontage across the western extent of the WGGA subject to the EPBC Plan. This EVC occurs in conjunction with one or more floodplain wetland communities along the banks of the Moorabool Rover where the river is generally wider
  - Floodplain Riparian Woodland EVC 56 assessed within the NGGA has been recorded with a habitat score of 0.38 (EHP, 2021)
  - Floodplain Riparian Woodland EVC 56 assessed within the NGGA has been recorded with a habitat score of 0.13 (EHP, 2021)
- Stream Bank Shrubland (EVC 851)
  - Stream Bank Shrubland EVC 851 is modelled to occur within the southern portion of the WGGA not subject to the EPBC Plan, immediately along the Moorabool River frontage where the watercourse consists of rocky and gravel banks that are often dry but are also regularly flooded by fast flowing waters. Its extent is modelled to begin just north-west of the Batesford quarry and continues along the entire extent of the Moorabool River frontage and the Barwon River

Figure 3-3, Figure 3-6 and Figure 3-7 show the mapped EVCs in the surveyed areas as well as (2005) DEECA modelled mapping within the Growth Areas.

A summary of the total area of EVCs present within the Growth Areas is provided in Table 3-1. This includes part of the WGGA that is not subject to the EPBC Plan.

EVCs that were assessed and mapped across the Growth Areas are broadly consistent with extant (2005) DEECA modelled mapping that shows both Growth Areas to contain discrete areas of Plains Grassland (EVC 132), with areas adjacent to the Moorabool River modelled as Floodplain Riparian Woodland (EVC 56) (DELWP, 2005; EHP, 2021).

Higher quality patches of Plains Grassland within the NGGA meet the condition thresholds that define the nationally significant Natural Temperate Grassland of the Victorian Volcanic Plain ecological community; while several patches have been classified as the State significant Western (Basalt) Plains Grassland vegetation community (EHP, 2021).

Since the time of the EHP site assessments, subsequent assessments have been undertaken by Biosis which have confirmed that the extent of Plains Grassland (EVC 132) has deteriorated significantly. Successive years of relatively high rainfall has promoted significant grass growth and has been particularly advantageous to high threat perennial grassy weeds such as Toowoomba Canary-grass *Phalaris aquatica* and particularly Chilean Needle-grass *Nassella neesiana*. While subsequent dry years may result in a decline in Toowoomba Canary-grass, without intensive active management the conversion of Plains Grassland to a dominance of Chilean Needle-grass is likely to be permanent.

Commonly observed native flora species recorded in grassland habitats included Short Wallaby-grass *Rytidosperma carphoides*, Striped Wallaby-grass *Rytidosperma racemosum var. racemosum* and Veined Spear-grass *Austrostipa rudis subsp. rudis.* River Red-gum *Eucalyptus camaldulensis* was the dominant tree species within the WGGA, however several non-indigenous planted eucalypt species also occur throughout the Growth Areas, particularly around dwellings and/or farm sheds/maintenance areas.

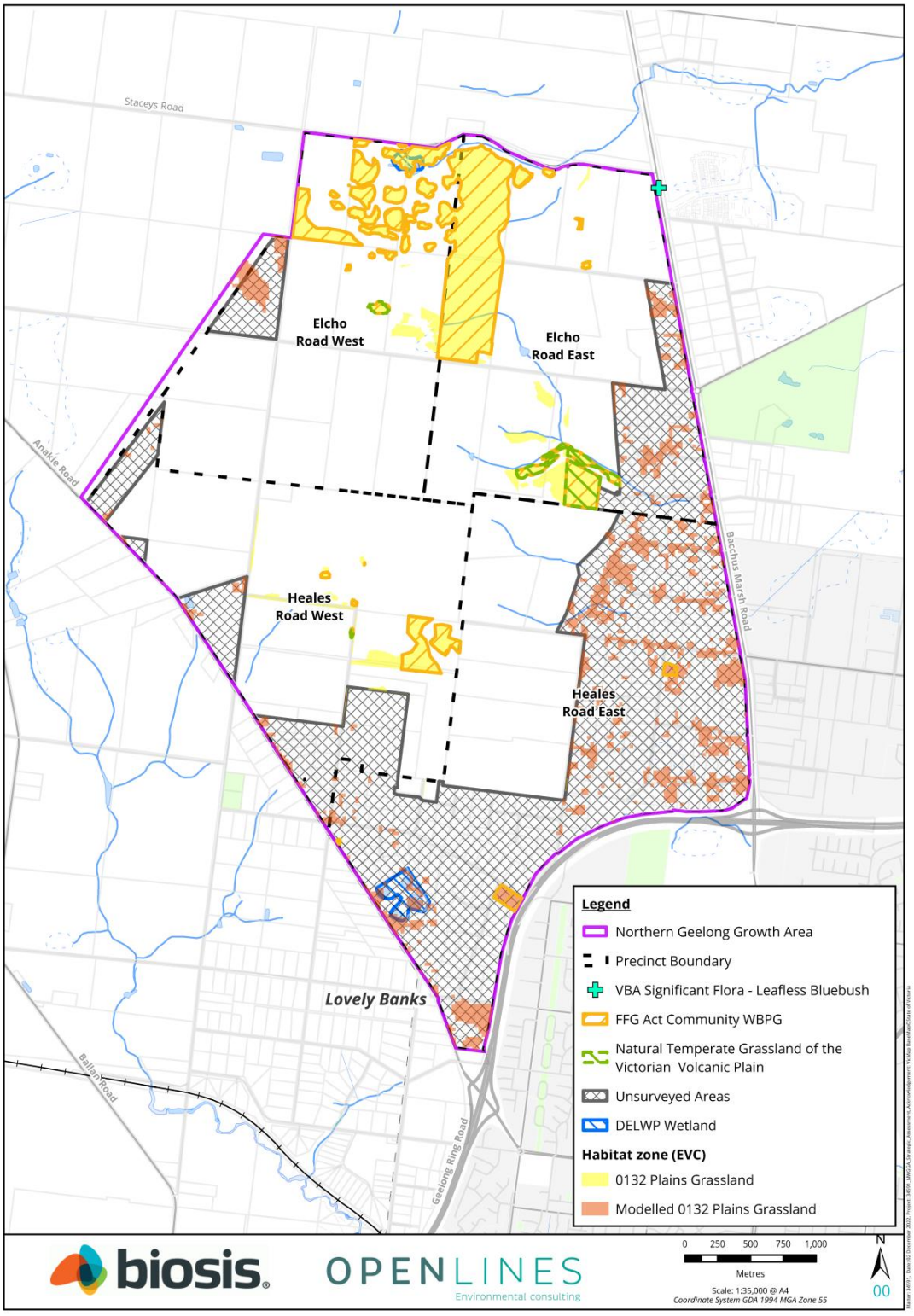

Figure 3-3: Native vegetation, TECs, and threatened flora in the NGGA

Table 3-1: Total area of EVCs present within the Growth Areas

Ecological Vegetation Class	Biodiversity Conservation Status	NGGA assessed areas (hectares)	NGGA unassessed areas (hectares)	WGGA assessed areas (hectares)	WGGA unassessed areas (hectares)	WGGA unassessed area (hectares) (not subject to the EPBC Plan)
Plains Grassland (EVC 132)	Endangered	146 ha	*111.959 ha**	41.479 ha	*29.399 ha**	*127.118 ha**
Floodplain Riparian Woodland (EVC 56)	Endangered	-	-	23.107 ha	*2.252 ha**	*37.119 ha**
Creekline Grassy Woodland (EVC 68)	Endangered	-	-	4.859 ha	-	-
Grassy Woodland (EVC 175)	Endangered	-	-	-	-	*98.430 ha**
Plains Grassy Woodland (EVC 55)	Endangered	-	-	-	-	*39.816 ha**
Stream Bank Shrubland (EVC 851)	Endangered	-	-	-	-	*66.825 ha**

*2005 DEECA EVC mapping

THREATENED ECOLOGICAL COMMUNITIES

The following threatened ecological communities have been identified within the surveyed areas of the NGGA:

- 12.7 ha of the Commonwealth listed community Natural Temperate Grassland of the Victorian Volcanic Plain
- 123.8 ha of the FFG Act listed ecological community Western (Basalt) Plains Grassland

No threatened ecological communities (either Commonwealth listed or State listed) have been identified within the surveyed areas of the WGGA.

Natural Temperate Grassland of the Victorian Volcanic Plain within the NGGA occurs in a heavily modified form. This is reflected in its Site Condition Habitat Score (a score out of 75) which, when standardised, amounts to totals of either 16 or 24 out of 75 with an understorey score of 5/25. The later reflect the presence of less than 50% of the expected number of lifeforms in this community while still supporting more than a 50% cover of native perennial tussock-grasses.

Examples of Natural Temperate Grassland within the NGGA also typically have a weed cover of greater than 25% of the vegetation present, with high threat weeds such as Chilean Needle-grass being relatively common. Areas of Natural Temperate Grassland vegetation with a relatively extensive cover of high threat, perennial, grassy weeds have relatively low resilience to ongoing weed invasion. This makes Natural Temperate Grassland within the NGGA highly vulnerable to an ongoing rapid decline in condition, to the extent where the Natural Temperate Grassland can be expected to fail the required condition criteria to be defined as the TEC within relatively short timeframes (less than a decade).

There is potential for additional native vegetation and threatened ecological communities to occur within the unsurveyed areas of the NGGA and WGGA.

Figure 3-3, Figure 3-6 and Figure 3-7 show native vegetation and ecological communities within the Growth Areas.

3.2.4 FLORA

Targeted surveys for six Commonwealth listed threatened flora species were undertaken within the surveyed areas of Growth Areas, including: *Lachnagrostis adamsonii* (Adamson's Blown-grass), *Dianella amoena* (Matted Flax-lily), *Glycine latrobeana* (Clover Glycine), *Rutidosis leptorrhynchoides* (Button Wrinklewort), *Senecio macrocarpus* (Large-headed Fireweed) and *Pimelea spinescens* subsp. *Spinescens* (Spiny Rice-flower).

No Commonwealth listed threatened flora species were recorded within the surveyed areas, although Adamson's Blown-grass has been assumed to be present along the Cowies Creek corridor within the WGGA based on relatively recent historical records, and the presence of suitable habitat (EHP, 2021). One State significant flora species, *Maireana aphylla* (Leafless Bluebush) was recorded at the north-eastern boundary of the NGGA.

It is considered highly unlikely that any additional threatened Commonwealth or State flora species occur within the surveyed areas of the Growth Areas due to the ongoing land use of the site resulting in the absence of suitable habitat, and the highly modified condition of the understory (EHP, 2021) (see Part 4 of the SAR).

Within the unsurveyed areas of the Growth Areas and southern portion of the WGGA four VBA records of Melbourne Yellow-gum exist within the Dog Rocks Flora and Fauna Sanctuary. On-ground assessment will be required to determine the presence or absence of additional flora species within these areas.

3.2.5 FAUNA

Targeted surveys for five Commonwealth listed threatened fauna species were undertaken within the surveyed areas of Growth Areas, including: *Synemon plana* (Golden Sun Moth), *Delma impar* (Striped Legless Lizard), *Litoria raniformis* (Growling Grass Frog), *Prototroctes maraena* (Australian Grayling) and *Galaxiella toourtkoourt* (Little Galaxias).

Targeted surveys recorded the Striped Legless Lizard and Golden Sun Moth within the NGGA. The Growling Grass Frog was recorded in Cowies Creek within the WGGA.

Targeted surveys for the Australian Grayling and Little Galaxias within the WGGA did not identify the species. However, the Australian Grayling is considered likely to be present within the broader catchment area. It is noted that the Corangamite CMA has proposed to remove barriers within the Moorabool River which currently prevent fish accessing habitat further upstream adjacent to the WGGA. Future planning for the WGGA PSPs should assume the presence of the Growling Grass Frog, Australian Grayling and Little Galaxias following the removal of these barriers (EHP, 2021).

A single state significant fauna species *Aythya australis* (Hardhead) was observed within the NGGA during surveys, although it is considered unlikely that the species would maintain a resident population within the Growth Areas. *Ardea modesta* (Eastern Great Egret) and *Falco subniger* (Black Falcon) have recently been recorded in close proximity to the Growth Areas, and it is likely that these species would use to the Growth Areas for opportunistic forage, or as a steppingstone throughout the broader landscape. An active *Ornithorhynchus anatinus* (Platypus) burrow was observed within the Moorabool River. The NGGA is considered to support suitable habitat for the *Pseudemoia pagenstecheri* (Tussock Skink), although the species was not recorded during Striped Legless Lizard surveys (EHP, 2021).

STRIPED LEGLESS LIZARD

Targeted surveys for SLL recorded 45 individuals within the NGGA under ten different tile grids. Sites where the species was recorded generally represent the most suitable areas of habitat for SLL within the NGGA. These areas supported a high cover of surface rock, cracking soils and tussock-forming grasses providing inter-tussock space.

Altogether, approximately 57 ha of confirmed habitat and 50 ha of suitable habitat has been mapped across the surveyed areas of the NGGA.

SLL was not recorded within the WGGA. EHP 2021 found that the removal of native vegetation, high levels of grazing, pasture improvement and cultivation across the WGGA has contributed to the decline of high quality habitat for the species. They concluded that it is highly unlikely that a population of SLL is present within the Creamery Road and Batesford North precincts of the WGGA. Further assessment will be required to determine the presence or absence of SLL within the southern portion of the WGGA.

Approximately 47 ha of habitat for SLL is modelled to occur within the unsurveyed areas of the NGGA.

The following threats to SLL are potentially relevant to implementation of the Plan and BCS:

- Direct habitat removal
- Habitat degradation from rock collection or destruction
- Spread of weeds
- Predation by cats
- Inappropriate fire regimes

Figure 3-4 shows SLL habitat and records within the Growth Areas.

GOLDEN SUN MOTH

Targeted surveys within the Growth Areas recorded GSM within the NGGA. The species was not detected within the WGGA. The results of the targeted surveys have informed baseline habitat mapping for GSM.

The species Conservation Advice notes the importance of native habitat compared to non-native habitat and identifies high quality habitat as "*medium to large sites containing native grassland with an abundant component of larval food species (i.e., Rytidosperma spp. and/or Austrostipa spp.) with low weed cover, inter-tussock spaces, and land-use/management that is consistent with the ecological values of the site"* (DAWE, 2021).

The EHP surveys found the Growth Areas to be dominated by non-indigenous grasses and weeds (i.e., pasture grasses), which reflects the region's long history of agricultural use. Much of the indigenous vegetation and terrestrial fauna habitat remaining within the Growth Areas was found confined to riparian corridors in the WGGA (i.e., Moorabool River, Cowies Creek), or agricultural areas not subjected to historical cropping. Native vegetation, where present, was highly modified, generally lacking structure and exhibiting a low diversity of native species.

Subsequent site visits as part of the strategic assessment process, as well as the results of landholder surveys, have confirmed these findings and shown an increased prevalence of weeds since the time of the EHP surveys in 2019 and 2020. This indicates a declining trend in the condition of native vegetation (Peter Wlodarczyk pers comms.).

Despite the abundance of GSM records within the NGGA, it is unlikely the NGGA would qualify as an important or high-quality area due to the level of weeds, land modification, and rate of decline. To distinguish between native vs non-native habitat for the assessment of impacts to GSM and to reflect this declining trend in condition, habitat within the surveyed areas of the Growth Areas has been mapped according to categories. GSM habitat within the assessed areas therefore comprises (see Figure 3-5):

- 26 ha of higher potential native habitat, which identifies the habitat areas with the greatest likelihood of supporting native vegetation based on the result of EHP surveys and the more recent landholder surveys
- 11 ha moderate potential native habitat, which identifies the habitat areas that have the potential to still support native vegetation identified through the EHP surveys, but recognising the declining trend in condition observed elsewhere in the Growth Areas and lack of more recent surveys for these areas
- 38 ha of lower potential native habitat, which identifies the habitat areas which have likely declined since the time of EHP surveys and are no longer expected to support native vegetation, based on the results of more recent landholder surveys
- 492 ha of non-native habitat, which identifies areas of GSM habitat which do not support native vegetation

Approximately 90 ha of GSM habitat is modelled to occur within the unsurveyed areas of the NGGA.

The following threats to GSM are potentially relevant to implementation of the EPBC Plan and BCS:

- Predation by cats
- Inappropriate fire regimes
- Direct habitat removal

Figure 3-4 and Figure 3-5 shows GSM habitat and records within the Growth Areas.

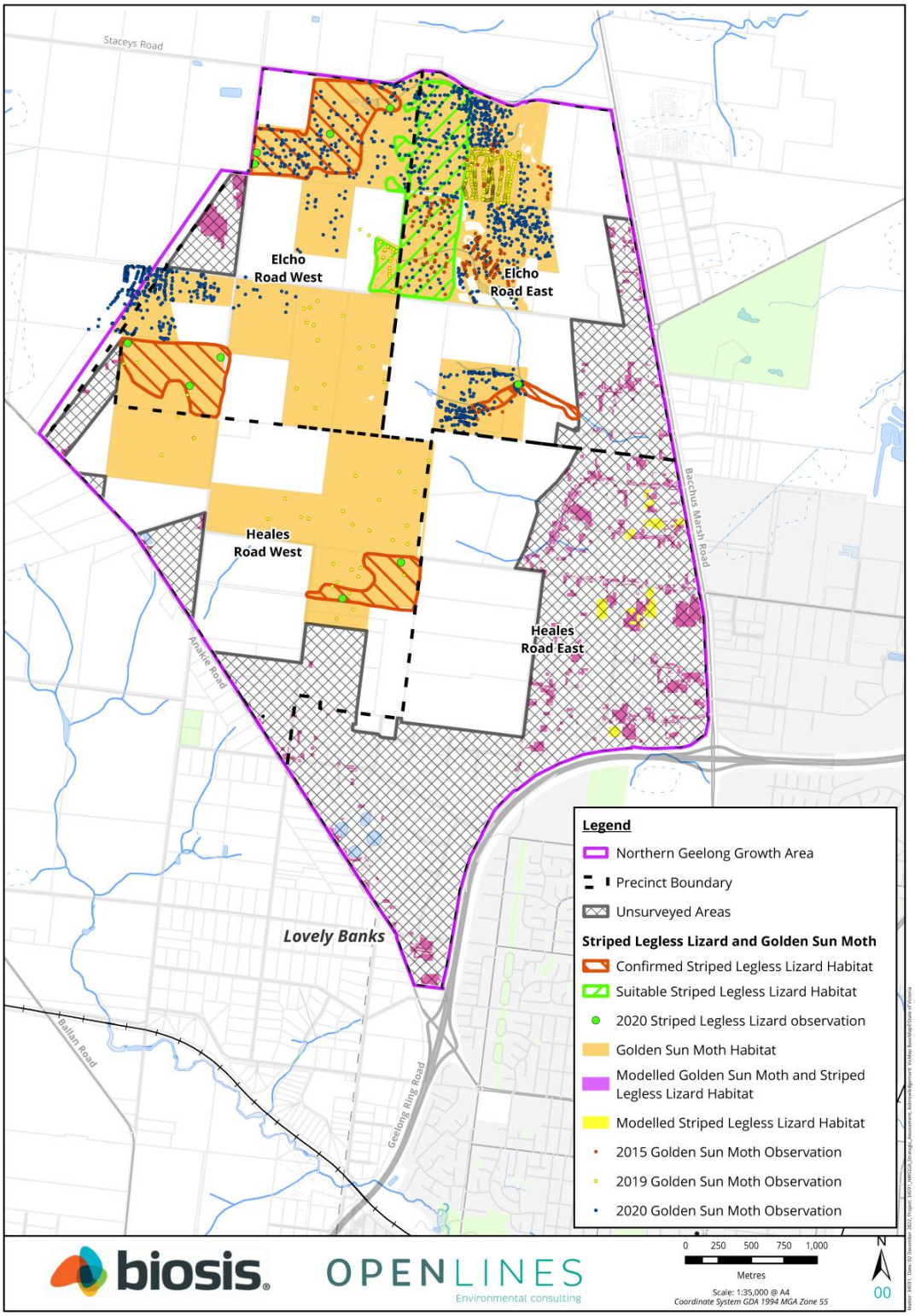

Figure 3-4: Fauna records and habitat in the NGGA

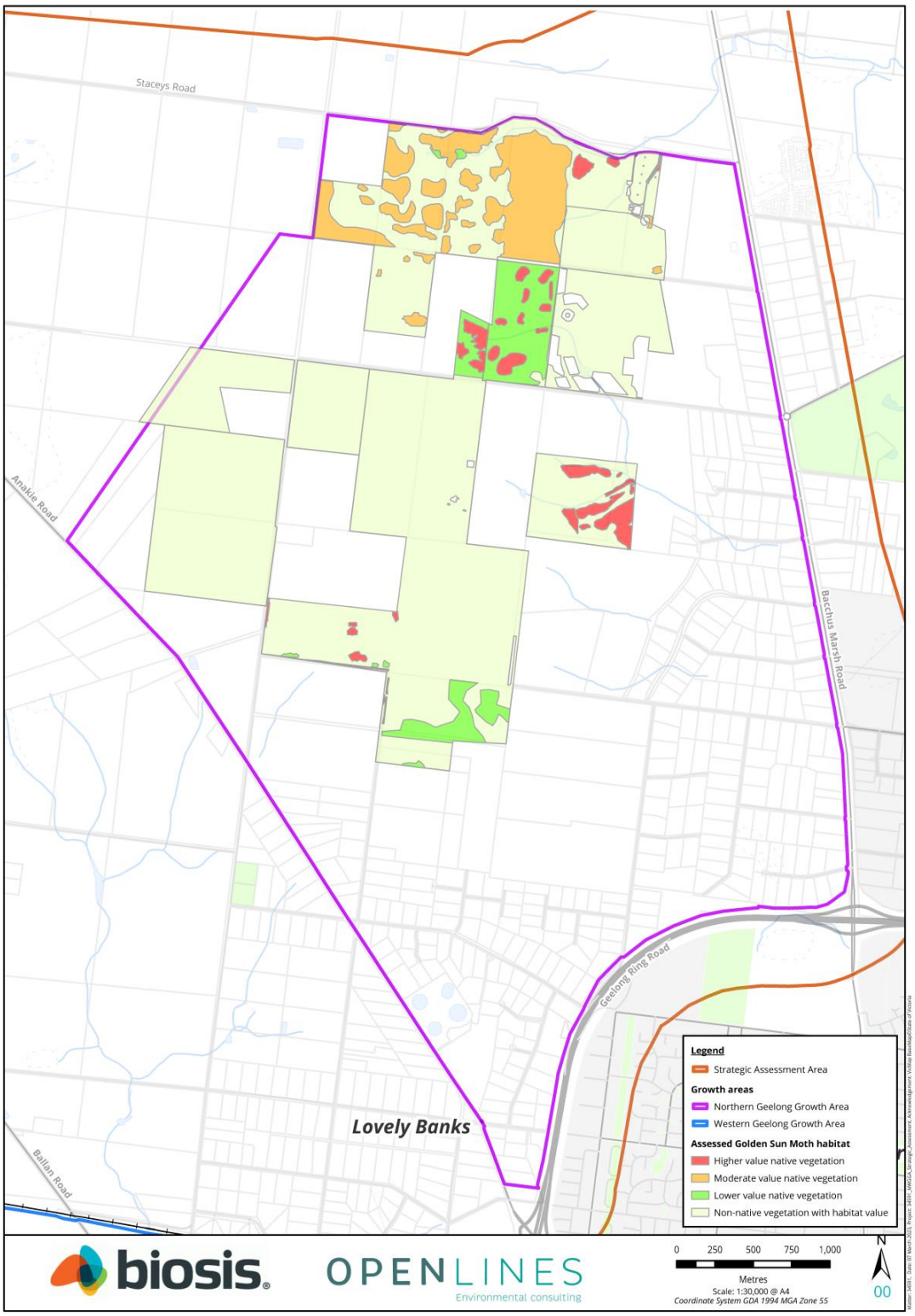

Figure 3-5: Golden Sun Moth habitat categories in the NGGA

GROWLING GRASS FROG

Targeted surveys along Cowies Creek in the WGGA recorded approximately 50 GGF individuals across four sites. EHP 2021 considered that the area supported an important population (particularly because it contained a range of key habitat attributes) and that Cowies Creek was an important habitat corridor through the growth area.

GGF has also been recorded downstream of the WGGA within Cowies Creek on several occasions. These records appear to have some level of connectivity with the frogs in the WGGA and are likely to form part of a larger, connected metapopulation.

The number and location of GGF records within Cowies Creek suggests that the corridor supports an important, connected metapopulation of the species. Records stretch for more than 3.5 km along the creek and suitable habitat extends beyond this distance.

The available information suggests that the Cowies Creek metapopulation is comprised of a range of discrete, breeding populations of GGF that are connected along the creek corridor. Despite previous development in the area the species is persisting and metapopulation dynamics are still operating.

There are no records of the species upstream from the WGGA and that area appears to have much more limited GGF habitat values due to historic land use. It is considered less likely that the species is present in this location on a permanent basis.

Further assessment will be required to determine the presence or absence of GGF within the southern portion of the WGGA, particularly along the southern half of the Moorabool River and the Barwon River.

The following threats to GGF are potentially relevant to implementation of the Plan and BCS:

- Habitat degradation and/or modification caused by:
  - Changed hydrological regimes.
  - Deterioration of water quality and any introduction of pollutants and biocides.
- Fragmentation and isolation of populations.
- Increases in artificial lighting.
- Introduction of cats.

Figure 3-6 shows GGF habitat and records within the Growth Areas.

3.2.6 WATERWAYS

At a state and local level, the WGGA includes three significant waterways, the Moorabool River, Barwon River and Cowies Creek (see Figure 3-8).

Historically, the Moorabool River has been diverted twice from its natural alignment to facilitate limestone extraction at the Batesford quarry. Its current extent runs north-south along the WGGA's western boundary and continues to dissect the WGGA in an east-west direction. The Moorabool Rivers departs from the Growth Areas extent in the south-west at the Lewis Bandt Bridge in Herne Hill and flows for approximately 2.3 kilometres before joining the Barwon River.

Cowies Creek runs from the north-west to the south-east for 2.6 kilometres within the northern boundary of the WGGA that is subject to the EPBC Plan. Cowies Creek originates from a series of wetlands in the Moorabool River north-west of the WGGA extent. Cowies Creek departs from the WGGA and enters Port Phillip Bay (Western Shoreline) 3.4 kilometres downstream.

The Barwon River is located along the southern boundary of the Growth Areas with a frontage of 4.8 kilometres of the WGGA that is not subject to the EPBC Plan. This riparian corridor is well vegetated, with contiguous Floodplain Riparian Woodland EVC 56 modelled along its frontage.

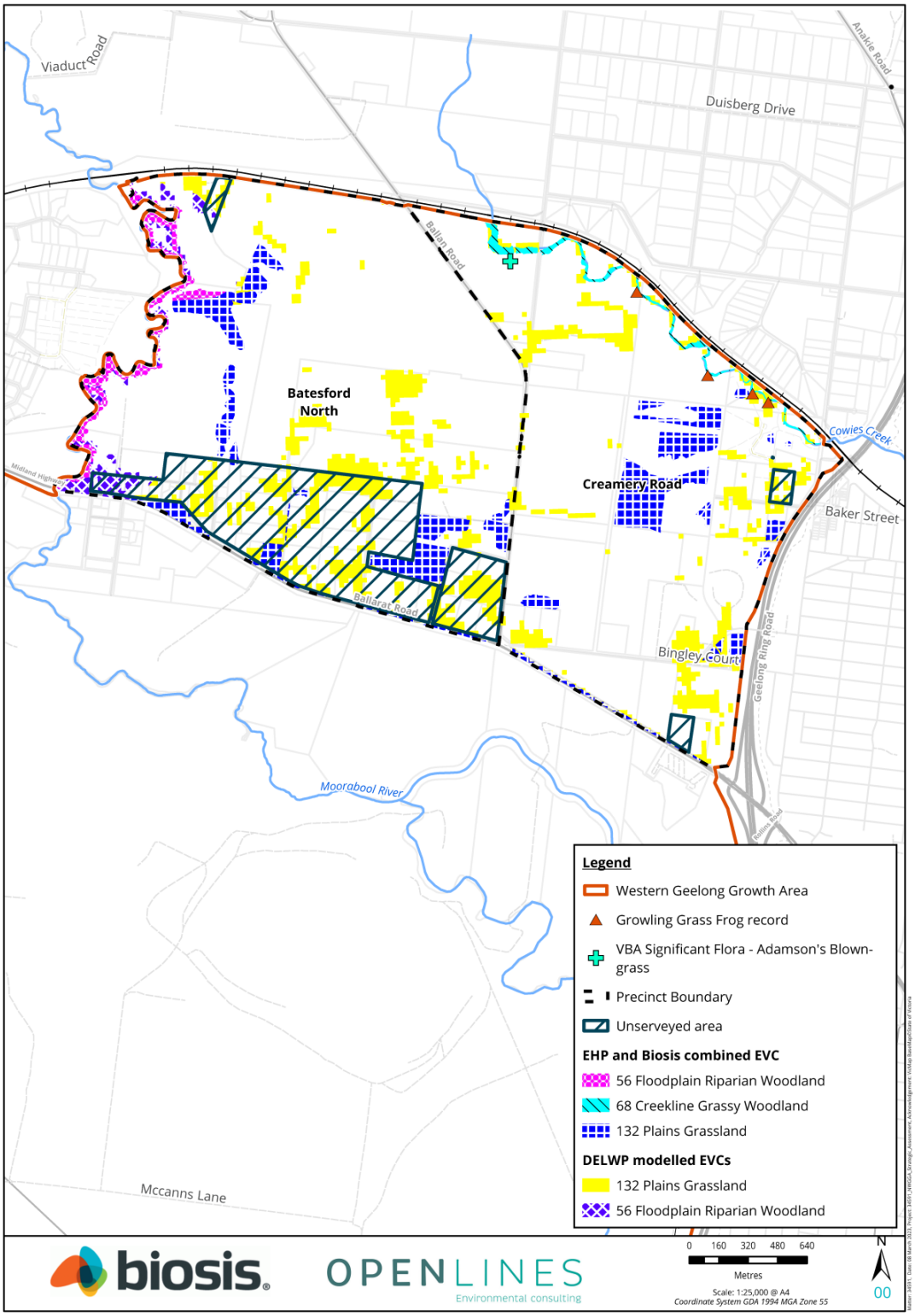

Figure 3-6: Biodiversity values in the portion of the WGGA subject to the EPBC Plan

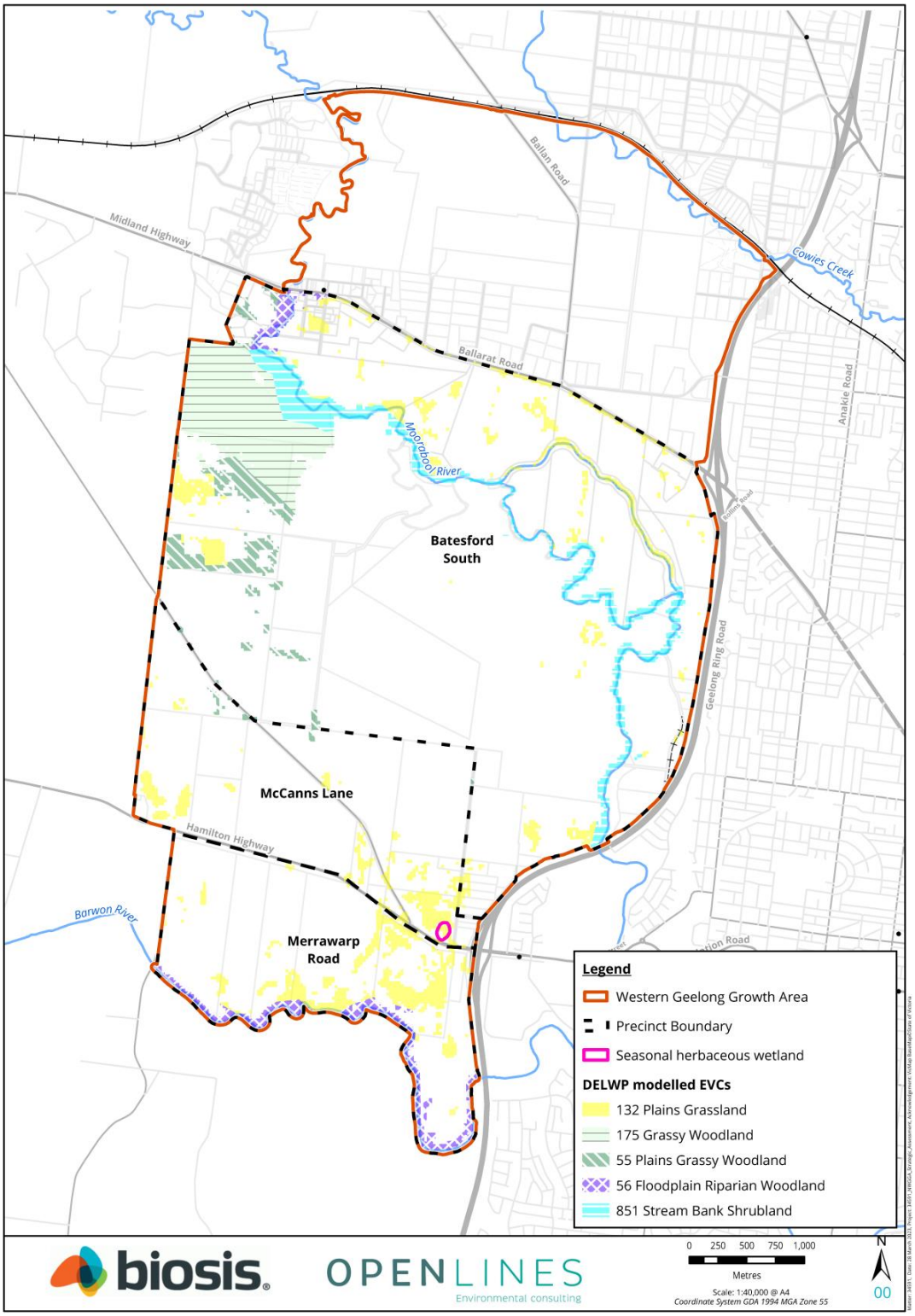

Figure 3-7: Biodiversity values in the southern portion of the WGGA not subject to the EPBC Plan

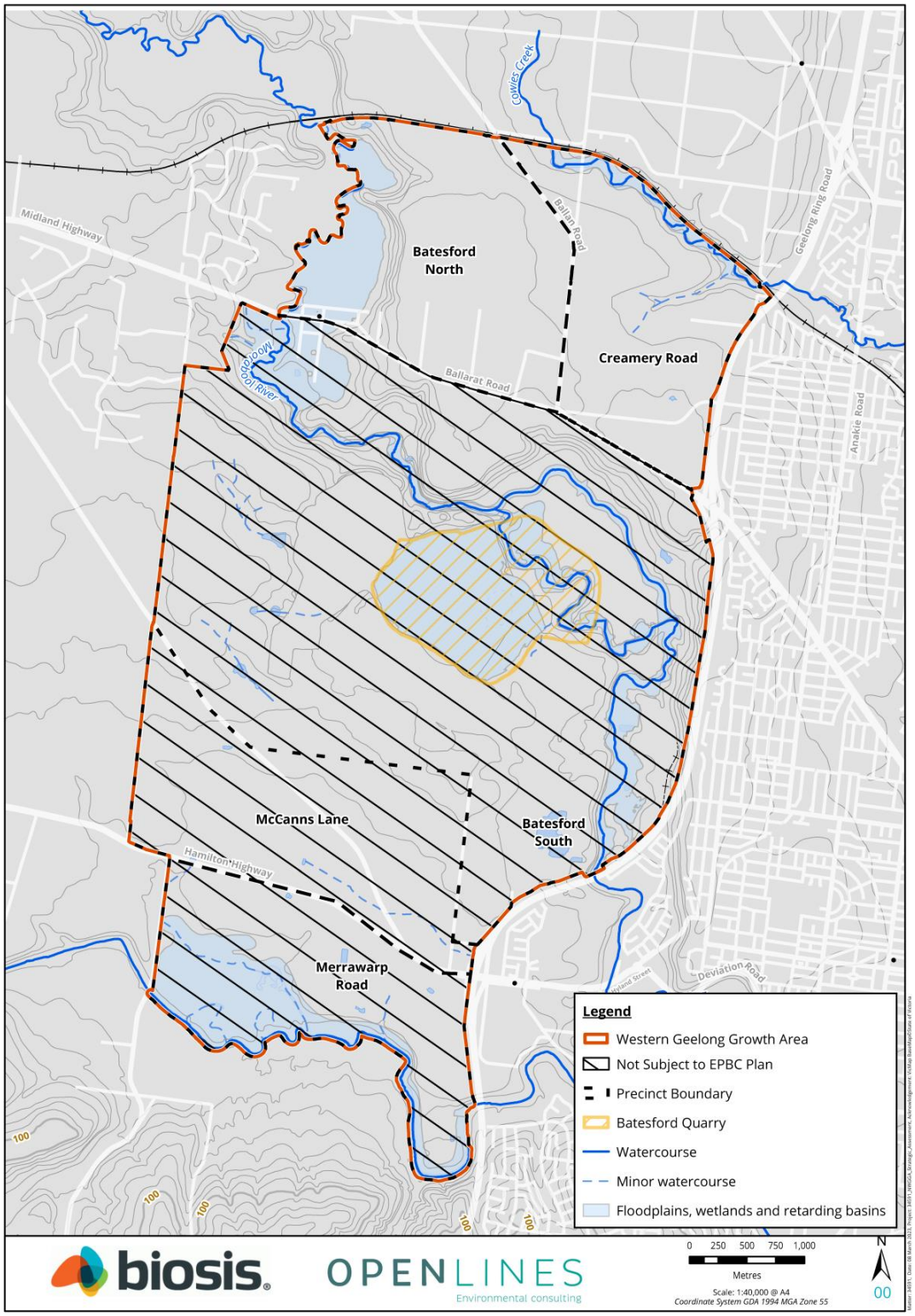

Figure 3-8: Hydrological values of the WGGA

3.2.7 WETLANDS

There are no Ramsar, or nationally significant wetlands mapped within the Growth Areas.

DEECA modelling indicates that the Growth Areas contain seven wetland formations, as well as a number of dams used to support rural residences within the Growth Areas.

The NGGA contains two DEECA modelled wetland formations, totalling 10.38 ha. The first of these corresponds to a wastewater treatment plant adjacent to Anakie Road. The second of these appears to be related to two small farm dams (from aerial observations) located in the NGGA Conservation Area. This area was mapped as Plains Grassland (EVC 132) by EHP (2021a). Overland flows within the NGGA, including ephemeral drainage lines, discharge into Corio Bay, which includes part of the Port Phillip Bay (Western Shoreline) and Bellarine Peninsula Ramsar site, complex of wetlands of international importance. The Bellarine Peninsula Ramsar site is located along the north-eastern shore and extending to the outer harbour.

The WGGA subject to the EPBC Plan does not contain any DEECA mapped wetland formations. The WGGA not subject to the EPBC Plan contains five DEECA mapped wetland formations comprising flooded river flats, inland deep and shallow freshwater marshes and a permanent saline lake (which is associated with the Batesford Quarry). The WGGA DEECA mapped wetlands are approximately 45.77 ha in total area. The Moorabool and Barwon River systems flow into Lake Connewarre further downstream, which is a part of the Port Phillip Bay (Western Shoreline) and Bellarine Peninsula Ramsar site.

3.3 KEY THREATS TO BIODIVERSITY VALUES WITHIN THE GROWTH AREAS

A key threat to biodiversity values within the Geelong locality is loss of habitat for development. The region surrounding Geelong has historically been heavily developed for agricultural production, resulting in substantial losses of native vegetation (DSE, 2003). The city of Geelong itself has also long been a centre of development in Victoria and has been the second largest city in Victoria since the 1930's (Victorian Places, 2015). Historical development and clearing have resulted in loss of native vegetation and landscape degradation, reducing habitat availability and quality for native species.

Geelong's population is continuing to grow, with an anticipated 2.5 per cent annual growth rate, and is anticipated to have an additional 500,000 residents by 2050 (The City of Greater Geelong, 2021). Careful management is required to minimise impacts of development to support this forecast increase in population.

Other key environmental threats within the region include:

- Invasive species, including pests and weeds
- Modification of water systems, including historical construction of infrastructure such as dams and weirs, ongoing water abstraction, and water pollution from agricultural and urban sources
- Disturbance pressures upon habitats used recreationally, such as estuarine and beach environments
- Climate change

Each of these is discussed briefly below.

3.3.1 INVASIVE SPECIES

As a result of extensive historical development, there is a high density of weeds within the Geelong locality. For instance, surveys conducted within the Growth Areas found a high density of weeds and introduced pasture species across most of the surveyed areas (EHP, 2021). Weeds also pose a threat within the wider region, including within the Port Phillip Bay (Western Shoreline) & Bellarine Peninsula Ramsar site (DELWP, 2020).

Pest animals are also present within the region. Within the Growth Areas, there is evidence the sites are occupied by rabbits, hares and foxes (EHP, 2021). Additionally, foxes, cats, rabbits, deer are identified as invasive species of concern at the Port Phillip Bay (Western Shoreline) & Bellarine Peninsula Ramsar site (DELWP, 2020). Other invasive species, such as pigs, goats, are likely to also be present within the region. It is not considered possible to eradicate existing pests within the region and therefore asset protection approaches are considered the most effective management mechanism to minimise potential impacts to MNES (EHP, 2021).

3.3.2 WATER SYSTEM MODIFICATION

All of the major watercourses within the Geelong region have experienced environmental impacts from development.

In-stream dams or similar barriers are located where the Barwon River discharges into Lake Connewarre, and along the Barwon and Moorabool Rivers (upstream of Geelong) (CCMA, 2014). Dams pose a range of threats to riverine environments, including acting as barriers to fish passage, through altering characteristics of the water (such as water temperature and oxygen content), and through artificially altering water levels.

Water extraction from the Barwon and Moorabool rivers occurs to support consumptive and agricultural purposes. Current environmental water allocations for both of these rivers are not sufficient to meet environmental needs into the future (DELWP, 2021).

The environmental values of the Moorabool River, Barwon River, Hovells Creek, and Lake Connewarre Complex are all threatened by indirect impacts from agricultural and urban development within these catchments, including grazing pressures, invasive species, poor water quality, erosion and sedimentation, and degradation of native vegetation (CCMA, 2014).

3.3.3 RECREATIONAL DISTURBANCE

The Geelong locality is a popular destination for recreational purposes. Development of the Growth Areas will increase human activity in the vicinity of the Growth Areas, which can impact natural areas including conservation areas protected under the EPBC Plan and existing reserves. Recreational disturbance can be caused by:

- Trampling of flora species and disturbance to flora and fauna habitat
- Track creation
- Rock removal and disturbance
- Rubbish dumping and disturbance from associated clean-up activities
- Timber collection and removal of dead wood
- Illegal collection of flora and fauna species
- Dog walking
- Recreational activities such as mountain-biking, four-wheel driving, and horse riding

Recreational activities in estuarine and coastal environments (including dog walking on beaches, driving vehicles off-road, and water-based activities such as jet skiing, kite surfing, kayaking) can also pose a threat of disturbance, particularly to waterbirds and migratory birds which occur in coastal environments and within and near the Port Phillip Bay (Western Shoreline) & Bellarine Peninsula Ramsar site. The consequence of disturbance impacts upon waterbirds and migratory birds (many of which are protected under the EPBC Act) can be significant, leading to nest abandonment, population declines, or potentially reduced migratory success. The impacts of disturbance are forecast to increase as the human population within the region increases (DELWP, 2020). Species and TECs most at risk from this threat occur on land that is publicly accessible.

3.3.4 CLIMATE CHANGE

Climate change is rapidly emerging as one of the most significant threats to ecosystems and biodiversity (Prober *et al.*, 2019). Victoria's climate is among the driest and most variable globally, and ecosystems in Victoria are particularly vulnerable to climate change (Jin, Cant and Todd, 2009). Various changes in Victoria's climate have been recorded in recent decades: temperatures have increased by over 1.0°C since 1910, and fire season length and severity has increased. Future projections forecast that Victoria will continue to experience increased temperatures, in addition to less rainfall and more extreme weather events (DELWP, 2019). Victoria's Climate Change Strategy, released in 2021, outlines the Victorian Government's approach to managing climate change, including emissions reductions targets and measures to build climate resilience (DELWP, 2021).

More locally in the Geelong region, climate change poses specific threats through:

- Sea level rise, which particularly threaten coastal and estuarine habitats, including the Port Phillip Bay (Western Shoreline) & Bellarine Peninsula Ramsar site (DELWP, 2020)
- Increased storm intensity and frequency, which is likely to exacerbate the impacts of sea level rise (DELWP, 2020)
- Decreased water availability, which threatens water supply within the region and environmental values (CCMA, 2014; DELWP, 2021)

4 Conservation program

4.1 INTRODUCTION

This Chapter describes the conservation program of the BCS and how it will be implemented.

The purpose of the conservation program is to:

- Ensure development in the Growth Areas avoids and minimises, mitigates, and offsets impacts to Commonwealth, State and local biodiversity values in accordance with the requirements of the EPBC Act and State biodiversity policy
- Ensure biodiversity-related outcomes in the BCS are achieved
- Implement the EPBC Plan's conservation framework

The conservation program has been developed in accordance with the offset mitigation hierarchy (DSEWPC, 2012; DELWP, 2017c). The mitigation hierarchy requires impacts on biodiversity values to be firstly avoided and minimised to the greatest extent practicable, and then mitigated. The remaining residual impacts can then be offset.

The conservation program sets out commitments and measures that will be delivered for:

- Avoiding and minimising impacts to biodiversity values (see Section 4.2)
- Mitigating impacts to biodiversity values (see Section 4.3)
- Offsetting residual impacts to biodiversity values (see Section 4.4)

The commitments for the conservation program will be implemented through a series of detailed measures that are provided in the Commitments and Measure document.

4.2 AVOIDANCE AND MINIMISATION OF IMPACTS

Avoidance of impacts from development in the Growth Areas is a priority at both a Commonwealth and Victorian level and is the first step in the mitigation hierarchy. The avoidance process provides opportunities to avoid and protect areas of high biodiversity value and is fundamental to a determination that commitments adequately address the likely impacts on biodiversity and in reducing the need for offsets to address the impacts of the development.

There may be a range of reasons why land is avoided and not impacted, including because land:

- Has high biodiversity values and is avoided for biodiversity purposes
- Is not strategically located and is therefore not a priority for development
- Is not generally suitable for development for another reason such as topography or land use conflict

Avoidance is defined in the BCS as any land not directly impacted by development within the Growth Areas.

The BCS considered the proposed development for the Growth Areas set out in the Framework Plan and applied a strategic planning process to consider and resolve conflicts between areas identified as high biodiversity value and areas proposed for development in the Framework Plan. This avoidance planning comprised three processes:

- Strategic level planning to locate the Growth Areas and identify initial avoidance priorities
- Locating and designing the development within the Growth Areas to avoid impacts
- Future precinct and site-scale planning

These three steps are described in detail in Appendix B.

The strategic planning process at the Growth Area level led to the identification in the BCS of biodiversity areas that support biodiversity values and provide opportunities to protect, manage and restore biodiversity within the Growth Areas (see Section 4.2.1). The biodiversity areas include four strategic conservation areas that will be avoided from development and protected and managed for conservation in-perpetuity, as well as biodiversity opportunity areas and investigation areas where further consideration of avoidance will be undertaken through precinct planning.

This further consideration of avoidance and biodiversity protection at the precinct scale during precinct planning complements and supports the broader strategic planning process undertaken for the Growth Areas. It allows the benefits of strategic planning to be realised while ensuring issues that cannot be addressed adequately through strategic planning, such as precinct or site-scale considerations, are able to be properly addressed.

The BCS includes commitments and measures to protect and manage the four strategic conservation areas and to consider further avoidance within biodiversity opportunity areas and investigation areas during precinct planning. These are described in Section 4.2.2 and Section 4.2.3 and set out in the Commitments and Measures document.

4.2.1 DESCRIPTION OF BIODIVERSITY AREAS

Biodiversity areas support biodiversity values within the Growth Areas and provide opportunities to protect, manage and restore biodiversity. They provide a key contribution to the delivery of the BCS outcomes set out in Section 2.1.

Through the application of the guiding principles (Section 2.2), the BCS identifies three categories of land within the Growth Areas that relate to biodiversity. They are:

- Strategic conservation areas which represent the most important locations for protecting biodiversity
- Biodiversity opportunity areas which represent locations that are primarily used for another purpose (e.g., to manage stormwater) but that provide opportunities for providing co-benefits for biodiversity
- Investigation areas which are locations that require further work or studies to determine their suitability as either a strategic conservation area or biodiversity opportunity area

The boundaries of the biodiversity areas (except one of the strategic conservation areas – the NGGA Conservation Area) requires confirmation and finalisation during precinct planning through the PSP processes (see Section 4.2.3).

It is important to note that only two of the strategic conservation areas (see below) contribute to the avoidance and/or offset outcomes under the EPBC Part 10 strategic assessment, which is given effect through the EPBC Plan. Although the biodiversity opportunity areas and investigation areas may lead to further conservation benefits to Commonwealth listed matters, these potential benefits will be additional to what is provided by the EPBC Plan.

TYPES OF BIODIVERSITY AREAS

Strategic conservation areas

The primary purpose of the strategic conservation areas is the protection, management and restoration of biodiversity values within key locations of the Growth Areas. The identification of these areas requires a sufficient level of data to provide confidence in the conservation outcomes that can be delivered and support and justify the necessary level of commitment to protect these areas. The guiding principles around conservation planning in the BCS (see Section 2.2) were applied to identify the strategic conservation areas. These include consideration of:

- Biodiversity values
- Connectivity
- Ecological viability

Secondary uses within the strategic conservation areas may be possible where these do not compromise the biodiversity values or reduce the ability to manage the areas. For example, secondary uses may include social infrastructure such as walking trails, or infrastructure to manage stormwater.

Biodiversity opportunity areas

Biodiversity opportunity areas are locations within the Growth Areas which may be suitable for less intensive use or development, such as open space or waterways, and where opportunities may exist for providing co-benefits for biodiversity. Their primary purpose is not conservation. However, they may provide a contribution to biodiversity protection and enhancement where that is complementary to the primary purpose of the area.

A sufficient level of data is needed to identify suitable biodiversity opportunity areas. Adequate data for this purpose currently exists for the NGGA and the precincts of the WGGA that occur within the EPBC strategic assessment area (Creamery Road and Batesford North). Further work will be needed as part of precinct planning to understand the feasibility for biodiversity enhancement and define the objectives that might be achieved for biodiversity in these areas.

The guiding principles around conservation planning were applied to identify the biodiversity opportunity areas. The principles relate to the integration and restoration of biodiversity in urban landscapes.

Investigation areas

Investigation areas are identified where data is not yet sufficient to determine the precise location and type of biodiversity areas. This occurs in the precincts of the WGGA outside of the EPBC strategic assessment area where comprehensive field surveys have not been undertaken. The investigation areas identified for this section of the WGGA reflect the areas considered most likely to meet the guiding principles for both strategic conservation areas and biodiversity opportunity areas based on the information that is currently available.

The investigation areas will be confirmed at the PSP stage for the relevant precincts as either:

- Strategic conservation areas
- Biodiversity opportunity areas
- Areas not suitable for biodiversity protection and therefore suitable for development

NGGA BIODIVERSITY AREAS

The biodiversity areas within the NGGA are identified in Figure 4-1. They include:

- A strategic conservation area – the NGGA Conservation Area
- A range of biodiversity opportunity areas
- A range of potential biodiversity linkages across the Growth Area

NGGA Conservation Area

The NGGA Conservation Area is a strategic conservation area in the north-west of the Growth Area. It is 109 ha in size and supports the following biodiversity values:

- 55 ha of mapped native vegetation (Plains Grassland EVC 132)
- 108 ha of habitat for the Golden Sun Moth
- 74 ha of habitat for the Striped Legless Lizard

The conservation area forms part of the avoidance and offset commitments for the EPBC Plan (see Section 4.4.1).

The key aim of the conservation area will be to protect and manage native vegetation and habitat for Striped Legless Lizard and Golden Sun Moth in perpetuity. It will do this by:

- Protecting habitat supporting populations of the Striped Legless Lizard and Golden Sun Moth
- Improving the condition of habitat for the Striped Legless Lizard and Golden Sun Moth
- Where possible, increasing the area of occupied habitat for the Striped Legless Lizard through regeneration or restoration of any potentially suitable areas

The NGGA Conservation Area will be a success if:

- The populations of Striped Legless Lizard and Golden Sun Moth persist and remain viable over the long term
- Habitat for Striped Legless Lizard and Golden Sun Moth is retained and condition improves over time

The NGGA Conservation Area was confirmed by the City through a Structured Decision Making process that led to confirmation of an area for conservation that was not identified in the Framework Plan, and which:

- Supports multiple important biodiversity values
- Focuses on the largest habitat area for Striped Legless Lizard within the NGGA and a substantial area of habitat for the Golden Sun Moth
- Provides the best opportunities for protecting and managing viable areas of biodiversity in the long term due its suitable shape, area, and condition of the vegetation

A description of the commitments and measures for the NGGA Conservation Area, including how the area will be protected and managed, is provided in Section 4.2.2 and Section 4.2.3.

Biodiversity opportunity areas

There are seven biodiversity opportunity areas within the NGGA. The majority of these relate to drainage areas that are likely to be required for various types of stormwater related infrastructure. However, these areas may also be appropriate for providing co-benefits to biodiversity by retaining or enhancing habitat values and potential movement corridors for threatened fauna across the Growth Area, as well as improving stream flow and water quality outcomes.

The key biodiversity values to promote or support in these areas include:

- Grassland ecosystems, particularly areas that have retained some extent of native flora. Area 2 in Figure 4-1 may provide some of the best opportunities for this. Planning and design within these areas should consider revegetation using native grasses with local provenance and avoiding the introduction of trees as part of landscaping
- The State listed Leafless Bluebush record within Area 1
- Habitat features which would support dispersal, refuge or movement of grassland fauna species, including the Striped Legless Lizard and the Golden Sun Moth

In addition to drainage lines, there are three areas of known habitat for the Striped Legless Lizard (outside the NGGA Conservation Area) that should be prioritised for sympathetic land uses such as open space or community parks as part of precinct planning. The species has been known to persist in small areas within urban environments and it may be possible to co-locate community spaces with habitat for the species.

Potential biodiversity linkages

Three potential MNES linkages have also been identified for the NGGA to further enhance the functioning of the biodiversity opportunity areas. These linkages may support the periodic movement or dispersal of fauna such as the Striped Legless Lizard or Golden Sun Moth where sympathetic landscaping, selection of materials and footpath or road-side management is undertaken. Opportunities for the movement of individuals could play a helpful role in supporting population resilience within the strategic conservation areas.

There are also a range of other potential linkages in the Growth Area that may provide a benefit to biodiversity through appropriate design of the urban form.

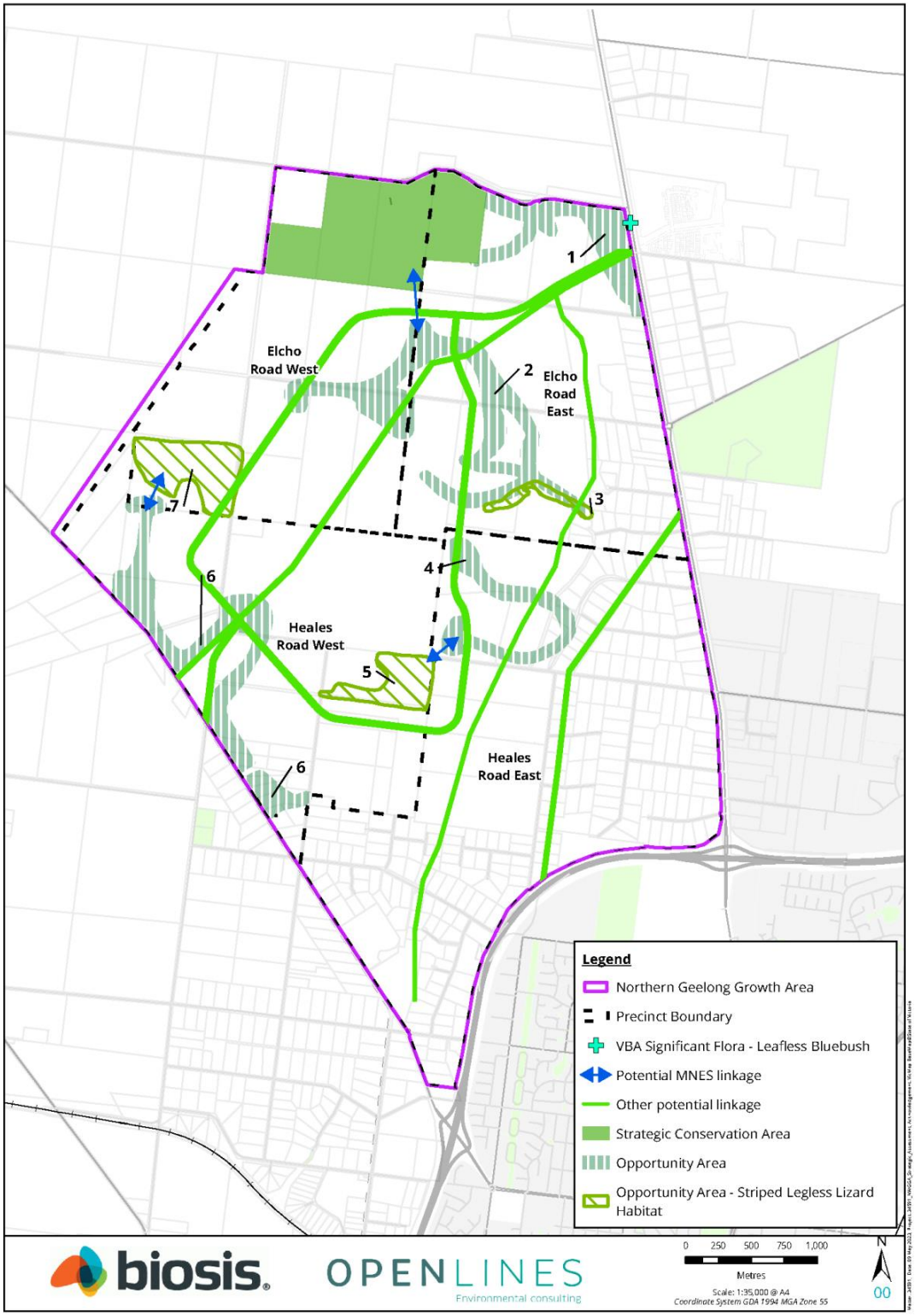

Figure 4-1: Biodiversity areas within the NGGA

WGGA BIODIVERSITY AREAS

The biodiversity areas within the WGGA are identified in Figure 4-2. They include:

- Cowies Creek, the Moorabool River and the Barwon River as strategic conservation areas
- A range of biodiversity opportunity areas
- A range of investigation areas in the precincts outside of the EPBC strategic assessment area
- A range of other potential biodiversity linkages across the Growth Area

Strategic conservation areas

The WGGA includes three strategic conservation areas. They are:

- Cowies Creek Conservation Area in the Creamery Road precinct
- Moorabool River Corridor in the Batesford North and Batesford South precincts
- Barwon River Corridor in the Merrawarp Road precinct

These three strategic conservation areas will be established to:

- Protect and regenerate biodiversity values along the creek/river corridors. This supports one of the Framework Plan's urban development objectives which identifies Cowies Creek, Moorabool River and Barwon River as priorities for the protection and regeneration of creek and river corridors
- Protect cultural heritage values. There are a range of sites of cultural heritage significance in the creek/river corridors and the conservation area will provide a level of protection for these. This supports the same urban development objective in the Framework Plan as the one that relates to biodiversity
- Provide for some social and stormwater infrastructure within the precinct that is sympathetic to the protection of biodiversity and heritage values. Social infrastructure may include walking trails and some open space facilities

Cowies Creek Conservation Area

The Cowies Creek Conservation Area supports:

- An important population of the Growling Grass Frog that is connected to a larger metapopulation downstream
- A previously known record of Adamson's Blown-grass
- Areas of mapped Creekline Grassy Woodland (EVC 68)

The conservation area will be established to protect, manage, and where possible restore these values.

The conservation area forms part of the avoidance commitments for the EPBC Plan (see Section 4.2.1).

Along with the broad aims of the three strategic conservation areas in the WGGA (see above), a key aim of the conservation area will be to support the persistence of the Growling Grass Frog within the WGGA and maintain the metapopulation dynamics with the broader Cowies Creek metapopulation downstream. It will do this by:

- Protecting high quality instream habitat
- Helping to improve the condition of lower quality instream habitat
- Protecting terrestrial habitat in buffer areas adjacent to the creek
- Regenerating areas of terrestrial habitat that are degraded through historical land uses
- Potentially providing for the creation of off-stream habitat

The Cowies Creek Conservation Area will be a success if:

- The population of GFF persists and remains viable over the long term
- Habitat for GFF and potential habitat for Adamson's Blown-grass is retained and condition improves over time
- Metapopulation dynamics of GFF are retained with downstream populations of the species

A description of the commitments and measures for the Cowies Creek Conservation Area, including how the area will be protected and managed, is provided in Section 4.2.2 and Section 4.2.3.

Moorabool River Corridor

The Moorabool River Corridor is located alongside the Batesford North precinct and through the Batesford South precinct and joins with the Barwon River downstream of the Merrawarp Road Precinct.

The avoidance and protection of the Moorabool River Corridor will protect a range of state and local biodiversity values.

The Moorabool River is an important biodiversity habitat corridor between the Brisbane Ranges National Park and the Barwon River, and sustains critical ecological processes for native fish, macroinvertebrates, mammals, birds, and vegetation communities (CCMA, 2016). The river supports a diversity of native vegetation along the length of the waterway. EVCs which have been modelled adjacent to the Moorabool River include Low Rainfall Plains Grassland (EVC 132_63), Plains Grassy Woodland (EVC 55), Floodplain Riparian Woodland (EVC 56) and Stream Bank Shrubland (EVC 851) (DELWP, 2005). The river also provides habitat for a number of native fish, including the Tupong (*Pseudaphritis urvillii*), Southern Pygmy Perch (*Nannoperca australis*), Australian Grayling (*Nannoperca obscura*), Common Galaxias (*Galaxias maculatus*) and Spotted Galaxias (*Galaxias truttaceus*) (CCMA, 2022). The river also supports the state significant Eastern Grey Egret (*Ardea alba modesta*) (CCMA, 2014).

The avoidance and protection of the Moorabool River Corridor will contribute to landscape connectivity between the upper reaches of the Moorabool, through to the Barwon River and the downstream Lake Connewarre Wetland Complex (this forms part of the Port Phillip (Western Shoreline) and Bellarine Peninsula Ramsar Site).

Barwon River Corridor

The Barwon River Corridor is located in the Merrawarp Road precinct.

The avoidance and protection of the Barwon River Corridor will protect a range of state and local biodiversity values.

The Barwon River supports aquatic vegetation communities and provides important breeding and feeding habitat for wetland dependant birds and native fish (CCMA, 2014). EVC modelling suggests that most of the corridor supports native vegetation, including Floodplain Riparian Woodland (EVC 56), and Stream Bank Shrubland in the upper reaches (DELWP, 2005). A range of birds are supported by the river, including the Magpie Goose (*Anseranas semipalmata*), Eastern Great Egret (*Ardea modesta*), Lewin's Rail (*Rallus pectoralis*), Australasian Bittern (*Botaurus poiciloptilus*), Caspian Tern (*Hydroprogne caspia*) and Nankeen Night Heron (*Nycticorax caledonicus*). The river also supports native fish including the Australian Grayling (*Prototroctes maraena*), Australian Mudfish (*Neochanna cleaveri*), and Yarra Pygmy Perch (*Nannoperca obscura*) (CCMA, 2022).

The avoidance and protection of the Barwon River Corridor will contribute to landscape connectivity between the upstream Moorabool River, and downstream Lake Connewarre Wetland Complex (this forms part of the Port Phillip (Western Shoreline) and Bellarine Peninsula Ramsar Site).

Biodiversity opportunity areas

Four biodiversity opportunity areas are identified within Creamery Road and Batesford North. These relate to drainage areas that are likely to be required for various types of drainage infrastructure. However, these areas may also be appropriate for providing co-benefits to biodiversity and providing biodiversity links across the Growth Area.

In particular (see Figure 4-2):

- Area 1 may provide substantial opportunities for adding to and enhancing the Moorabool River Corridor
- Area 3 may provide an important opportunity for habitat creation and enhancement for the Growling Grass Frog, connecting through to the Cowies Creek Conservation Area. For example, the species has been known to occupy suitably designed urban stormwater basins. The potential development of this tributary of Cowies Creek in a way that supports movement or provides refuge for the Growling Grass Frog could play a helpful role in supporting the long-term viability of the Cowies Creek metapopulation

Investigation areas

Eight investigation areas are identified for the precincts outside the area of the EPBC strategic assessment where comprehensive field surveys are yet to occur. These include:

- Woodland adjacent to the existing Dog Rocks Flora and Fauna Sanctuary
- Other drainage lines within the precincts
- A potential Commonwealth listed threatened ecological community (Seasonal Herbaceous Wetlands) in McCanns Lane
- The area around the existing Batesford Quarry

Woodland adjacent to the existing Dog Rocks Flora and Fauna Sanctuary

The Dog Rocks Flora and Fauna Sanctuary is an area of open eucalypt woodland of 83 ha with a frontage to the Moorabool River. The area is protected and managed by a Trust for Nature covenant. It supports rare local native vegetation such as Yellow Gum, Rock Correa, and Chocolate Lily, and old growth trees (Batesford Fyansford Stonehaven Landcare Group, 2020, 2021). The area provides habitat for a diversity of birdlife, including Tawny Frogmouth, Nankeen Kestrel, and Sacred Kingfisher. The area also supports small families of koalas and kangaroos, and a number of lizards and snakes (Batesford Fyansford Stonehaven Landcare Group, 2020).

Investigation area 8 in the Batesford North precinct includes areas adjacent to the Dog Rocks Flora and Fauna Sanctuary. Aerial imagery suggests that these areas support remnant woodland vegetation, and modelled EVCs indicate that most of this area comprises Grassy Woodland (EVC 175) and Plains Grassy Woodland (EVC 55). The protection and management of this area would provide biodiversity benefits to this area as well as to Dog Rocks by increasing the area of land protected for conservation, providing a buffer to the sanctuary, and improving connectivity.

Other drainage lines within the precincts

Several drainage lines are identified as investigation areas. The existing values of these drainage lines are not currently well understood and will require further investigation. However, sympathetic design and management of these areas may provide important co-benefits to biodiversity, in particular by improving connectivity across the Growth Area.

Potential Seasonal Herbaceous Wetlands

The Framework Plan identified an area that potentially supports an occurrence of the Seasonal Herbaceous Wetland community in the McCanns Lane precinct near the intersection of McCanns Lane and the Hamilton Highway (The City of Greater Geelong, 2021). The community is listed as Critically Endangered under the EPBC Act. It is comprised of temporary freshwater wetlands which are seasonally inundated, typically filling after rains in winter and spring, and then drying out. Many occurrences of this community are very small (less than 1 hectare in size) (DSEWPaC, 2012).

Further survey and investigation are required to confirm the presence of the TEC in this area. If the TEC is identified in this area, it is important that it is protected from direct and indirect impacts due to development.

The area around the existing Batesford Quarry

The Batesford Quarry covers an area of roughly 190 hectares. The area is highly disturbed and is unlikely to support biodiversity values at present. The Framework Plan identifies the area as a potential lake or waterbody. If the quarry is filled in, this will create an opportunity to establish wetland and water habitat for biodiversity.

Protection and management of the area surrounding the Batesford Quarry will be important to support the ecological functioning of the wetland area and provide fauna habitat values.

Potential biodiversity linkages

There are a range of potential linkages in the Growth Area that may provide a benefit to biodiversity through appropriate design of the urban form.

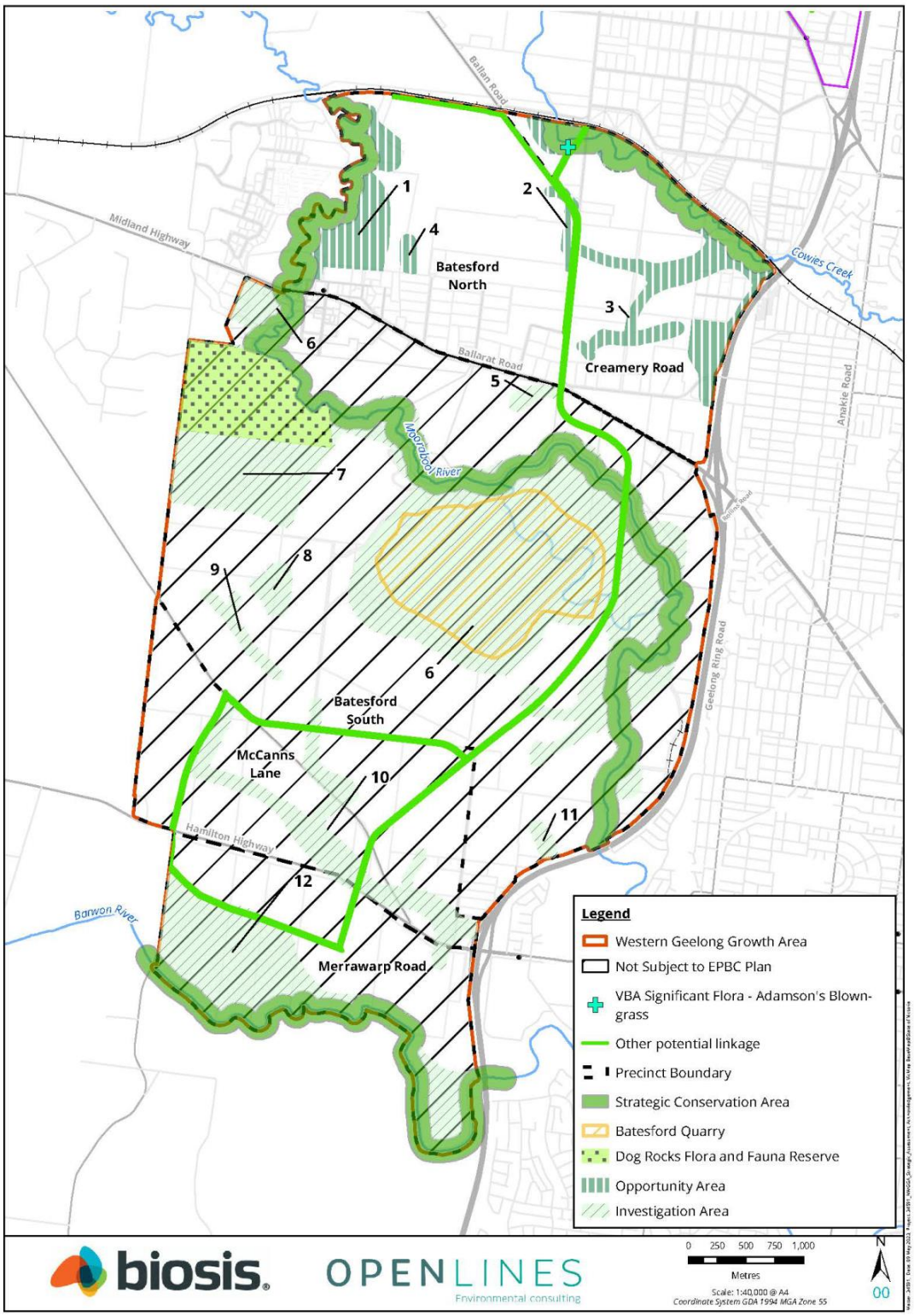

Figure 4-2: Biodiversity areas within the WGGA

4.2.2 COMMITMENTS FOR AVOIDANCE

The following national level commitments are made in relation to avoidance:

Table 4-1: National level commitments in relation to avoidance

No.	Commitment
3	The NGGA Conservation Area will be established in perpetuity to avoid and protect 74 ha of habitat for Striped Legless Lizard and 108 ha of habitat for Golden Sun Moth
4	A Conservation Management Plan will be prepared and implemented for the protection and ongoing management of Striped Legless Lizard and Golden Sun Moth within the NGGA Conservation Area
5	The Cowies Creek Conservation Area will be established in perpetuity to avoid and protect habitat needed to support the continued persistence of the Growling Grass Frog in the WGGA
6	A Conservation Management Plan will be prepared and implemented for the protection and ongoing management of Growling Grass Frog and areas of potential habitat for Adamson's Blown-grass within the Cowies Creek Conservation Area

The following State level commitments are made in relation to avoidance:

Table 4-2: State level commitment in relation to avoidance

No.	Commitment
i	Strategic Conservation Areas will be confirmed and protected through the PSP process
ii	Opportunities for further avoidance of impacts to biodiversity values within the biodiversity opportunity areas will be considered through the PSP process
iii	Investigation areas within the WGGA will be confirmed as either: • Strategic conservation areas • Biodiversity opportunity areas • Areas not suitable for biodiversity protection and rather suitable for development

4.2.3 IMPLEMENTATION PROCESSES AND MECHANISMS TO PROTECT AND MANAGE BIODIVERSITY AREAS

The BCS includes several implementation processes and mechanisms to protect, manage, and where appropriate, restore biodiversity values in the biodiversity areas. This includes:

- Planning to finalise strategic conservation area boundaries
- Planning controls and mechanisms to secure land within strategic conservation areas
- Preparation and implementation of Conservation Management Plans for strategic conservation areas
- Further consideration of biodiversity opportunity areas and investigation areas

PLANNING TO FINALISE STRATEGIC CONSERVATION AREA BOUNDARIES

The boundaries of the Cowies Creek Conservation Area, Moorabool River Corridor and Barwon River Corridor are indicative in the BCS and will be finalised during precinct planning through the preparation of PSPs.

Cowies Creek Conservation Area

The boundary of the Cowies Creek Conservation Area will be finalised to ensure the conservation area includes all areas of habitat that may be needed to support the continued persistence of the Growling Grass Frog within the WGGA, including areas of habitat that may be used for breeding, foraging and movement.

One of the key considerations in finalising the boundary will include maintaining an appropriate corridor width to protect terrestrial habitat and buffer the instream habitat for Growling Grass Frog. Two guiding documents will be used for designing and managing the conservation area in relation to Growling Grass Frog – Growling Grass Frog Habitat Design Standards (DELWP, 2017b) and the Growling Grass Frog Crossing Design Standards (DELWP, 2017a).

It is also noted that the Growling Grass Frog Significant Impact Guidelines (DEWHA, 2009):

- Identify removal or degradation of habitat within 200 m of a water body as a likely significant impact to the species
- Recommend that buffer zones of at least 200 m around water bodies and dedicated terrestrial habitat corridors of at least 100 m be retained in avoiding and land from development and designing conservation areas

The topography of Cowies Creek and the current land use within the Creamery Road Precinct is not considered conducive to a buffer distance of 200 m. There is a significant break of slope at approximately 100 m from the creek line which is likely to represent the edge of the potential terrestrial habitat for the species. Beyond the break of slope there are significant areas of cropping and a lack of suitable habitat. This suggests that a layout that is based on the break of slope as the edge of the conservation area would be appropriate. This would maintain an average corridor width of approximately 100 m from the stream. Given the current use of Cowies Creek by the species, this is considered appropriate for the long term protection of the population in the WGGA.

The decision on the boundary of the conservation area would also consider the ephemeral stream that runs into Cowies Creek in the precinct, and the potential for that area to provide additional habitat for the species.

Moorabool River Corridor and Barwon River Corridor

The boundary of the Moorabool River Corridor and Barwon River Corridor will be finalised to ensure the corridors:

- Incorporate as much of the key biodiversity values associated with each river corridor as possible
- Reflect the relevant priorities or standards in the Corangamite Waterway Strategy 2014-2022
- Include a minimum of 50 m of riparian land from the top of bank either side of the waterways

Individual detailed master plans that outline the protection and enhancement of river and creek corridors within the Growth Areas will also be prepared and incorporated within the relevant PSPs, including:

- Barwon River, between Geelong Ring Road and Merrawarp Road
- Moorabool River, between Midland Highway and Geelong-Ballarat Railway
- Moorabool River (and deviation channel), between Geelong Ring Road and Midland Highway and including Dog Rocks Sanctuary and Moorabool River Reserve

PLANNING CONTROLS AND MECHANISMS TO SECURE LAND

The NGGA Conservation Area and Cowies Creek Conservation Area will be purchased and/or vested in the City as reserves to be managed for conservation purposes.

The strategic conservation areas will also be protected through several planning controls as well as security agreements to ensure the protection of the land for conservation in-perpetuity.

The planning controls include:

- Identifying the strategic conservation areas in relevant PSPs as land to be protected for conservation in the urban structure maps of the precinct. This will provide protection to the strategic conservation areas by directing development away from the conservation areas. Responsible authorities can only approve planning permits for subdivision and development that are generally in accordance with the relevant PSP that applies to the land
- Applying an appropriate environment zone to the strategic conservation areas under the Greater Geelong Planning Scheme. The zoning will limit the use and development that can occur within the strategic conservation area. The decision on the appropriate environment zone will be made by the City of Geelong during precinct planning and will take into account the future land tenure of the conservation area, the intended uses within the conservation area, and the guidance on environment zoning in *Planning for biodiversity: guidance* (DELWP, 2017d)
- Identifying the native vegetation in the strategic conservation areas as 'to be retained' within the relevant NVPPs. This will provide protection to the native vegetation within the strategic conservation area by requiring that a permit is obtained to remove that native vegetation under the Greater Geelong Planning Scheme

The NGGA Conservation Area will also be secured as an offset site under an in-perpetuity, on-title agreement consistent with the security requirements of the Native Vegetation Guidelines (DELWP, 2017). For private land, these requirements specify that land can be secured by entering into a security agreement with a relevant statutory body that:

- Contains a legally enforceable provision
- Has no termination date
- Is registered on the land title
- Contains an offset management plan as detailed in Section 9.3 of the Native Vegetation Guidelines

Agreements that comply with these requirements include:

- An agreement with the Secretary to DEECA under section 69 of the *Conservation Forest and Lands Act 1987*
- An agreement with a responsible authority under section 173 of the *Planning and Environment Act 1987*
- An agreement with Trust for Nature to register an offset covenant under the *Victorian Conservation Trust Act 1972*

CONSERVATION MANAGEMENT PLANS

The City will prepare and implement Conservation Management Plans to provide for the protection and ongoing management of the biodiversity values within each strategic conservation area.

Conservation Management Plans will be prepared in accordance with the Commonwealth Environmental Management Plan Guidelines (DoE, 2014). The Conservation Management Plan for Cowies Creek will also be prepared in accordance with the Growling Grass Frog Habitat Design and Crossing Standards (DELWP, 2017b, 2017a).

Each Conservation Management Plan will include the following information, as relevant:

- Objectives of the Conservation Management Plan. These will be developed consistent with the aims of the conservation area set out in Section 4.2.1
- Boundaries of the conservation areas
- Native vegetation to be retained as identified in the relevant NVPP for the precinct
- Extent and condition of biodiversity values in the areas, including habitat and records
- Management actions and arrangements to protect, and where appropriate, restore, the biodiversity values of the conservation areas, including management methods, standards and techniques, roles and responsibilities, timing for implementation, funding and monitoring and reporting
- For the Cowies Creek Conservation Area, Moorabool River corridor and Baron River corridor, identify any locations suitable for public access points, walking paths/trails, and passive recreation, and any locations suitable for water management assets and associated infrastructure

Monitoring will be undertaken as part of the implementation to ensure that performance of each Conservation Management Plan is understood, and to ensure that management is responsive and adapts to any changing circumstances.

For the Growling Grass Frog in the Cowies Creek Conservation Area, a measure is included to undertake restorative actions if declines in the species are observed through monitoring. If declines are observed:

- The City will instigate further information gathering to try and determine the causes of the declines
- Restorative actions will be determined based on the causes of any declines. These may include measures such as:
  - Changes to how water quantity and/or quality are managed
  - Management actions in the corridor to restore habitat
  - Creation of new habitat features (e.g., off-stream ponds)
- Monitoring intensity will be increased to determine if the restorative actions are working

A draft of each Conservation Management Plan will be provided to DCCEEW for consideration and comment prior to its finalisation and approval by the City of Geelong.

FURTHER CONSIDERATION OF BIODIVERSITY OPPORTUNITY AREAS AND INVESTIGATION AREAS

Opportunities for further avoidance of impacts to biodiversity values within the biodiversity opportunity areas will be considered during precinct planning through the preparation of PSPs.

Biodiversity opportunity areas

As defined in Section 4.2.1, the primary purpose of the biodiversity opportunity areas is not conservation. However, they may provide a contribution to biodiversity protection and enhancement where that is complementary to the primary purpose of the area.

The biodiversity areas will be confirmed at the PSP preparation stage for the relevant precincts to confirm the biodiversity values of these areas. These decisions will be made by the City through application of the BCS guiding principles relating to biodiversity opportunity areas and consideration of the guidance relating to opportunity areas in the precinct profiles in Section 4.5 of the BCS. The precinct profiles identify the currently known biodiversity values within the biodiversity opportunity areas and the priorities that should be considered in making decisions on these areas during precinct planning.

For any locations within biodiversity opportunity areas that are determined as providing co-benefit opportunities for biodiversity, the City will determine the purpose, biodiversity management actions and design requirements for these locations and incorporate these into permit conditions or similar.

Native vegetation to be retained in the biodiversity opportunity areas will be identified as such in the relevant NVPP.

Investigation areas

The City will undertake ecological surveys within the investigation areas at the PSP preparation stage for the relevant precincts to confirm the biodiversity values of these areas, in accordance with relevant survey guidelines.

Ecological data will be used to inform decisions about whether any investigation areas should be confirmed as either strategic conservation areas or biodiversity opportunity areas during precinct planning.

These decisions will be made by the City through application of the BCS guiding principles relating to strategic conservation areas and biodiversity opportunity areas and consideration of the guidance relating to investigation areas in the precinct profiles in Section 4.5 of the BCS. The BCS will be amended to confirm the location of any investigation areas that are confirmed as new strategic conservation areas or biodiversity opportunity areas.

Any investigation areas confirmed as strategic conservation areas will be protected for conservation in the same way as the other strategic conservation areas (see above), including by applying planning controls and mechanisms to secure the land and preparing Conservation Management Plans to manage these areas in the long term.

4.3 MITIGATION OF IMPACTS

Mitigating impacts to biodiversity values is the second step in the mitigation hierarchy. The mitigation process reduces how likely or significant unavoidable impacts may be and further reduces the need for offsets.

Development within the Growth Areas has the potential to lead to a range of indirect impacts that may adversely affect biodiversity values. These indirect impacts relate to:

- Altered fire regimes
- Changes to water flows and water quality
- Disturbance due to noise, dust, or light
- Disturbance from increased public access to natural areas
- Fauna mortality and barriers to movement
- Inadvertent impacts on adjacent habitat or vegetation
- Predation or competition by pest or domestic fauna
- Spread of infection or disease
- Spread of weeds

4.3.1 COMMITMENTS FOR MITIGATION

The national and State level commitments for mitigation are set out in Table 4-3 and Table 4-4 respectively. They include:

- Requirements to implement standard mitigation measures to ensure potential indirect impacts from development are controlled
- Additional specific mitigation measures to address key environmental values and protect the strategic conservation areas
- Requirements to prepare CMPs for each of the strategic conservation areas

There is some overlap in the commitments relating to the strategic conservation areas (both in this section relating to mitigation and with other commitments for avoidance and offsets). This is deliberate to ensure that all strategic conservation areas (including those to be defined in the future in the southern precincts of the WGGA) are appropriately protected.

Table 4-3: National level commitments in relation to mitigation

No.	Commitment
7	Standard mitigation measures will continue to be implemented to minimise the indirect impacts of the development on MNES in accordance with the requirements of the *Greater Geelong Planning Scheme* (The City of Greater Geelong, 2022), as updated from time to time, and generally in accordance with the Framework Plan (The City of Greater Geelong, 2021)
8	The following additional specific mitigation measures will be implemented to minimise the indirect impacts of the development on the NGGA Conservation Area and Cowies Creek Conservation Area: • Establish a conservation interface for the conservation areas • Design and baffle public lighting to prevent light spill and glare within the Cowies Creek Conservation Area • Prepare Construction Environmental Management Plans for construction works on land immediately adjacent to the conservation areas
9	Additional specific mitigation measures will be implemented to minimise the indirect impacts of the development on MNES associated with waterways, riparian areas and wetlands including: • EPBC listed threatened and migratory birds • *Galaxiella toourtkoourt* (Little Galaxias) • *Litoria raniformis* (Growling Grass Frog) • *Nannoperca obscura* (Yarra Pygmy Perch) • *Prototroctes maraena* (Australian Grayling) • *Lachnagrostis adamsonii* (Adamson's Blown Grass) • Port Phillip Bay (Western Shoreline) and Bellarine Peninsula Ramsar site

Table 4-4: State level commitments in relation to mitigation

No.	Commitment
iv	Conservation Management Plans will be prepared and implemented for the protection and ongoing management of biodiversity values within each of the strategic conservation areas
v	The following additional specific mitigation measures will be implemented to minimise the indirect impacts of the development on the environmental values of the strategic conservation areas: • Establish a conservation interface for each strategic conservation area • Design and baffle public lighting to prevent light spill and glare within the strategic conservation areas • Prepare Construction Environmental Management Plans for construction works on land immediately adjacent to the strategic conservation areas

4.3.2 IMPLEMENTATION OF MITIGATION

Mitigation measures for biodiversity values will mostly be determined and implemented through the Victorian planning system as development proceeds (see Appendix A). This will deliver a range of standard mitigation measures that will address many of the potential indirect impacts of development within the Growth Areas.

The assessment of potential indirect impacts to MNES in the EPBC Strategic Assessment Report identified several additional specific mitigation measures beyond those that will be delivered through the existing planning system. These are required to address specific risks to MNES associated with waterways, riparian areas and wetlands, as well as other environmental values within conservation areas. The specific mitigation measures will also mostly be delivered through the existing planning system and will provide additional protection to State and local biodiversity values.

Any potential indirect impacts of development on Victorian biodiversity values will be assessed under the planning permit process at the time development is proposed. While the additional specific mitigation measures are expected to benefit and minimise impacts to the key environmental values (both MNES and Victorian values), the planning permit process may determine further additional mitigation measures are needed to address specific matters.

IMPLEMENTATION OF STANDARD MITIGATION MEASURES

The Victorian planning system will deliver a range of standard mitigation measures through the PSP process, existing provisions in the Greater Geelong Planning Scheme, and the planning permit process. This standard mitigation includes measures such as stormwater management, erosion control, and management of construction sites.

PSP process

PSPs will be prepared for each precinct within the Growth Areas. They include requirements and guidelines for the use and development of a precinct, including actions to manage and mitigate the impacts. Preparation of PSPs is informed through several key steps, including:

- Preparation of technical studies and reports to understand key issues and constraints for the precinct and inform planning and management responses to be addressed in the PSP
- An opportunity for stakeholders to raise concerns and make submissions through public exhibition
- An independent planning panel hearing to consider and resolve key technical, planning and stakeholder issues

The City will prepare PSPs with consideration of the Framework Plan and the *Precinct Structure Planning Guidelines: New Communities in Victoria* (Victorian Planning Authority, 2021).

The Framework Plan includes a range of mitigation-related actions. These are summarised in Table 4-6 against each of the relevant potential indirect impact types associated with the development. The City will be responsible for making decisions about how the mitigation-related actions in the Framework Plan will be addressed and implemented through each PSP. Clause 11.02 specifies that PSPs should be prepared generally in accordance with the Framework Plan map.

Table 4-5: Mitigation-related actions in the Framework Plan

Indirect impact type	Action	Description	Relevant Growth Area
Changes to water flows and quality	N1.2.1 - N1.2.9 W1.2.1 - W1.2.11	Various actions to maintain water flows and quality, including riparian buffers and stormwater standards	Northern Western
	N1.3.6 W1.3.7	Manage stormwater to minimise downstream impacts to Ramsar site	Northern Western
	N1.3.8 W1.3.9	Establish riparian reserves in Plan 7 (Northern Growth Area) and Plan 15 (Western Growth Area)	Northern Western
	N1.6.9 W1.6.6	Manage land contamination in high risk areas	Northern Western

Indirect impact type	Action	Description	Relevant Growth Area
	W1.3.2	Prepare Masterplans for Cowies Creek and Barwon and Moorabool rivers for integrated water management and to protect riparian corridors along waterways	Western
Spread of infection/disease	-	-	-
Spread of weeds	N1.3.3 W1.3.4	Manage incompatible neighbouring land uses	Northern Western
	N1.3.5 W1.3.6	Use revegetation to buffer natural areas	Northern Western
	N1.3.10 W1.3.11	Use indigenous species for plantings	Northern Western
Predation/competition/land degradation by pests / domestic fauna	N1.3.3 W1.3.4	Manage public access and pests	Northern Western
	N1.7.3 W1.7.4	Protect native fauna from domestic and feral pests	Northern Western
Altered fire regimes and increased fire risk	-	-	-
Disturbance from increased public access to natural areas	N1.3.3 W1.3.4	Manage public access and pests	Northern Western
	N1.3.9 W1.3.10	Promote and manage access to natural areas	Northern Western
	N1.7.3 W1.7.4	Minimise rubbish dumping and illegal clearing	Northern Western
Fauna mortality, displacement, and barriers to movement	N1.3.2 W1.3.3	Establish habitat corridors in Plan 9 (Northern Growth Area) and Plan 17 (Western Growth Area)	Northern Western
	N1.3.4 W1.3.5	Limit road crossings of waterways	Northern Western
	N1.3.5 W1.3.6	Use revegetation to buffer natural areas	Northern Western
	N1.3.8 W1.3.9	Establish riparian reserves in Plan 7	Northern Western
	N1.3.11 W1.3.12	Promote native vegetation in the creative corridor	Northern Western
Fauna disturbance due to noise, dust and light	-	-	-
Inadvertent impacts on adjacent habitat or vegetation	-	-	-

Greater Geelong Planning Scheme

Table 4-6 summarises the key existing provisions in the Greater Geelong Planning Scheme that will lead to the implementation of standard mitigation measures against each of the relevant indirect impact types.

These existing provisions include policy directions under the PPF and specific provisions under the planning scheme.

Planning permit process

Both PSPs and the provisions in the Greater Geelong Planning Scheme are implemented primarily through the planning permit process. Clause 37.07-14 specifies that in deciding on permit applications within the UGZ, responsible authorities should consider several matters, including any relevant growth area Framework Plan or PSP that applies to the land.

The City will be responsible for making most decisions about how existing provisions in the Greater Geelong Planning Scheme relevant to mitigating the impacts of the development will be addressed and implemented through the planning permit process. These decisions will be made in accordance with the requirements of the planning scheme and the specific characteristics of the proposed subdivision or development and the site and surrounding environment. The UGZ requires permits granted for subdivision and development to:

- Be generally in accordance with the PSP
- Include any conditions or requirements specified in the schedule to the UGZ or the PSP

The permit process includes the following steps relevant to the implementation of mitigation measures:

- Preparation of technical studies and reports that support the application and inform the planning decision, including plans to address the potential impacts of the development
- Referral of the application to specialist referral authorities for advice and comment where required – these may object to the permit or specify conditions to be included on a permit to address potential impacts
- An opportunity for stakeholders to raise concerns and make submissions through a notification process
- Inclusion of conditions on permits to address the potential impacts of the development
- An opportunity to review the merits of a permit decision at the Victorian Civil and Administrative Tribunal

The City has also developed a template of standard conditions to be included on permits where appropriate. These are shown in Table 4-7 against each of the relevant indirect impact types associated with the development. This template of conditions is updated from time to time to reflect changes in requirements and standards.

IMPLEMENTATION OF ADDITIONAL SPECIFIC MITIGATION MEASURES

Waterways, riparian areas and wetlands commitment

The commitment relating to mitigating impacts on waterways, riparian areas and wetlands will be implemented through the preparation of technical studies to understand the key risks from development on MNES associated with Hovells Creek, Cowies Creek and the Moorabool River. These studies aim to:

- Address risks associated with changes to water quality and hydrology from the development in the Growth Areas
- Identify measures, standards or targets to mitigate impacts on MNES including, as relevant:
  - Water quality parameters
  - Water retention and flow management requirements
  - Limits on extraction or use
  - Habitat buffer requirements
  - Monitoring and reporting

Guidelines will be prepared based on the results of these studies to guide the preparation of PSPs and decisions on planning permits and permit conditions to ensure risks to MNES in relation to these impacts are adequately managed. A planning scheme amendment or other appropriate process will be undertaken to ensure the guidelines are considered during the preparation of PSPs and in decisions on planning permits and permit conditions.

Stormwater infrastructure and ongoing stormwater management will also be designed to be sympathetic to and not notably alter habitat for the Growling Grass Frog within downstream reaches of Cowies Creek.

To ensure an appropriate level of assurance for this commitment, monitoring and reporting on the inclusion of these specific mitigation measures in PSPs and/or as conditions on permits will be undertaken as part of the monitoring program and annual progress reporting under the Plan's MERI program.

Commitments to protect strategic conservation areas

The commitments relating to mitigating impacts in the NGGA Conservation Area, Cowies Creek Conservation Area, and other strategic conservation areas will be implemented by including the mitigation measures as requirements and guidelines in PSPs and/or as conditions on permits for land use, subdivision and development.

Implementation of the management actions in the CMPs for the NGGA Conservation Area and Cowies Creek Conservation Area will be funded using the implementation fund established under the Funding Program (as described in the EPBC Plan).

The City will be responsible for implementing most of these mitigation measures.

Table 4-6: Mitigation-related actions in the NWGGA Framework Plan to be addressed through PSPs

Indirect impact type	Action	Description	Relevant Growth Area
Changes to water flows and quality	N1.2.1 - N1.2.9 W1.2.1 - W1.2.11	Various actions to maintain water flows and quality, including riparian buffers and stormwater standards	Northern Western
	N1.3.6 W1.3.7	Manage stormwater to minimise downstream impacts to Ramsar site	Northern Western
	N1.3.8 W1.3.9	Establish riparian reserves in Plan 7 (Northern Growth Area) and Plan 15 (Western Growth Area)	Northern Western
	N1.6.9 W1.6.6	Manage land contamination in high risk areas	Northern Western
	W1.3.2	Prepare Masterplans for Cowies Creek and Barwon and Moorabool rivers for integrated water management and to protect riparian corridors along waterways	Western
Spread of infection/disease	-	-	-
Spread of weeds	N1.3.3 W1.3.4	Manage incompatible neighbouring land uses	Northern Western
	N1.3.5 W1.3.6	Use revegetation to buffer natural areas	Northern Western
	N1.3.10 W1.3.11	Use indigenous species for plantings	Northern Western
Predation/competition/land degradation by pests / domestic fauna	N1.3.3 W1.3.4	Manage public access and pests	Northern Western
	N1.7.3 W1.7.4	Protect native fauna from domestic and feral pests	Northern Western
Altered fire regimes and increased fire risk	-	-	-
Disturbance from increased public access to natural areas	N1.3.3 W1.3.4	Manage public access and pests	Northern Western

Indirect impact type	Action	Description	Relevant Growth Area
	N1.3.9 W1.3.10	Promote and manage access to natural areas	Northern Western
	N1.7.3 W1.7.4	Minimise rubbish dumping and illegal clearing	Northern Western
Fauna mortality, displacement, and barriers to movement	N1.3.2 W1.3.3	Establish habitat corridors in Plan 9 (Northern Growth Area) and Plan 17 (Western Growth Area)	Northern Western
	N1.3.4 W1.3.5	Limit road crossings of waterways	Northern Western
	N1.3.5 W1.3.6	Use revegetation to buffer natural areas	Northern Western
	N1.3.8 W1.3.9	Establish riparian reserves in Plan 7	Northern Western
	N1.3.11 W1.3.12	Promote native vegetation in the creative corridor	Northern Western
Fauna disturbance due to noise, dust and light	-	-	-
Inadvertent impacts on adjacent habitat or vegetation	-	-	-

Table 4-7: Key existing provisions in the Greater Geelong Planning Scheme relevant to mitigation of indirect impacts

Indirect impact type	Existing provision in the planning scheme	Relevant strategies, guidelines or standards specified in the planning scheme that need to be considered in decision-making	Relevant standard permit condition from the City's template
Changes to water flows and quality	Clause 14.02-1S, PPF Retain natural drainage corridors with vegetated buffer zones at least 30 metres wide to maintain natural drainage function and reduce polluted runoff	• Urban Stormwater - Best Practice Environmental Management Guidelines (Victorian Stormwater Committee, 1999)	• Prepare Stormwater Management Plan prior to commencement of development • Design stormwater drainage systems to meet objectives for stormwater quality in *Urban Stormwater Best Practice Environmental Management Guidelines* (Victorian Stormwater Committee, 1999)
	Clause 19.03-3S, PPF Ensure development protects and improves the health of waterways by minimising stormwater quality and quantity related impacts	• Environment Protection Authority *Environment Reference Standard* (Gazette No. S 245, May 2021) • *Urban Stormwater – Best Practice Environmental Management Guidelines* (Victorian Stormwater Committee, 1999)	
	Clause 56.07-4, Particular Provision An application for subdivision or development must meet stormwater objectives and standards, including objectives for stormwater quality in the *Urban Stormwater – Best Practice Environmental Management Guidelines* (Victorian Stormwater Committee, 1999)	• *Urban Stormwater – Best Practice Environmental Management Guidelines* (Victorian Stormwater Committee, 1999)	
	Clause 13.04-1S, PPF Facilitate the remediation of contaminated land to make the land suitable for future development	• Ministerial Direction No. 1 - Potentially Contaminated Land • *National Environment Protection (Assessment of Site Contamination) Measure* (National Environment Protection Council, 1999)	-
	Clause 13.04-2S, PPF Prevent inappropriate development and promote vegetation retention, planting and rehabilitation in areas prone to erosion and landslip	• Relevant regional catchment strategy or special area plan approved under the *Catchment and Land Protection Act 1994*	• Use methods in *Urban Stormwater Best Practice Environmental Management Guidelines* (Victorian Stormwater Committee, 1999) to minimise sediment laden runoff from leaving the site
	Clause 13.04-3L, PPF	• *Salinity Information Kit: Volume 1 - A Local Government Planning Guide for Dryland*	-

Indirect impact type	Existing provision in the planning scheme	Relevant strategies, guidelines or standards specified in the planning scheme that need to be considered in decision-making	Relevant standard permit condition from the City's template
	Discourage development that aggravates existing salinity impacts or leads to new impacts, particularly through rising groundwater levels	*Salinity* (Department of Conservation and Natural Resources, 1995)	
	Clause 12.02-1S, PPF Avoid disturbance of acid sulfate soils	• *Victorian Best Practice Guidelines for Assessing and Managing Coastal Acid Sulfate Soils* (Department of Environment, Land, Water and Planning, 2010)	-
Spread of infection/disease	PPF, Clause 12.01-1S Decision-making should account for the impacts of development on the spread of pathogens	-	• Prepare Construction Environmental Management Plan prior to commencement of development • Prepare Weed Management Plan prior to commencement of development • Prepare Environmental Management Plan prior to commencement of development, including: o Protection of any significant vegetation o Methods for control of weeds and pest animals o Use of fencing that is permeable to native fauna • Prior to the removal, destroying or lopping of vegetation, all vegetation to be retained must be clearly marked • Design, baffle and locate lighting to prevent adverse effects on adjoining properties
	Particular Provision, Clause 56.08 Subdivision applications should describe how the construction site will be managed to protect the surround area from environmental degradation	-	
Spread of weeds	PPF, Clause 12.01-1S Decision-making should account for the impacts of development on the spread of weeds	-	
	Particular Provision, Clause 56.08 Subdivision applications should describe how the construction site will be managed to protect the surround area from environmental degradation	-	
Predation/competition/land degradation by pests/domestic fauna	PPF, Clause 12.01-1S Decision-making should account for the impacts of development on the spread of pest animals	-	
Altered fire regimes and increased fire risk	PPF, Clause 13.02-1S Ensure development can implement bushfire protection measures without unacceptable impacts to biodiversity through appropriate planning	-	

Indirect impact type	Existing provision in the planning scheme	Relevant strategies, guidelines or standards specified in the planning scheme that need to be considered in decision-making	Relevant standard permit condition from the City's template
Fauna mortality and barriers to movement Fauna disturbance due to noise, dust and light	Clause 21.05-3 – biodiversity Decision-making should account for the impacts of development on fragmentation of habitat Assist in the establishment and protection of links between important areas of biodiversity	• Relevant biodiversity strategies, including the relevant Regional Catchment Strategy • *Protecting Victoria's Environment – Biodiversity 2037* (Department of Environment, Land, Water and Planning, 2017) • *Victorian Waterway Management Strategy* (Department of Environment and Primary Industries, 2013)	
Inadvertent impacts on adjacent habitat or vegetation	Particular Provision, Clause 52.16 Permit is required to remove the vegetation if it is identified in any relevant NVPP as to be retained	• Native Vegetation Guidelines	
	Particular Provision Clause 56.08 Subdivision applications should describe how the construction site will be managed to protect the surround area from environmental degradation	-	

4.4 RESIDUAL IMPACTS AND OFFSETS

Offsetting impacts to biodiversity is the final step in the mitigation hierarchy. It is intended to compensate for any residual adverse impacts that remain after impacts have been avoided, minimised and mitigated. Offsets are required in relation to both Commonwealth and State regulatory processes.

4.4.1 COMMONWEALTH OFFSETS PACKAGE

Offsets are a requirement under the EPBC Act for residual adverse impacts to MNES. The EPBC Plan establishes a strategic offsets package which is designed to meet the principles of the EPBC Act Offsets Policy (Commonwealth of Australia, 2012) and maximise the benefits to MNES from applying a strategic approach. It does this through prioritising early offsetting with good landscape context.

Conservation planning science (e.g., (Gordon *et al.*, 2011; Gordon and Peterson, 2019)) confirms the benefits of these approaches and supports the premise that the EPBC Plan's approach to offsets will be substantially stronger than what would occur under standard project-by-project approvals.

A detailed description of the EPBC offsets package is provided at Appendix C of the BCS, and a brief summary is provided here.

IMPACTS TO MNES THAT REQUIRE OFFSETS

Clearance and direct loss of the following listed threatened species habitat within the NGGA require offsets:

- 18.6 ha of NTG
- 153.4 ha of SLL habitat
- 651.7 ha of GSM habitat. The majority of which (>95%) occurs in non-native or lower quality areas

No offsets are required for development within the WGGA.

NATIONAL LEVEL OFFSET COMMITMENTS

The EPBC Plan makes several national level commitments in relation to offsets (Table 4-1). These commitments will lead to:

- Protection and management of the NGGA Conservation Area to provide benefits for SLL and GSM
- Protection and management of the remaining offsets outside the Growth Areas
- A commitment to substantial offsetting early in the life of the EPBC Plan
- Offset delivery keeping pace with and occurring ahead of impacts

Table 4-8: National level commitments in relation to offsets

No.	Commitment
3	The NGGA Conservation Area will be established in perpetuity to avoid and protect 74 ha of habitat for Striped Legless Lizard and 108 ha of habitat for Golden Sun Moth
4	A Conservation Management Plan will be prepared and implemented for the protection and ongoing management of Striped Legless Lizard and Golden Sun Moth within the NGGA Conservation Area
10	Offset sites will be established in strategic locations to protect and manage a minimum of the following amounts of habitat to support the following MNES: • 45 ha of Natural Temperate Grassland • 375 ha of known habitat for Striped Legless Lizard • 585 ha of known habitat for Golden Sun Moth

No.	Commitment
11	Within the first five years of Plan implementation the City of Greater Geelong will secure the following offsets at a minimum: • 100% of the offset requirement for Natural Temperate Grassland • 70% of the offset requirement for Striped Legless Lizard • 50% of the offset requirement for Golden Sun Moth
12	Offset delivery will keep pace with and occur ahead of impacts within the NGGA

IMPLEMENTATION OF THE EPBC OFFSETS PACKAGE

The EPBC offsets package will be implemented through a set of detailed measures which are set out in the Commitments and Measures document and are discussed in detail in Appendix C. In summary, implementation is designed to ensure successful delivery and address the risks associated with a large scale, strategic approaches to offsets.

In particular, implementation of the offsets package will:

- Be coordinated and managed by the City
- Focus on offset sites that are as large as possible and well placed in the landscape to maximise the long term conservation outcomes
- Use accepted mechanisms to secure and manage sites in-perpetuity
- Apply a set of contingency steps if offsets are not tracking appropriately

4.4.2 STATE OFFSETS

In addition to MNES, residual adverse impacts will also occur to native vegetation protected by State biodiversity policy. In order to ensure a gain to Victoria's biodiversity that is equivalent to the loss resulting from the proposed removal of native vegetation, compensatory offsets are required. Losses and gains are measured in general habitat units (GHUs) and species habitat units (SHUs).

State biodiversity policy requires native vegetation offsets to be secured within the same local government area or CMA region in which the impacts occur. For the Growth Areas this includes the Greater Geelong LGA or the Corangamite CMA.

However, at the Commonwealth level, offsets are only required to be like-for-like in terms of the values (or MNES) that are being impacted. This means that suitable offsets can be delivered some distance from development as long as they are protecting the same MNES and associated habitat that is being impacted.

The co-location of State offsets with Commonwealth offsets is preferable in terms of cost efficiencies (i.e., reducing the need to purchasing separate offsets). However, potential third-party offset sites supporting the MNES that are being impacted within the Growth Areas are either extremely scarce or unavailable elsewhere within the Greater Geelong LGA or Corangamite CMA. Competing interests such as other preferable land-uses and high land values contribute to this issue.

It is therefore intended that State offsets will be decoupled from the Commonwealth offsets and delivered separately.

IMPACTS TO STATE VALUES THAT REQUIRE OFFSETS

Within the NGGA, development will result in residual adverse impacts to 91.1 ha of *Low rainfall* Plains Grassland (EVC 132_63). Within the WGGA, development within Creamery Road and Batesford North will result in residual adverse impacts to 44.19 ha of *Low rainfall* Plains Grassland (EVC 132_63).

Given the earlier stage of planning for the other precincts in the WGGA (outside the area covered by the EPBC strategic assessment), potential residual impacts in these areas are unknown at this stage. However, it is likely that some level of offsets will be required. The requirements for these offsets will be resolved as planning and biodiversity approvals proceed.

The impacts presented here are calculated conservatively by assuming that any land outside of the strategic conservation areas will be impacted. It is likely that there will be additional avoidance within the biodiversity opportunity areas for some of these values.

STATE LEVEL OFFSET COMMITMENT

The following State level commitment is made in relation to offsets:

Table 4-9: State level commitment in relation to offsets

No.	Commitment
vi	State offsets to compensate for the loss to biodiversity from the removal of native vegetation will be provided in accordance with the *Guidelines for the removal, destruction or lopping of native vegetation* (DELWP, 2017c)

IMPLEMENTATION OF STATE OFFSETS

As per the commitment, State offsets and will be delivered according to the requirements of the *Guidelines for the removal, destruction or lopping of native vegetation*. The detailed measures to implement the State offset commitment are set out in the Commitments and Measures document.

In summary, NVPPs will be prepared as part of each PSP process, which will identify native vegetation to be retained and removed across each precinct. NVPPs will outline the offset requirements for native vegetation that can be removed and will detail the obligations for each property within the precinct. NVPPs and planning permits issued for use and development will require offset obligations to be met prior to impacts occurring.

The securing of State offsets will be the responsibility of the individual proponent based on their proposed level of impact. It is expected that proponents will secure offsets through the existing Victorian Native Vegetation Credit Register (NVCR).

Ongoing management, monitoring and reporting on the secured offsets will occur through DEECA's standard processes.

4.4.3 RISKS ASSOCIATED WITH OFFSET AVAILABILITY AND DELIVERY CERTAINTY

One of the key risks in relation to both Commonwealth and State offsets are potential challenges in finding and securing suitable offsets over time. It is anticipated that there will be a diminishing supply of suitable offset sites over time due to declining environmental values and competition in the offset market as other large projects also seek to offset their impacts.

At a minimum, the delivery of offsets will need to keep pace with the timing of impacts. There is a risk that development could be stalled where there is a delay in finding and securing offsets.

To minimise this risk eventuating, the EPBC Plan commits to securing a significant proportion of Commonwealth offsets early when it is anticipated that the offset market will be less constrained. As discussed in Section 4.4.1 this also drives improved conservation outcomes due to the benefits of advanced offsetting. Analysis about likely State offsetting requirements suggests that risks around offset availability is likely to be substantially lower.

4.5 PRECINCTS WITHIN THE GROWTH AREAS

This section provides a brief profile of each precinct within the Growth Areas from a biodiversity perspective to help guide precinct design. It draws on and summarises the information presented throughout the BCS and makes it specific to each precinct. The following information is provided as part of each profile:

- The indicative timing for release of each precinct, where available
- A summary of the key known biodiversity values
- An outline of the biodiversity intent of each of the strategic conservation areas, biodiversity opportunity areas and investigation areas
- The biodiversity related studies or investigations needed to support precinct design, including those required as part of the commitments and measures under the BCS

- A checklist of the commitments and measures that are relevant to the design of each precinct from a biodiversity perspective

The profiles have been designed to integrate the relevant considerations of the guiding principles relating to conservation planning set out in Section 2 of the BCS.

4.5.1 NGGA: ELCHO ROAD EAST

PRECINCT PROFILE FOR ELCHO ROAD EAST – GAZETTAL PLANNED FOR 2024
Summary of key biodiversity values
• Mapped biodiversity values in the surveyed areas: o Native vegetation (EVC 132) o EPBC listed Natural Temperate Grassland o State listed TEC Western Basalt Plains Grassland o Known records and habitat for Golden Sun Moth and Striped Legless Lizard o Known record of State-listed Leafless Bluebush • Modelled biodiversity values in the unsurveyed areas: o Native vegetation (EVC 132) o Potential EPBC listed Natural Temperate Grassland o Potential habitat for Golden Sun Moth and Striped Legless Lizard
Relevant biodiversity areas and their intent
Strategic conservation areas • Eastern portion of the NGGA Conservation Area: o To be protected and actively managed in accordance with a Conservation Management Plan in order to reduce threats and maintain and restore habitat values for Golden Sun Moth and Striped Legless Lizard o Only development activities that fit within the scope of the Environmental Management Class of Action permitted within the Conservation Area boundary o Establish a suitable conservation interface between urban development and the boundary of the Conservation Area Biodiversity opportunity areas • Area 1, look for opportunities to: o Retain the known record of the Leafless Bluebush and associated habitat along the eastern boundary o Restore and/or retain habitat features necessary for the persistence of Golden Sun Moth. For example, non-shaded grassy verges or corridors that retain larval food species and are designated for sympathetic land management o Restore and/or retain habitat features that might support Striped Legless Lizard dispersal or refuge. For example, rocks and grassland patches or corridors designated for sympathetic land management • Areas 2 and 3, look for opportunities to: o Restore and/or retain native grasslands, including areas of Natural Temperate Grassland o Restore and/or retain habitat features necessary for the persistence of Golden Sun Moth. For example, non-shaded grassy verges or corridors that retain larval food species and are designated for sympathetic land management o Restore and/or retain habitat features that might support Striped Legless Lizard dispersal or refuge. For example, rocks and grassland patches or corridors designated for sympathetic land management o Provide a level of grassland connectivity along the drainage lines and through to the NGGA conservation area. For example, through sympathetic landscaping, selection of materials and verge management
Biodiversity studies required as part of precinct planning
• Detailed ecological assessments within any unsurveyed areas to support the development of the NVPP

PRECINCT PROFILE FOR ELCHO ROAD EAST – GAZETTAL PLANNED FOR 2024	
• Preparation of relevant technical water studies to understand the key risks from development on protected matters associated with Hovells Creek (Commitment 9)	
BCS checklist of commitments and measures	
EPBC Avoidance ☐ Commitment 3; Measures 10–15 ☐ Commitment 4; Measures 16-19 Mitigation ☐ Commitment 7; Measure 30 ☐ Commitment 8, Measures 31-34 ☐ Commitment 9; Measures 35-37 Offsets ☐ Commitment 10; Measures 39-43 ☐ Commitment 11; Measures 44-48	**STATE** Avoidance ☐ Commitment i; Measures i-iv ☐ Commitment ii; Measures viii-x Mitigation ☐ Commitment iv; Measures xv and xvi ☐ Commitment v; Measures xvii-xx Offsets ☐ Commitment vi; Measures xxi-xxiv

4.5.2 NGGA: ELCHO ROAD WEST

PRECINCT PROFILE FOR ELCHO ROAD WEST
Summary of key biodiversity values

• Mapped biodiversity values in the surveyed areas:
  o Native vegetation (EVC 132)
  o EPBC listed Natural Temperate Grassland
  o State listed TEC Western Basalt Plains Grassland
  o Known records and habitat for Golden Sun Moth and Striped Legless Lizard
• Modelled biodiversity values in the unsurveyed areas:
  o Native vegetation (EVC 132)
  o Potential EPBC listed Natural Temperate Grassland
  o Potential habitat for Golden Sun Moth and Striped Legless Lizard
  o DELWP modelled wetland

Relevant biodiversity areas and their intent

Strategic conservation areas
• Western portion of the NGGA Conservation Area:
  o To be protected and actively managed in accordance with a Conservation Management Plan in order to reduce threats and maintain and restore habitat values for Golden Sun Moth and Striped Legless Lizard
  o Only development activities that fit within the scope of the Environmental Management Class of Action permitted within the Conservation Area boundary
  o Establish a suitable conservation interface between urban development and the boundary of the Conservation Area
Biodiversity opportunity areas
• Area 2, look for opportunities to:
  o Restore and/or retain native grasslands
  o Restore and/or retain habitat features necessary for the persistence of Golden Sun Moth. For example, non-shaded grassy verges or corridors that retain larval food species and are designated for sympathetic land management

PRECINCT PROFILE FOR ELCHO ROAD WEST

- Restore and/or retain habitat features that might support Striped Legless Lizard dispersal or refuge within the drainage lines. For example, rocks and grassland patches or corridors designated for sympathetic land management
- Provide a level of grassland connectivity along the drainage lines and through to the NGGA conservation area – again looking to enable dispersal or refuge. For example, through sympathetic landscaping, selection of materials and verge management

- Area 7, investigate the continued presence of Striped Legless Lizard and if present:
  - Look to restore and/or retain habitat features within grassland areas that might support the persistence of the lizard
  - Provide a level of grassland connectivity through to the drainage lines in the south. For example, through sympathetic landscaping, selection of materials and verge management

Biodiversity studies required as part of precinct planning

- Detailed ecological assessments within any unsurveyed areas to support the development of the NVPP
- Preparation of relevant technical water studies to understand the key risks from development on protected matters associated with Hovells Creek and the Moorabool River (Commitment 9)
- Seek guidance and input from a Growling Grass Frog expert relating to the design of stormwater infrastructure to ensure no notable alterations to habitat within downstream reaches of Cowies Creek (Measure 38)
- Consider investigating the continued presence of Striped Legless Lizard within biodiversity opportunity area 10

BCS checklist of commitments and measures

EPBC	STATE
Avoidance	Avoidance
☐ Commitment 3; Measures 10 - 15	☐ Commitment i; Measures i-iv
☐ Commitment 4; Measures 16-19	☐ Commitment ii; Measures viii-x
Mitigation	Mitigation
☐ Commitment 7; Measure 30	☐ Commitment iv; Measures xv and xvi
☐ Commitment 8, Measures 31-34	☐ Commitment v; Measures xvii-xx
☐ Commitment 9; Measures 35-38	Offsets
Offsets	☐ Commitment vi; Measures xxi-xxiv
☐ Commitment 10; Measures 39-43	
☐ Commitment 11; Measures 44-48	

4.5.3 NGGA: HEALES ROAD WEST

PRECINCT PROFILE FOR HEALES ROAD WEST

Summary of key biodiversity values

- Mapped biodiversity values in the surveyed areas:
  - Native vegetation (EVC 132)
  - EPBC listed Natural Temperate Grassland
  - State listed TEC Western Basalt Plains Grassland
  - Known records and habitat for Golden Sun Moth and Striped Legless Lizard
- Modelled biodiversity values in the unsurveyed areas:
  - Native vegetation (EVC 132)
  - Potential EPBC listed Natural Temperate Grassland
  - Potential habitat for Golden Sun Moth and Striped Legless Lizard

PRECINCT PROFILE FOR HEALES ROAD WEST	
Relevant biodiversity areas and their intent	
Biodiversity opportunity areas • Area 5, consider investigating the continued presence of Striped Legless Lizard and native grassland and if present: o Look to restore and/or retain habitat features within grassland areas that might support the persistence of the lizard o Provide a level of grassland connectivity through to the drainage lines in Heales Road East. For example, through sympathetic landscaping, selection of materials and verge management • Area 6, look for opportunities to: o Restore and/or retain biodiversity along and adjacent to the drainage lines using Ecological Vegetation Classes, natural regeneration techniques and indigenous plants of local provenance o Provide a level of grassland connectivity through to areas of Striped Legless Lizard habitat that may have been retained within Elcho Road West o Restore and/or retain habitat features that might support Striped Legless Lizard dispersal or refuge if there is any evidence that the species persists in the area. For example, rocks and grassland patches or corridors designated for sympathetic land management	
Biodiversity studies required as part of precinct planning	
• Detailed ecological assessments within any unsurveyed areas to support the development of the NVPP • Preparation of relevant technical water studies to understand the key risks from development on protected matters associated with Hovells Creek (Commitment 9) • Seek guidance and input from a Growling Grass Frog expert relating to the design of stormwater infrastructure to ensure no notable alterations to habitat within downstream reaches of Cowies Creek (Measure 38) • Consider investigating the continued presence of Striped Legless Lizard and native grassland within biodiversity opportunity area 5	
BCS checklist of commitments and measures	
EPBC Mitigation ☐ Commitment 7; Measure 30 ☐ Commitment 9; Measures 35-38	**STATE** Avoidance ☐ Commitment ii; Measures viii-x Offsets ☐ Commitment vi; Measures xxi-xxiv

4.5.4 NGGA: HEALES ROAD EAST

PRECINCT PROFILE FOR HEALES ROAD EAST – GAZETTAL PLANNED FOR 2033
Summary of key biodiversity values
• Modelled biodiversity values in the unsurveyed areas: o Native vegetation (EVC 132) o State listed TEC Western Basalt Plains Grassland o Potential EPBC listed Natural Temperate Grassland o Potential habitat for Golden Sun Moth and Striped Legless Lizard o DELWP modelled wetland
Relevant biodiversity areas and their intent
Biodiversity opportunity areas • Area 4, look for opportunities to: o Restore and/or retain biodiversity along and adjacent to the drainage lines using Ecological Vegetation Classes, natural regeneration techniques and indigenous plants of local provenance

○ Provide a level of grassland connectivity through to areas of Striped Legless Lizard habitat that may have been retained within Heales Road West ○ Restore and/or retain habitat features that might support Striped Legless Lizard dispersal or refuge if there is any evidence that the species persists in the area. For example, rocks and grassland patches or corridors designated for sympathetic land management
Biodiversity studies required as part of precinct planning
• Detailed ecological assessments within any unsurveyed areas to support the development of the NVPP • Preparation of relevant technical water studies to understand the key risks from development on protected matters associated with Hovells Creek (Commitment 9) • Seek guidance and input from a Growling Grass Frog expert relating to the design of stormwater infrastructure to ensure no notable alterations to habitat within downstream reaches of Cowies Creek (Measure 38)
BCS checklist of commitments and measures

EPBC	**STATE**
Mitigation □ Commitment 7; Measure 30 □ Commitment 9; Measures 35-38	Avoidance □ Commitment ii; Measures viii-x Offsets □ Commitment vi; Measures xxi-xxiv

4.5.5 WGGA: CREAMERY ROAD

PRECINCT PROFILE FOR CREAMERY ROAD – GAZETTAL PLANNED FOR 2024
Summary of key biodiversity values
• Mapped biodiversity values in the surveyed areas: ○ Native vegetation (EVC 132 and EVC 68) ○ Known records and habitat for Growling Grass Frog and Adamson's Blown-grass • Modelled biodiversity values in the unsurveyed areas: ○ Native vegetation (EVC 132)
Relevant biodiversity areas and their intent
Strategic conservation area • Entirety of the Cowies Creek Conservation Area ○ To be protected and actively managed in accordance with a Conservation Management Plan in order to reduce threats and maintain and restore habitat values for the Growling Grass Frog and Adamson's Blown-grass ○ Only development activities that fit within the scope of the environmental management class of actions and limited activities under the supporting infrastructure and services class of actions permitted (refer to Section 4.3.4 of the Plan for further guidance) ○ Establish a suitable conservation interface between urban development and the boundary of the Conservation Area Biodiversity opportunity area • Area 3, look for opportunities to: ○ Create and enhance movement, breeding and foraging habitat for the Growling Grass Frog within the tributary connected to the Cowies Creek Conservation Area through the design of stormwater infrastructure and sympathetic management of the drainage line ○ Restore and/or retain native grasslands ○ Improve water quality and stream flow outcomes for Cowies Creek through the tributary ○ Provide biodiversity linkages across the Growth Area

PRECINCT PROFILE FOR CREAMERY ROAD – GAZETTAL PLANNED FOR 2024	
Biodiversity studies required as part of precinct planning	
• Detailed ecological assessments within any unsurveyed areas to support the development of the NVPP • Seek guidance and input from a Growling Grass Frog expert relating to the design of stormwater infrastructure to ensure no notable alterations to habitat within downstream reaches of Cowies Creek (Measure 38)	
BCS checklist of commitments and measures	
EPBC Avoidance ☐ Commitment 5; Measures 20-25 ☐ Commitment 6; Measures 26-29 Mitigation ☐ Commitment 7; Measure 30 ☐ Commitment 8; Measures 31-34 ☐ Commitment 9; Measure 38	**STATE** Avoidance ☐ Commitment i; Measures i-iv ☐ Commitment ii; Measures viii-x Mitigation ☐ Commitment iv; Measures xv and xvi ☐ Commitment v; Measures xvii-xx Offsets ☐ Commitment vi; Measures xxi-xxiv

4.5.6 WGGA: BATESFORD NORTH

PRECINCT PROFILE FOR BATESFORD NORTH – GAZETTAL PLANNED FOR 2025
Summary of key biodiversity values

• The Moorabool River Corridor, which sustains critical ecological processes for native fish, mammals, macro invertebrates, birds and vegetation communities, and provides an important linkage between the Brisbane Ranges National Park and the Barwon River
• Mapped biodiversity values in the surveyed areas:
  o Native vegetation (EVC 132 and EVC 56))
• Modelled biodiversity values in the unsurveyed areas:
  o Native vegetation (EVC 132 and EVC 56)

Relevant biodiversity areas and their intent

Strategic conservation area
• Section of the Moorabool River adjacent to Batesford North:
  o To be protected and actively managed in accordance with a Conservation Management Plan
  o Boundary of the strategic conservation area to: incorporate as much of the key biodiversity values associated with the river corridor as possible; reflect the relevant priorities or standards in the Corangamite Waterway Strategy; and include a minimum of 30m of riparian land from the top of bank either side of the waterway
  o Only development activities that fit within the scope of the environmental management class of actions and limited activities under the supporting infrastructure and services class of actions permitted (refer to Section 4.3.4 of the Plan for further guidance)
  o Establish a suitable conservation interface between urban development and the boundary of the Conservation Area
  o Maintain and enhance the habitat for native fish species within the river
  o Support landscape connectivity between the upper reaches of the Moorabool River, and downstream to the Barwon River and Lake Connewarre Complex
Biodiversity opportunity areas:
• Area 1, look for opportunities to:
  o Add to and enhance the Moorabool River Corridor
  o Restore and/or retain native grasslands
  o Improve water quality and stream flow outcomes for the Moorabool River

PRECINCT PROFILE FOR BATESFORD NORTH – GAZETTAL PLANNED FOR 2025	
• Area 2, look for opportunities to: o Enhance connectivity throughout the Growth Area between opportunity area 3 and the Cowies Creek Conservation Area • Area 4, look for opportunities to: o Restore and/or retain native grasslands	
Biodiversity studies required as part of precinct planning	
• Detailed ecological assessments within any unsurveyed areas to support the development of the NVPP • Preparation of relevant technical water studies to understand the key risks from development on protected matters associated with the Moorabool River (Commitment 9)	
BCS checklist of commitments and measures	
EPBC Mitigation ☐ Commitment 7; Measure 30 ☐ Commitment 9; Measures 34, 35 and 37	**STATE** Avoidance ☐ Commitment i; Measures i-iv, vii ☐ Commitment ii; Measures viii-x Mitigation ☐ Commitment iv; Measure xv-xvi ☐ Commitment v; Measures xvii-xx Offsets ☐ Commitment vi; Measures xxi-xxiv

4.5.7 WGGA: BATESFORD SOUTH

PRECINCT PROFILE FOR BATESFORD SOUTH
Summary of key biodiversity values
• The Moorabool River Corridor, which sustains critical ecological processes for native fish, mammals, macro invertebrates, birds and vegetation communities, and provides an important linkage between the Brisbane Ranges National Park and the Barwon River • The Dog Rocks Flora and Fauna Sanctuary, an 88 ha reserve which supports native vegetation, and a diversity of fauna habitat • Remnant vegetation adjacent to the Dog Rocks Flora and Fauna sanctuary (DELWP modelled EVC 175 and 55) • Other modelled biodiversity values: o Native vegetation (EVC 132, 56, 85, 55, 175)
Relevant biodiversity areas and their intent
Strategic conservation area • Moorabool River: o To be protected and actively managed in accordance with a Conservation Management Plan o Boundary of the strategic conservation area to: incorporate as much of the key biodiversity values associated with the river corridor as possible; reflect the relevant priorities or standards in the Corangamite Waterway Strategy; and include a minimum of 30m of riparian land from the top of bank either side of the waterway o Only development activities that fit within the scope of the environmental management class of actions and limited activities under the supporting infrastructure and services class of actions permitted (refer to Section 4.3.4 of the Plan for further guidance) o Establish a suitable conservation interface between urban development and the boundary of the Conservation Area o Where possible and beneficial to biodiversity, look to restore river values, flow paths and connectivity that have been altered historically

PRECINCT PROFILE FOR BATESFORD SOUTH	
o Maintain and enhance the habitat for native fish species, wetland dependant birds, and native vegetation within the river o Support landscape connectivity between the Moorabool River, and downstream to the Lake Connewarre Complex Biodiversity investigation areas: • Area 5, investigate the potential biodiversity values of the area and the opportunities to restore and/or retain any values identified • Area 7: o Investigate the biodiversity values of the area and determine, with reference to the guiding principles set out at section 3.4, whether the area, or part of the area, should be confirmed as either a strategic conservation area to be protected and managed as an extension of the Dog Rocks Flora and Fauna Reserve, and/or if any of the values can be restored and/or retained within a biodiversity opportunity area • Area 6, investigate the potential biodiversity values of the area and look for opportunities to: o Add to and enhance the biodiversity values of the Moorabool River Corridor o Restore and/or retain native vegetation and restore the drainage lines using Ecological Vegetation Classes, natural regeneration techniques and indigenous plants of local provenance o Improve water quality and stream flow outcomes for the Moorabool River Corridor o Support the future management and functioning of the Batesford Quarry as an ecological wetland o Provide co-benefits for biodiversity through sympathetic design and management particularly in relation to connectivity across the Growth Area • Areas 8, 9 and 11, investigate the potential biodiversity values of the area and look for opportunities to: o Restore and/or retain any biodiversity values identified o Support biodiversity connectivity across the precinct	
Biodiversity studies required as part of precinct planning	
• Detailed ecological surveys required to understand the location and extent of biodiversity values and support State and Commonwealth biodiversity assessment and approval processes	
BCS checklist of commitments and measures	
EPBC N/A –EPBC assessment and approval is yet to occur	**STATE** Avoidance ☐ Commitment i; Measures i-iv, vii ☐ Commitment iii; Measures xi-xiv Mitigation ☐ Commitment iv; Measure xv-xvi ☐ Commitment v; Measures xvii-xx Offsets ☐ Commitment vi; Measures xxi-xxiv

4.5.8 WGGA: MCCANNS LANE

PRECINCT PROFILE FOR MCCANNS LANE
Summary of key biodiversity values
• Modelled biodiversity values: o Native vegetation (EVC 132 and EVC 55) o Potential occurrence of the EPBC listed Seasonal Herbaceous Wetland ecological community

PRECINCT PROFILE FOR MCCANNS LANE	
Relevant biodiversity areas and their intent	
Biodiversity investigation areas: • Area 10, investigate the potential biodiversity values of the area and look for opportunities to: o Restore and/or retain any biodiversity values identified o Support biodiversity connectivity across the precinct o Protect and enhance the area of Seasonal Herbaceous Wetlands, if confirmed through survey	
Biodiversity studies required as part of precinct planning	
• Detailed ecological surveys required to understand the location and extent of biodiversity values and support State and Commonwealth biodiversity assessment and approval processes	
BCS checklist of commitments and measures	
EPBC N/A –EPBC assessment and approval is yet to occur	**STATE** Avoidance ☐ Commitment i; Measures i-iv, vii ☐ Commitment iii; Measures xi-xiv Mitigation ☐ Commitment iv; Measure xv-xvi ☐ Commitment v; Measures xvii-xx Offsets ☐ Commitment vi; Measures xxi-xxiv

4.5.9 WGGA: MERRAWARP ROAD

PRECINCT PROFILE FOR MERRAWARP ROAD
Summary of key biodiversity values
• The Barwon River Corridor, which supports aquatic vegetation, provides important habitat for native fish and wetland dependant birds, and provides important landscape connectivity • Modelled biodiversity values in the unsurveyed areas: o Native vegetation (EVC 132 and EVC 56)
Relevant biodiversity areas and their intent
Strategic conservation area • Barwon River o To be protected and actively managed in accordance with a Conservation Management Plan o Boundary of the strategic conservation area to: incorporate as much of the key biodiversity values associated with the river corridor as possible; reflect the relevant priorities or standards in the Corangamite Waterway Strategy; and include a minimum of 30m of riparian land from the top of bank either side of the waterway o Only development activities that fit within the scope of the environmental management class of actions and limited activities under the supporting infrastructure and services class of actions permitted (refer to Section 4.3.4 of the Plan for further guidance) o Establish a suitable conservation interface between urban development and the boundary of the Conservation Area o Maintain and enhance the habitat for native fish species, wetland dependant birds, and native vegetation within the river Biodiversity investigation areas: • Area 12, investigate the potential biodiversity values of the area and look for opportunities to: o Add to and enhance the Barwon River Corridor

<table>
<tr><th colspan="2">PRECINCT PROFILE FOR MERRAWARP ROAD</th></tr>
<tr><td colspan="2">o Restore and/or retain native vegetation
o Improve water quality and stream flow outcomes for the Barwon River</td></tr>
<tr><th colspan="2">Biodiversity studies required as part of precinct planning</th></tr>
<tr><td colspan="2">• Detailed ecological surveys required to understand the location and extent of biodiversity values and support State and Commonwealth biodiversity assessment and approval processes</td></tr>
<tr><th colspan="2">BCS checklist of commitments and measures</th></tr>
<tr><td>EPBC
N/A –EPBC assessment and approval is yet to occur</td><td>STATE
<u>Avoidance</u>
□ Commitment i; Measures i-iv, vii
□ Commitment iii; Measures xi-xiv
<u>Mitigation</u>
□ Commitment iv; Measure xv-xvi
□ Commitment v; Measures xvii-xx
<u>Offsets</u>
□ Commitment vi; Measures xxi-xxiv</td></tr>
</table>

5 Assurance

Delivery of the BCS is supported by, and builds on, the assurance framework set out in Section 6 of the EPBC Plan to help ensure that implementation is successful. There are significant efficiencies in applying the same assurance approach to deliver both the national and State level commitments and measures that are set out in the BCS.

A high-level summary of the approach to assurance is presented here with details provided in the EPBC Plan and the Commitments and Measures document.

The key elements of assurance are:

- A strong set of governance arrangements to support delivery of the commitments and measures. The City will lead implementation and work with regulators, developers, landholders and other stakeholders to implement the BCS
- A funding program established by the EPBC Plan to implement the national level commitments and measures. This will be supported by additional funding through standard PSP and development processes to implement State level commitments and measures
- Implementation of a monitoring, evaluation, reporting and improvement (MERI) program to provide a system for understanding if outcomes and commitments are being achieved, communicating to regulators and the public, and adapting implementation as needed. The State level outcomes, commitments and measures will be integrated into the MERI program established by the EPBC Plan
- A compliance program to ensure commitments and measures that relate to third-parties are implemented appropriately

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THE CITY OF
GREATER GEELONG

NORTHERN AND WESTERN GEELONG GROWTH AREAS

MAY 2023

DRAFT BIODIVERSITY CONSERVATION STRATEGY

APPENDIX A: PLANNING AND REGULATORY CONTEXT

CITY OF GREATER GEELONG

DOCUMENT TRACKING

This document was prepared on behalf of the City of Greater Geelong by Biosis and Open Lines.

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1 Introduction

The BCS has been developed within and will be implemented through a complex planning and regulatory context. This appendix provides an overview of this context to help understand the BCS and how it will be implemented. It discusses:

- The Plan
- The planning context and framework for implementation
- Other relevant regulations
- Relevant City of Greater Geelong policies

2 The Plan

The *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) is the Commonwealth Government's principal environmental legislation and provides for the protection of matters of national environmental significance (MNES). Under Part 10, section 146 of the Act, the Commonwealth Environment Minister may agree to undertake a strategic assessment of the impacts of actions delivered under a policy, plan or program on MNES.

On 27 January 2022, the City and the Australian Government Department of Climate Change, Energy, the Environment and Water (DCCEEW) agreed to undertake the Geelong Growth Areas strategic assessment.

Strategic assessments enable a landscape scale assessment and approval of a suite of development actions under the EPBC Act and provide the opportunity to deliver improved environmental and development outcomes compared to project-by-project assessments through strategic consideration of biodiversity issues.

Strategic assessments also remove the need for individual assessments under Part 7-9 of the EPBC Act, provided proposed projects are undertaken in accordance with the endorsed Plan and any class of action approval conditions.

The Geelong strategic assessment is given effect through the *Northern and Western Geelong Growth Areas EPBC Plan* (the Plan). The Plan ensures development within the Growth Areas and associated infrastructure development outside the Growth Areas protects MNES and proceeds in accordance with the requirements of the EPBC Act. The Plan:

- Describes the development (classes of actions) that approval is being sought for under Part 10 the EPBC Act
- Sets out an objective, and a series of outcomes and commitments to define what the Plan will achieve
- Sets out a conservation framework to address the impacts of the development on MNES, including through avoiding and minimising, mitigating and offsetting residual impacts
- Sets out an assurance and implementation framework to implement the Plan

A key purpose of the BCS is to set out how the conservation elements of the Plan will be implemented, including through avoiding and minimising, mitigating, and offsetting residual impacts in accordance with the mitigation hierarchy (DSEWPC, 2012; DELWP, 2017a). The Plan is also supported by:

- A Commitments and Measures document that sets out the commitments made in the Plan and BCS to address the impacts of the development on biodiversity values and the measures to deliver those commitments
- A Funding Program that sets out how the implementation of the Plan will be funded

As part of the strategic assessment process, a Strategic Assessment Report has also been prepared to assess the impacts of development under the Plan on MNES. The Strategic Assessment Report evaluates the adequacy of the Plan's outcomes and commitments in protecting MNES over the life of the Plan.

Figure 1 shows the relationship between the documents associated with the strategic assessment.

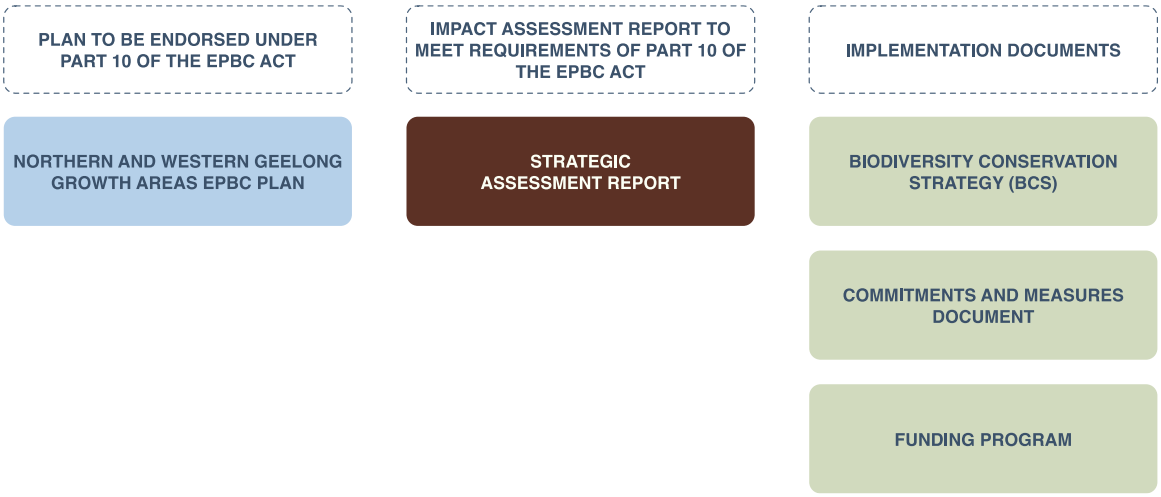

Figure 1: Strategic assessment documents

3 Planning context and framework for implementation

The Victorian planning system under the *Planning and Environment Act 1987* (P&E Act) is the key delivery framework for development within the Growth Areas and the implementation of the BCS.

The Victorian planning system hierarchy provides a framework for decision-making for the use and development of land in greenfield areas. The hierarchy relevant to the Growth Areas includes:

- The Planning Policy Framework
- *Northern and Western Geelong Growth Area Framework Plan* (the Framework Plan)
- Greater Geelong Planning Scheme and Urban Growth Zone (UGZ)
- Precinct Structure Plans (PSPs)
- Planning permits

3.1 PLANNING POLICY FRAMEWORK

The Planning Policy Framework (PPF) is the policy content of planning schemes and provides overarching policy to guide land use, subdivision and development in Victoria. The PPF is informed by Victorian Government policy.

The PPF includes planning policies under three tiers:

- State-wide – policies of state significance that apply in all planning schemes in Victoria
- Regional – policies of state significance that apply to allied planning schemes based on geographic groupings
- Local – policies of local significance that apply to an individual local planning scheme

Several policies under the PPF are relevant to the protection of biodiversity values in the Growth Areas, including:

- Clause 12.01 – aims to protect and enhance environmental and landscape values, including biodiversity
- Clause 12.03 – aims to protect and enhance river corridors, waterways, and wetlands
- Clause 13.02 – aims to manage fire risks without unacceptable impacts to biodiversity
- Clause 13.04 – aims to manage soil degradation and contaminated land
- Clause 14.02 – aims to protect water quality
- Clause 19.03 – aims to sustainably manage water through integrated water management

The PPF will be given effect in the Growth Areas through the development of PSPs, planning permits, and other decision-making related to the Growth Areas. A planning authority must take into account the PPF when preparing an amendment to a planning scheme. A responsible authority must take into account and give effect to the PPF when it makes a decision under the planning scheme, such as a decision to grant a permit for use or development.

3.2 FRAMEWORK PLAN

The Framework Plan (The City of Greater Geelong, 2021) was prepared as part of the City's plan to address the long-term growth in Geelong. The plan describes the existing site context of the Growth Areas and sets out:

- Broad future urban structure of the Growth Areas, including potential areas suitable for environmental protection
- Vision and set of urban development objectives for each Growth Area
- A set of actions to be implemented through future planning processes

The Framework Plan will inform the subsequent preparation of more detailed PSPs.

The overarching vision of the Framework Plan is:

> *"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"*

The biodiversity-related urban development objectives of the Framework Plan for each Growth Area are:

> *"Protect and regenerate biodiversity and cultural heritage values of the natural and constructed waterways along the Lovely Banks monocline and heritage values of the Elcho Homestead"*

> *"Protect and regenerate biodiversity and cultural heritage values along the Barwon and Moorabool Rivers, Cowies Creek and the Dog Rocks Sanctuary and establish vegetated constructed waterways"*

Other key biodiversity actions in the Framework Plan are summarised in Table 1.

The Framework Plan is incorporated into the Greater Geelong Planning Scheme at Clause 11.02.

Table 1: Key biodiversity actions from the Framework Plan for the Growth Areas

Action	Growth Area
A network of linear corridors will be created to promote biodiversity linkages within neighbourhoods that connect between conservation areas, waterways and the open space network Corridors may be located as illustrated in Plan 9 and Plan 17 of the Framework Plan	Northern Western
Any conservation areas that are identified will prioritise the protection and enhancement of local indigenous flora and fauna species	Northern Western
The integrated transport network will protect, minimise impacts and revegetate roadside vegetation	Northern Western
Stormwater drainage management will minimise the downstream impacts on the Port Phillip Bay (Western Shoreline) and Bellarine Peninsula Ramsar Site	Northern Western

Action	Growth Area
A Native Vegetation Precinct Plan will be prepared for each precinct to determine the presence and management of significant flora, fauna and ecological communities	Northern Western
'Green-blue' connections will be designed to promote flora and fauna by distributing water to soil through natural infiltration and irrigation. Waterways illustrated on Plan 7 and Plan 15 of the Framework Plan will be designed to provide sufficient corridor width to establish continuous riparian reserves that allow for biodiversity values to thrive	Northern Western
Individual detailed master plans that outline the protection and enhancement of river and creek corridors will be prepared and incorporated within the relevant precinct structure plan including: • Cowies Creek, between Geelong Ring Road and Geelong-Ballan Road • Barwon River, between Geelong Ring Road and Merrawarp Road • Moorabool River, between Midland Highway and Geelong-Ballarat Railway • Moorabool River (and deviation channel), between Geelong Ring Road and Midland Highway and including Dog Rocks Sanctuary and Moorabool River Reserve	Western

3.3 GREATER GEELONG PLANNING SCHEME AND URBAN GROWTH ZONE

The Greater Geelong Planning Scheme sets out objectives, strategies and policy for the use, development and protection of land in the City of Greater Geelong, including the Growth Areas.

The planning scheme includes the PPF and applies a zone (the UGZ) to land within the Growth Areas.

A key purpose of the UGZ is to manage the transition of non-urban land identified for urban growth into urban land.

Within the UGZ, a PSP must be prepared before non-urban land can be converted into urban land. The UGZ allows detailed planning requirements for the precinct to be specified in schedules to the zone to ensure development proceeds generally in accordance with the PSP. The schedules incorporate the future structure plan of each PSP and allow:

- Zones to be applied to the land consistent with the urban structure in the PSP and/or specific provisions as an alternative to zones or alongside zones that control land-uses and development
- Requirements for permit applications for subdivision and development
- Conditions or requirements that must be included on a permit
- Decision guidelines that must be considered in granting a permit

3.4 PRECINCT STRUCTURE PLANS AND NATIVE VEGETATION PRECINCT PLANS

3.4.1 PRECINCT STRUCTURE PLANS

PSPs are high-level strategic plans that set out the preferred spatial location of land uses and infrastructure within each precinct, including details of the future urban structure of the precinct. This helps to stage development within an area and guide provision of subdivision permits, building permits and infrastructure delivery. Although PSPs provide a level of certainty for development, they are intended to be flexible to allow for site specific considerations.

The City will prepare PSPs for each of the nine precincts within the Growth Areas in accordance with the strategies in Clause 11.02-2L 'Northern and Western Geelong Growth Areas' of the Geelong Planning Scheme. These strategies require the development to be generally in accordance with the Framework Plan map and sequenced generally in accordance with the Development Sequencing maps that form part of the clause. PSPs will also consider the *Precinct Structure Planning Guidelines: New Communities in Victoria* (Victorian Planning Authority, 2021).

PSPs will be prepared over approximately 10 to 15 years. Each PSP will be a self-contained project and will be incorporated into the planning scheme via a planning scheme amendment process.

The PSP process involves several key steps, including:

- Early consultation with stakeholders to develop a vision for the precinct

- Preparation of technical studies and reports to understand key issues and constraints for the precinct, and to inform planning and management responses to be addressed in the PSP
- An opportunity for stakeholders to raise concerns and make submissions through public exhibition
- An independent planning panel hearing to consider and resolve key technical, planning and stakeholder issues
- Approval of the PSP and incorporation into the Geelong Planning Scheme through a planning scheme amendment

PSPs include requirements and guidelines for the development of the precinct and are implemented primarily through planning permits. They inform the preparation and assessment of permit applications and the conditions that may be placed on planning permits.

Once a PSP has been incorporated into the planning scheme by a planning scheme amendment, planning permits can be granted by the responsible authority for urban development as set out in the UGZ.

3.4.2 NATIVE VEGETATION PRECINCT PLANS

A permit is usually required to remove native vegetation in Victoria. Removal of native vegetation is regulated through clause 52.16 'Native Vegetation Precinct Plan' and clause 52.17 'Native vegetation' of planning schemes.

NVPPs will be used to assess and manage the impacts of native vegetation removal in the Growth Areas. They provide for the strategic management of native vegetation within a precinct. NVPPs identify the native vegetation to be retained and that can be removed, and the offset requirements for the vegetation to be removed. NVPPs switch off the need for a permit to remove native vegetation where removal is in accordance with an NVPP.

NVPPs will be prepared for each precinct within the Growth Areas containing native vegetation in conjunction with the preparation of PSPs. They are established via a planning scheme amendment to incorporate the NVPP in the schedule to Clause 52.16

The purpose of an NVPP is to ensure no net loss to biodiversity because of the removal of native vegetation. This is to be achieved by applying the three-step approach in the Native Vegetation Guidelines (DELWP, 2017a), which is:

- Avoid the removal of native vegetation
- Minimise impacts from the removal of native vegetation that cannot be avoided
- Provide an offset to compensate for the impact of the removal of native vegetation

NVPPs must be prepared in accordance with Clause 52.16, including the *Guidelines for the removal, destruction or lopping of native vegetation* (DELWP, 2017a) (Native Vegetation Guidelines), and in consideration of the Greater Geelong Planning Scheme, including (DELWP, 2017b):

- Planning Policy Framework Clause 12.01-1S – 'Protection of biodiversity'
- Other relevant plans, strategies or policies that are incorporated in the Greater Geelong Planning Scheme, including the Framework Plan and any relevant PSP

NVPPs may also be prepared in consideration of the EPBC Act, FFG Act and Wildlife Act (DELWP, 2017b).

The preparation of an NVPP requires an assessment of the importance of the native vegetation for biodiversity, land and water protection, landscape and cultural values. This information is provided as part of the planning scheme amendment material that justifies the NVPP. A site assessment report must be prepared to include information on the native vegetation proposed to be removed and retained, including:

- A habitat hectare assessment, including information on the condition, extent, Ecological Vegetation Class and bioregional conservation status of the native vegetation
- Information on large trees within patches and scattered trees
- Information on rare and threatened species habitat derived from habitat importance maps

The site assessment report can include an on-site habitat assessment that determines whether habitat at the site is consistent with the habitat requirements of the rare or threatened species mapped by DEECA at the site. While targeted species surveys are not required, this information can be used to inform the preparation of the NVPP (DELWP, 2017b).

3.5 PLANNING PERMITS

Responsible authorities approve planning permits for subdivision and development that are consistent with the Greater Geelong Planning Scheme and generally in accordance with the relevant PSP that applies to the land.

The permit application process involves several key steps, including:

- Preparation of technical studies and reports that support the application and inform the planning decision, including plans to address the potential impacts of the development
- Referral of the application to specialist referral authorities for advice and comment where required – these may object to the permit or specify conditions to be included on a permit to address potential impacts
- An opportunity for stakeholders to raise concerns and make submissions through a notification process
- Inclusion of conditions on permits to address the potential impacts of the development
- An opportunity to review the merits of a permit decision at the Victorian Civil and Administrative Tribunal

The Urban Growth Zone requires that, before deciding on an application for subdivision or development the responsible authority must consider, in addition to a general set of decision guidelines in Clause 65:

- The Municipal Planning Strategy and the Planning Policy Framework
- Any relevant Growth Area framework plan, such as the Framework Plan
- Any PSP applying to the land, including the vision and objectives of the plan

Furthermore, permits granted for subdivision must:

- Be generally in accordance with the PSP
- Include any conditions or requirements specified in the schedule to the Urban Growth Zone or the PSP

4 Other relevant regulations

Several other regulatory frameworks are relevant to the development in the Growth Areas and the implementation of the BCS. Table 2 summarises these regulatory frameworks and their relevance to the BCS.

Where these regulations require authorisations or permits prior to development proceeding, proponents of development in the Growth Areas will be responsible for seeking these authorisations and meeting any other requirements.

Table 2: Summary of other regulatory frameworks relevant to the Growth Areas and implementation of the BCS

Regulatory framework	Description and relevance to implementation of the BCS	Regulatory authority
Aboriginal Heritage Act 2006	The Act provides for the protection of Aboriginal cultural heritage in Victoria. *The Aboriginal Heritage Regulations 2018* give effect to the Act through procedures linked to the Victorian planning system Cultural Heritage Management Plans and the Cultural Heritage permit process may be relevant for development in the Growth Areas to manage activities that impact Aboriginal cultural heritage	Victorian Aboriginal Heritage Council Registered Aboriginal Parties Authorised Officers and Aboriginal Heritage Officers
Conservation Forests and Lands Act 1987	The Act provides for the making of Section 69 agreements that can be used to secure land for conservation Section 69 agreements may be used to secure offsets under the BCS	DEECA
Victorian Conservation Trust Act 1972	The Act provides for the making of Trust for Nature covenants that can be used to secure land for conservation Trust for Nature covenants may be used to secure offsets under the BCS	Trust for Nature

Regulatory framework	Description and relevance to implementation of the BCS	Regulatory authority
Catchment and Land Protection Act 1994	Landowners must take all reasonable steps to eradicate regionally prohibited weeds, prevent the growth and spread of regionally controlled weeds, and prevent the spread of and as far as possible eradicate established pest animals. The State is responsible for eradicating State prohibited weeds from all land in Victoria The Act is relevant to the management of offset sites as well as the protection of targeted future offset sites prior to being secured	DEECA
Water Act 1989	The Act provides a framework for the allocation and management of surface water and groundwater in Victoria. Under the Act, works over designated waterways require a permit from the relevant Catchment Management Authority – the Corangamite CMA The Act is relevant to minimising the indirect impacts of the development in the Growth Areas, including on waterways and riparian areas and the ecological character of The Port Phillip Bay (Western Shoreline) & Bellarine Peninsula Ramsar Site	Corangamite CMA
Flora and Fauna Guarantee Act 1988	Section 4B of the FFG Act applies a duty on public authorities to 'give proper consideration to' the Act's objectives in performing any of their functions that may impact on biodiversity, as well as to consider several other additional matters. The Act also requires that a permit is obtained to 'take' protected flora species. A permit is generally only required to take flora on public land, except where flora is taken for commercial purposes or where 'critical habitat' has been declared. A permit is also required to impact listed fish on private or public land The duty applies to the City in relation to the development of the BCS as there is a reasonable expectation that the carrying out of this function may impact biodiversity. Appendix B describes how the FFG Act duty was considered by the City in developing the BCS	DEECA

Environment Protection Act 2017	The Act establishes a duty for all Victorians and businesses to manage activities to avoid the risk of damage to the environment from pollution or waste and manage pollution events if they occur
	While not being incorporated into the *Environment Protection Transitional Regulations 2021*, provisions under State Environment Planning Protection Policy SEPP (Waters) remain relevant to development in the Growth Areas as they provide guidance for compliance with the duty under the Act, including:
	• Clause 42 – Construction activities
	  ○ Minimise soil erosion, land disturbance and discharge of sediment and other pollutants to surface waters
	  ○ Where construction activities impinge on surface waters, construction managers need to monitor affected surface waters to assess whether beneficial uses are being protected
	• Clause 45 – Native vegetation protection and rehabilitation:
	  ○ Minimise the removal of and rehabilitate native vegetation within or adjacent to surface waters
	The Act is relevant to minimising the indirect impacts of the development in the Growth Areas, including on waterways and riparian areas and the ecological character of The Port Phillip Bay (Western Shoreline) & Bellarine Peninsula Ramsar Site
		EPA

Regulatory framework	Description and relevance to implementation of the BCS	Regulatory authority
Pipelines Act 2005	The *Pipelines Act 2005* regulates the construction and operation of certain pipelines and includes assessment and licencing processes to ensure pipelines minimise impacts to the environment The Act is relevant to minimising the indirect impacts of the development in the Growth Areas on biodiversity values	DTP
Crown Land Reserves Act 1978	The Act enables Crown land to be reserved and protected for a public purpose, including for conservation The Act is relevant to the protection of the strategic conservation areas in the Growth Areas. The NGGA Conservation Area will be acquired by or transferred to the City and become Crown land to be reserved and managed under the *Crown Land Reserves Act 1978*	DTP
Environment Effects Act 1978	The Act establishes a process to assess the environmental impacts of a project. If applicable, the Act requires that an Environment Effects Statement (EES) be prepared by the proponent. The EES is submitted to the Minister for Planning and enables them to assess the potential environmental effects of the proposed development The *Ministerial Guidelines for Assessment of Environmental Effects under the Environment Effects Act 1978* (DSE, 2006) provide a range of criteria that can be used to determine whether an EES may be required for a project. These criteria relate to individual potential environmental effects and a combination of (two or more) potential environmental effects The referral criteria include impacts >10 ha of an endangered EVC, potential long-term loss of a significant proportion (e.g. 1-5 percent) of the remaining habitat of a threatened species, or the potential long-term change to the ecological character of a Ramsar wetland	DTP

5 Relevant City of Greater Geelong policies

5.1 CITY OF GREATER GEELONG ENVIRONMENT STRATEGY

The Environment Strategy 2020-2030 sets out how the City will protect the region's environment. The strategy defines five key goals to guide planning and decision making and targets, guiding principles and directions under each goal.

Goal 4 of the strategy is:

> *Protect, enhance and restore our region's biodiversity.*

Key targets under this goal include:

- Establish conservation protection for all remnant biodiversity patches larger than 10 hectares by 2025
- Establish an additional 1,000 hectares of protected natural habitat by 2030
- Prevent any new indigenous species or habitat area extinctions during the term of this strategy
- Achieve a net gain of biodiversity within Greater Geelong during the term of this strategy

Key principles and directions in the Environment Strategy are summarised in Table 3.

Table 3: Key principles and directions in the Environment Strategy

Principle	Key Directions

Protect and enhance indigenous biodiversity	• Protect and enhance indigenous biodiversity prioritising:
	  o Remnant biodiversity patches larger than 10 hectares
	  o Threatened indigenous biodiversity species and communities
	  o Under-represented Ecological Vegetation Classes
	  o Establishment of biolinks to reduce habitat fragmentation
	  o Protection of remnant old trees
	• Expand indigenous biodiversity patches through natural regeneration and revegetation programs
	• Restore indigenous biodiversity and habitat to support ecologically healthy waterways, estuaries and wetlands
	• Increase works to control pest plant and animal impacts on indigenous biodiversity
	• Ensure the protection of threatened species and habitats through the development of conservation action plans

Restore biodiversity in modified urban landscapes	• Restore habitat into urban landscapes through the establishment of indigenous tree, shrub and understory plantings and other habitat elements such as wetlands, logs and stags • Restore degraded waterways and wetlands to create habitat and ecologically healthy water flows

5.2 PLAN FOR NATURE

The City is currently preparing a Plan for Nature to update the City's Biodiversity Strategy and to set in place a program to protect, restore and manage the regions nature by 2030. The Plan supports the 30-year community vision within *Greater Geelong: A Clever and Creative Future* and is a key action of the City's *Sustainability Framework 2020*.

The Plan for Nature will include a new strategic policy framework, action plan and monitoring program.

References

DELWP (2017a) 'Guidelines for the removal, destruction or lopping of native vegetation'.

DELWP (2017b) 'Preparing a Native Vegetation Precinct Plan'.

DSE (2006) 'Ministerial Guidelines for Assessment of Environmental Effects under the Environment Effects Act 1978'.

DSEWPC (2012) 'Environment Protection and Biodiversity Conservation Act 1999 Environmental Offsets Policy'.

The City of Greater Geelong (2021) 'The Northern and Western Geelong Growth Areas Framework Plan.'

Victorian Planning Authority (2021) 'Precinct Structure Planning Guidelines: New Communities in Victoria'.

THE CITY OF
GREATER GEELONG

NORTHERN AND WESTERN GEELONG GROWTH AREAS

MAY 2023

DRAFT BIODIVERSITY CONSERVATION STRATEGY

APPENDIX B: ASSESSMENT AGAINST STATE PLANNING AND REGULATORY REQUIREMENTS FOR BIODIVERSITY

CITY OF GREATER GEELONG

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1 Introduction

This appendix to the Northern and Western Geelong Growth Areas (NWGGA) Biodiversity Conservation Strategy (BCS) assesses the BCS against key State planning and regulatory requirements for biodiversity, including:

- Planning Policy Framework (PPF) Clause 12.01 'Biodiversity', including:
  - Clause 12.01-1S – 'Protection of biodiversity'
  - Clause 12.01-1L – 'Protection of biodiversity'
  - Clause 12.01-2S – 'Native vegetation management'
- Native Vegetation Removal Regulations, including the *Guidelines for the removal, destruction or lopping of native vegetation* (DELWP, 2017a) (the Native Vegetation Guidelines)
- Environmental Significance Overlay 4 – Grasslands within the Werribee Plains hinterland, within the Greater Geelong Planning Scheme (Planning Scheme)
- Section 4B of the *Flora and Fauna Guarantee Act* (FFG Act) (the FFG Act 'biodiversity duty')

The purpose of the analysis is to demonstrate how these key State planning and regulatory requirements for biodiversity have been considered by the City of Greater Geelong (the City) in developing the BCS.

While each of these requirements has a specific set of considerations that need to be addressed, there are several common themes across them. Section 2 of this appendix describes how these themes have been considered in the BCS through a strategic biodiversity planning approach.

Section 3 of this appendix provides responses to each of the specific requirements in a series of tables. This section draws on the discussion around the common strategic biodiversity planning themes presented in Section 2.

1.1 SUMMARY OF THE ASSESSMENT

The BCS establishes the over-arching conservation strategy for the Growth Areas and facilitates ongoing consideration of biodiversity as detailed planning progresses. Implementation of the BCS has been designed to meet key State planning and regulatory requirements for biodiversity, and the assessment presented in this appendix supports this.

The BCS reflects the outcomes of a comprehensive strategic biodiversity planning process for the NWGGA.

This process has led to a BCS that:

- Uses the best available information to identify the biodiversity values across the Growth Areas, prioritise high biodiversity value areas for ongoing protection and management, and guide future biodiversity decisions and processes where further, detailed biodiversity information is needed
- Provides for strategic avoidance, protection, management and restoration of areas that contain the most important Commonwealth, State and local biodiversity values in the Growth Areas. These areas provide ecosystem function and are likely to be viable in the long-term because of their size, condition, shape and location in the landscape. This will lead to improved biodiversity outcomes compared to standard, smaller-scale approaches to avoidance planning and assessment, which can result in small and disconnected fragments of unmanaged, lower condition habitat
- Takes into account existing threatening processes, and contains commitments and measures to address the direct, indirect and cumulative impacts of the development in the Growth Areas
- Delivers a suite of offsets to address unavoidable impacts that meet State and Commonwealth regulatory requirements and provide strategic, landscape-scale biodiversity outcomes

Implementation of the BCS will occur primarily through the Victorian planning system, and further details and justification around key State planning and regulatory requirements for biodiversity will be provided as planning proceeds. While the BCS has been developed through a strategic biodiversity planning process at the Growth Area scale, implementation will occur at the precinct scale through Precinct Structure Plans (PSPs) and Native Vegetation Precinct Plans (NVPPs), comprising a series of separate planning projects. This is consistent with State planning and regulatory requirements for biodiversity and previous large scale urban development projects in Victoria.

2 Strategic planning for biodiversity

2.1 INTRODUCTION

This section describes how the City has addressed considerations that are common across the key State planning and regulatory requirements for biodiversity in developing the BCS through a strategic biodiversity planning approach.

The BCS is part of a broad strategic planning process undertaken by the City to identify areas for development and growth to meet economic, social and planning challenges and protect high biodiversity value areas.

The BCS reflects the outcomes of this strategic planning process for the Growth Areas. It identifies national, State and local-level biodiversity outcomes to be achieved for the Growth Areas, and a set of commitments and measures to deliver these outcomes and ensure the impacts of the development are avoided, minimised and offset consistent with Commonwealth and State regulatory requirements.

The former Department of Environment, Land, Water and Planning (DELWP) prepared guidelines for strategic planning for biodiversity in Victoria. They are *Planning for biodiversity: guidance* (DELWP, 2017c). The purpose of the guidelines is to assist local government to use the planning system to meet the objectives of the PPF in relation to the protection and conservation of Victoria's biodiversity. The guidelines refer to *Protecting Victoria's Environment – Biodiversity 2037* (DELWP, 2017e) and recognise that strategic planning plays an important role in achieving biodiversity outcomes in Victoria. The guidelines state that strategic planning is the most effective process under the planning system to protect and conserve biodiversity (DELWP, 2017c). Strategic planning provides many benefits to biodiversity, including the:

- Ability to identify high biodiversity value areas at a landscape scale
- Best opportunity to effectively avoid and minimise impacts by directing development away from high biodiversity value areas and co-ordinating offsets to compensate for impacts strategically
- Ability to understand and address cumulative impacts of multiple developments within an area

The strategic planning guidelines set out a series of steps for effective strategic planning. Key steps include considering broader strategic policies and strategies, identifying areas of high biodiversity value, identifying where there is demand for development and resolving conflicts between development and biodiversity values, and choosing planning tools to protect high biodiversity value areas (DELWP, 2017c).

The development of the BCS was undertaken consistent with these key steps, and involved:

- Considering broader strategies, policies and processes relating to biodiversity
- Identifying areas of high biodiversity value within the Growth Areas
- Resolving conflicts between development and biodiversity values through avoidance planning and protecting areas of high biodiversity value through planning mechanisms
- Further minimising impacts on biodiversity values through planning mechanisms
- Offsetting unavoidable impacts on biodiversity values

The following sections describe how these steps were considered in developing the BCS.

The strategic planning guidelines also refer to the ability for strategic planning to effectively enable consideration of cumulative impacts of multiple developments within an area compared to planning processes that operate at a site-scale (DELWP, 2017c). A description of how the BCS addresses cumulative impacts is provided in Section 2.7.

2.2 CONSIDERATION OF BROADER STRATEGIES, POLICIES AND PROCESSES

The BCS was developed in consideration of a range of broader strategies, policies and processes relating to biodiversity relevant to the Growth Areas, including:

- Strategic assessment process under Part 10 of the EPBC Act. This includes a wide range of associated EPBC Act policies, guidelines, and statutory documents relevant to biodiversity within the Growth Areas
- *Northern and Western Geelong Growth Area Framework Plan* (the Framework Plan) (The City of Greater Geelong, 2021)
- *Protecting Victoria's Environment – Biodiversity 2037* (DELWP, 2017e)

- Planning Policy Framework, including Clause 12.01-1S – 'Protection of biodiversity'
- Corangamite Regional Catchment Strategy
- Biodiversity values and potential impacts on Ramsar sites

2.2.1 STRATEGIC ASSESSMENT UNDER PART 10 OF THE EPBC ACT

The City is undertaking a strategic assessment under Part 10 of the EPBC Act to address the impacts of development on Matters of National Environmental Significance (MNES) protected under the EPBC Act.

The strategic assessment enables a landscape scale assessment and approval of a suite of development actions under the EPBC Act and provides the opportunity to deliver improved environmental and development outcomes compared to project-by-project assessments through strategic consideration of biodiversity issues.

As part of the strategic assessment process, the City prepared the *Northern and Western Geelong Growth Areas Strategic Assessment Report* to assess the impacts of the development in the Growth Areas on MNES.

The City also prepared the *Northern and Western Geelong Growth Areas EPBC Plan* (the EPBC Plan). The EPBC Plan gives effect to the outcomes of the strategic assessment process. The EPBC Plan has been prepared in accordance with the Endorsement Criteria in the Strategic Assessment Agreement (27 January 2022) between the Commonwealth Minister for the Environment (the Minister) and the City.

A key purpose of the BCS is to set out how the conservation framework in the EPBC Plan for the Growth Areas will be implemented including through avoiding and minimising, mitigating, and offsetting residual impacts in accordance with the mitigation hierarchy (DSEWPC, 2012a; DELWP, 2017a).

2.2.2 FRAMEWORK PLAN

The Framework Plan represents a key response by the City to the planning and growth challenges facing the Geelong region. It is incorporated into the Greater Geelong Planning Scheme and implemented at Clause 11.02-2L Northern and Western Geelong Growth Areas. It includes a range of urban and other planning objectives, and outlines the land uses and development which will deliver new communities, infrastructure and services within the Growth Areas in order to provide for the future population growth of the Geelong region.

The Framework Plan was developed in consideration of biodiversity values and identifies biodiversity priorities that are reflected in a set of actions. The BCS satisfies the delivery of three key actions (Action N1.3.1, N1.3.2 and W1.3.1) under the Framework Plan for the protection of biodiversity in the Growth Areas. The Framework Plan says an "*overarching biodiversity conservation strategy will be prepared for the growth area*[s] *that provides high level guidance for the management of nationally and state significant biodiversity values…The strategy will spatially identify how outcomes for matters of national environmental significance will be delivered…"* (The City of Greater Geelong, 2021).

2.2.3 OTHER STRATEGIES AND POLICIES

A description of how the BCS considered the other broader strategies and policies above is provided in Section 3.

2.3 IDENTIFYING AREAS OF HIGH BIODIVERSITY VALUE

The BCS uses the best available information to understand biodiversity values, identify priority areas and support decision making. The key information sources are described in the following sections and include ecological survey data, species database records, habitat and vegetation modelling and relevant literature and government policy or guidance documents.

High biodiversity value areas were identified by considering several matters affecting the value of biodiversity, including the matters set out in the strategic planning guidelines. This included:

- Patch size – larger, well-connected areas of native vegetation are generally of higher value
- Condition – native vegetation in good condition is generally of high value
- Areas with higher strategic biodiversity value scores
- Areas that are habitat for rare or threatened species, particularly for multiple species
- Waterways

2.3.1 ECOLOGICAL SURVEYS BY ECOLOGY AND HERITAGE PARTNERS

The City commissioned Ecology and Heritage Partners (EHP) to undertake detailed ecological surveys within the NGGA and the northern portion of the WGGA (Creamery Road and Batesford North precincts). The southern precincts in the WGGA (Batesford South, McCanns Lane and Merrawarp Road) were not subject to surveys, with the intention of undertaking detailed ecological investigations of these precincts at a later date, closer to the time of planning and development. The BCS will be updated to incorporate the results of those surveys.

The surveys aimed to identify and map the presence of State and Commonwealth listed threatened species, ecological communities, and native vegetation to inform the Part 10 Strategic Assessment for the Growth Areas.

Field surveys were undertaken between November 2019 and December 2020. The methods and results of these surveys are described in '*Existing Ecological Conditions: Northern and Western Geelong Growth Areas*' (EHP, 2021).

Two-hundred-person days were spent surveying the Growth Areas. Surveys were limited to properties where access was permitted, which totalled an area of over 2,075.3 ha, or just over 72 percent of the Growth Areas. Around 33 per cent of the NGGA and 13.2 per cent of the WGGA were not subject to site surveys due to a lack of access.

Botanists (who were accredited by DELWP in the habitat hectare methodology) undertook detailed ecological assessments to quantify the extent and quality of native vegetation values in the growth areas (EHP, 2021).

Qualified flora and fauna ecologists undertook targeted surveys for the following Commonwealth listed threated flora and fauna species and threatened ecological communities (TECs) (EHP, 2021):

- *Delma impar* (Striped Legless Lizard)
- *Dianella amoena* (Mated Flax-lily)
- *Galaxiella toourtkoourt* (Little Galaxias)
- *Glycine latrobeana* (Clover Glycine)
- *Lachnagrostis adamsonii* (Adamson's Blown-grass)
- *Litoria raniformis* (Growling Grass Frog)
- *Pimelea spinescens* subsp. *spinescens* (Spiny Rice-flower)
- *Prototroctes maraena* (Australian Grayling)
- *Rutidosis leptorrhynchoides* (Button Wrinklewort)
- *Senecio macrocarpus* (Large-headed Fireweed)
- *Synemon plana* (Golden Sun Moth)
- Natural Temperate Grassland of the Victorian Volcanic Plain

Surveys were generally undertaken in accordance with the relevant State and Commonwealth guidelines for vegetation, TECs, and threatened species surveys (EHP, 2021). Any deviations from relevant guidelines, including an explanation and justification for the methods used, are detailed in the EHP (2021) report. The methods and report underwent a process of peer and regulator review as part of developing and finalising the findings.

2.3.2 INDIVIDUAL SURVEYS UNDERTAKEN BY LANDHOLDERS WITHIN GROWTH AREAS

The City provided an opportunity for landholders that had their properties surveyed during the period of the EHP surveys to provide additional information for consideration. The purpose of this process was to collect additional information where landholders had concerns with mapping inaccuracies and/or assumptions.

The additional information was reviewed against a set of criteria to help inform and guide decisions on appropriate changes to the dataset. Changes were considered appropriate where any of the following occurred:

- Landowner surveys addressed the relevant guidelines and were undertaken in the same survey season as EHP 2021. This recognises that native grasslands are a dynamic system that display natural variation from season to season. It is noted EHP undertook Vegetation Quality Assessment (VQA) surveys between November 2019 and January 2020
- EHP has acknowledged they were in error
- Small scale refinements were needed to address mapping anomalies and inaccuracies (e.g., mapped native grassland over buildings or driveways)

Four separate surveys were commissioned by individual landholders within the NGGA as part of this process. Surveys mainly focussed on the mapping of native vegetation. These surveys covered an area of approximately 55 per cent (approximately 1,170 ha) of the NGGA. One survey was commissioned within the WGGA, covering an area of approximately 38 ha (approximately 5 per cent of the Growth Area).

All surveys were undertaken by DELWP accredited botanists according to relevant guidelines.

Most landholder submissions documented changes in site conditions (including increased weed cover, unsuitable/ incompatible species, and altered land management practices) and/or seasonal variability. However, none of the surveys were carried out during the same season as the EHP surveys. As a result, it was not possible to make a valid comparison of the native grassland extent and condition for the purposes of amending the EHP dataset based on the first criterion. Instead, this information provides a useful and relevant indication of the changes in extent and condition of the grasslands for the purposes of understanding ecological trend within the Growth Areas.

The process led to several minor changes to the extent of mapped native vegetation and species habitat in the Growth Areas where the other two criteria were met. These changes led to a revised Project Dataset, which was used as part of the baseline information for the assessment of impacts to MNES in the NWGGA Strategic Assessment Report.

2.3.3 SPECIES RECORDS OBTAINED THROUGH THE VICTORIAN BIODIVERSITY ATLAS (VBA) (DELWP, 2022B)

VBA records were used to supplement survey records within the Growth Areas, and to contribute to an understanding of presence within the unsurveyed areas of the Growth Areas and the broader Study Area.

2.3.4 DEECA HABITAT AND VEGETATION MODELLING

Consideration of DEECA habitat and vegetation modelling included:

- Habitat importance models (HIMs) (DELWP, 2017b). HIMs provided a useful planning tool for understanding the potentially important areas of a species' habitat distribution across the landscape. The models indicate the relative importance of habitat areas from low through to high
- Modelled Ecological Vegetation Classes (EVCs) (DELWP, 2005). Modelled EVCs were used to inform the potential occurrence of native vegetation and TECs where survey data was unavailable

2.3.5 KEY COMMONWEALTH, STATE AND LOCAL POLICY OR REGULATORY DOCUMENTS

Key policy and regulatory documents that were considered included relevant EPBC Act guidance documents, Commonwealth listed threatened species Recovery Plans and Conservation Advices, and State listed threatened species action statements.

2.4 AVOIDANCE OF IMPACTS

The BCS considered the proposed development for the Growth Areas set out in the Framework Plan and applied an avoidance planning process to consider and resolve conflicts between areas identified as high biodiversity value and areas proposed for development in the Framework Plan.

Avoidance planning for the Growth Areas comprises three processes:

- Strategic level planning to locate the Growth Areas and identify initial avoidance priorities
- Locating and designing the development within the Growth Areas to avoid impacts
- Future precinct and site-scale planning

2.4.1 STRATEGIC LEVEL PLANNING

The avoidance process commenced at a landscape scale and informed the location of the Growth Areas.

The process was undertaken through a range of regional and State-scale processes. Relevant documents associated with this process include the G21 Regional Growth Plan (Geelong Region Alliance, 2013) and Plan Melbourne 2017–2050 (Victoria State Government, 2017). This process considered a wide range of factors across the broader region, including:

- The locations and characteristics of landscape features including protected matters and environmental values

- The locations of existing development and infrastructure
- The overall suitability of the site for delivering development objectives

Once the location of the Growth Areas was determined, high level strategic planning was completed through preparation of the Framework Plan. This process was based around urban development objectives and planning themes. Consideration of biodiversity values was one of the factors involved in planning decisions during this process. The Framework Plan identifies priorities for avoidance and minimisation that are reflected in a set of actions.

Key actions relating to avoidance of biodiversity in each of the Growth Areas are presented in Table 1 including when each action will be implemented through the planning process for the Growth Areas.

Table 1: Key actions from the Framework Plan relating to avoidance of biodiversity in each of the Growth Areas

Action #	Action text	Implementation stage
Northern Geelong Growth Area		
N1.3.2	*A network of linear corridors will be created to promote biodiversity linkages within neighbourhoods that connect between conservation areas, waterways and the open space network*	• Indicative planning through the Framework Plan process • Refined and confirmed during precinct planning
N1.3.3	*Any conservation areas that are identified will prioritise the protection and enhancement of local indigenous flora and fauna species*	• Indicative planning through the Framework Plan process • Refined during the strategic assessment process • Confirmed during precinct planning
N1.3.7	*A Native Vegetation Precinct Plan will be prepared for each precinct to determine the presence and management of significant flora, fauna and ecological communities*	• During precinct planning
Western Geelong Growth Area		
W1.3.2	*Individual detailed master plans that outline the protection and enhancement of river and creek corridors will be prepared and incorporated within the relevant precinct structure plan including [within the Strategic Assessment Area]:* • *Cowies Creek, between Geelong Ring Road and Geelong-Ballan Road* • *Moorabool River, between Midland Highway and Geelong-Ballarat Railway*	• Indicative planning through the Framework Plan process • Refined during the strategic assessment process • Confirmed during precinct planning
W1.3.3	*A network of linear corridors will be created to promote biodiversity linkages within neighbourhoods that connect between conservation areas, waterways and the open space network*	• Indicative planning through the Framework Plan process • Refined and confirmed during precinct planning
W1.3.4	*Any conservation areas that are identified will prioritise the protection and enhancement of local indigenous flora and fauna species*	• Indicative planning through the Framework Plan process • Refined during the strategic assessment process • Confirmed during precinct planning
W1.3.8	*A Native Vegetation Precinct Plan will be prepared for each precinct to determine the presence and management of significant flora, fauna and ecological communities*	• During precinct planning

2.4.2 GROWTH AREA LEVEL PLANNING

The Framework Plan includes plans for future urban structure which identify areas proposed for development and areas proposed for avoidance. Following adoption of the Framework Plan, the City undertook a more detailed level of biodiversity planning to refine the outcomes at a Growth Area level. This included:

- Detailed ecological surveys across the NGGA and the northern portion of the WGGA between November 2019 and December 2020 by Ecology and Heritage Partners (EHP) (described previously in section 2.3.1)
- Consideration of the need for further avoidance based on the results of surveys
- Detailed analysis of a range of avoidance alternatives to inform decisions on the optimal layout for the Growth Areas

The detailed ecological surveys identified a range of biodiversity values across the Growth Areas including:

- Habitat for the Golden Sun Moth (GSM), Striped Legless Lizard (SLL), areas of Natural Temperate Grassland of the Victorian Volcanic Plain (NTG) and remnant patches of native grasslands within the NGGA
- Habitat for Growling Grass Frog (GGF) and small remnants of native grasslands within the northern portion of the WGGA

In considering these survey results, it was found that:

- Further avoidance and minimisation of impacts to high biodiversity value areas was required within the NGGA
- The indicative avoidance outcomes within the Framework Plan for WGGA were broadly appropriate in the context of the biodiversity values in the northern portion of the WGGA.
- Further ecological investigations and confirmation of avoidance planning would be needed in the southern precincts of the WGGA closer to the time of planning and development for these areas

A key aim of the City in defining further areas for avoidance within the NGGA was to identify high value biodiversity with the best potential for long term viability. The existing level of threats, in particular from high priority weeds, is leading to rapid environmental decline in many parts of the NGGA. This has meant that merely avoiding impacts to biodiversity by not allowing development to occur is unlikely to provide a conservation outcome for those values as there is a high likelihood they will degrade over time without intervention. Instead, protection, restoration and ongoing management of these areas is needed to ensure their long-term viability.

It was recognised that identifying additional areas for avoidance to those already identified within the Framework Plan would have significant social and economic implications. The City used a decision making framework, known as structured decision making (SDM), to help define priority areas for further biodiversity avoidance while also understanding and accounting for the social and economic ramifications of any decision.

The SDM project addressed the following question: *What is the optimal layout of development and avoidance within the Northern Geelong Growth Area?* It did this by considering five decision objectives and eleven performance criteria. The decision objectives covered environmental, social, and economic issues and were:

- Avoid and minimise the loss of biodiversity
- Maximise the protection and management of biodiversity
- Maximise community access to infrastructure and the delivery of 20 minute neighbourhoods
- Minimise the cost of the conservation program
- Maximise the supply of affordable housing delivered in the precinct

The social and economic objectives reflected the broader planning objectives relating to the Growth Area from state and local policy, and the Framework Plan.

The project considered five alternative layouts and scales of avoidance across the Growth Area. The avoidance layout that performed the best and has been carried forward meets the guiding principles outlined in the BCS for a strategic conservation area. It:

- Increases the area of avoidance to biodiversity within the NGGA compared to the Framework Plan

- Focuses on the largest habitat area for Striped Legless Lizard and a substantial area of habitat for the Golden Sun Moth, and provides the best opportunities for protecting and managing viable areas of biodiversity in the long term due to the shape, area, and condition of the native vegetation
- Provides appropriate outcomes for the urban form of the Growth Area and implementation costs

STRATEGIC CONSERVATION AREAS

Altogether, the BCS identifies four 'strategic conservation areas' in the NGGA and WGGA that will be avoided from development and will be protected and managed for conservation in-perpetuity. The strategic conservation areas are:

- In the NGGA: the NGGA Conservation Area defined through the structured decision making process described above
- In the WGGA:
  - Cowies Creek Conservation Area
  - Moorabool River Corridor
  - Barwon River Corridor

The primary purpose of the strategic conservation areas is the protection, management and restoration of biodiversity values. These areas represent high biodiversity value areas that contain the most important Commonwealth, State and local biodiversity values in the Growth Areas, and are the areas considered most likely to be viable in the long-term because of their size, condition, shape and location in the landscape.

The strategic conservation areas were identified in consideration of the high level of existing threats in the Growth Areas, which are leading to a rapid decline of biodiversity values. While the extent of Plains Grassland (EVC 132) identified by EHP (2021) was considered in locating the conservation areas, weed invasion and cropping have resulted in a deterioration of this EVC in the Growth Areas, and there are several examples of where this vegetation has been cropped or substantially degraded by weed invasion since the EHP mapping. None of the Plains Grassland within the WGGA was identified as the Commonwealth listed NTG, and this vegetation was of low retention value given its degraded state, low value for other biodiversity values, and poor persistence potential in the absence of expensive, high intensity, restoration management. Where NTG is present within the NGGA, it occurs in a heavily modified and degraded form and was not considered suitable for long-term conservation.

The Commonwealth, State and local biodiversity values that occur within the strategic conservation areas are described in the BCS. Together, these areas avoid impacts to and will protect and manage:

- The largest habitat area for Striped Legless Lizard within the NGGA
- A substantial area of habitat for the Golden Sun Moth within the NGGA
- All habitat for Growling Grass Frog within the WGGA
- Multiple other Commonwealth, State and local biodiversity values
- Areas of key habitat connectivity across the Growth Areas
- Riparian areas that will help maintain ecological processes and water flows and quality

The State and local biodiversity values within the strategic conservation areas include:

- Within the NGGA Conservation Area:
  - 73 ha of habitat for the FFG Act listed Striped Legless Lizard
  - 108 ha of habitat for the FFG Act listed Golden Sun Moth
  - 55 ha of *Low Rainfall* Plains Grassland (EVC 132_63) and FFG Act listed Western (Basalt) Plains Grassland Community
  - 2.3 ha of Current Wetlands (DELWP)
- Within the Cowies Creek Conservation Area:
  - Habitat for the FFG Act listed Growling Grass Frog
  - 4.9 ha of Creekline Grassy Woodland (EVC 68)
- Within the Moorabool River corridor:
  - Habitat for FFG Act listed aquatic species

  - 22.1 ha of Floodplain Riparian Woodland (EVC 56)
- Within the Barwon River Corridor:
  - Aquatic vegetation communities
  - Floodplain Riparian Woodland (EVC 56)
  - Habitat for several wetland dependant birds and native fish

The BCS includes commitments and measures to protect, manage and restore biodiversity values in the strategic conservation areas. These include the use of planning mechanisms and processes to protect these areas, including:

- Identifying the strategic conservation areas as land to be protected in the relevant PSPs
- Applying an appropriate environment zone to the strategic conservation areas
- Identifying native vegetation in the strategic conservation areas as to be retained within the relevant NVPP
- Securing the strategic conservation areas in perpetuity under an on-title agreement
- Preparing and implementing Conservation Management Plans for the strategic conservation areas

2.4.3 FUTURE PRECINCT AND SITE-SCALE PLANNING

The avoidance planning process at the Growth Area level will be supported by future biodiversity decision-making through precinct planning and site-scale planning controls. This further consideration of biodiversity at the precinct scale complements and supports the broader strategic planning process undertaken for the Growth Areas. It allows the benefits of strategic planning to be realised while still enabling site scale issues to be resolved.

The City will prepare PSPs for each of the nine precincts within the Growth Areas in accordance with the strategies in Clause 11.02-2L 'Northern and Western Geelong Growth Areas' of the Greater Geelong Planning Scheme. These strategies require the development to be generally in accordance with the Framework Plan map and sequenced generally in accordance with the Development Sequencing maps that form part of the clause.

PSPs will be prepared over approximately 10 to 15 years. Each PSP will be a self-contained project and will be incorporated into the planning scheme via a planning scheme amendment process. NVPPs will be prepared for each precinct containing native vegetation in conjunction with the preparation of PSPs.

BIODIVERSITY OPPORTUNITY AREAS AND INVESTIGATION AREAS

The BCS identifies several further opportunities to restore biodiversity values in the Growth Areas through precinct planning and delivery. These opportunities are identified within:

- Biodiversity opportunity areas: these are locations that are primarily used for another purpose (e.g. to manage stormwater) but that provide opportunities for co-benefits to biodiversity
- Investigation areas: these are locations that require further ecological surveys or studies to determine their suitability as either a strategic conservation area or biodiversity opportunity area. The investigation areas will be confirmed at the precinct planning stage for the relevant precincts as either:
  - Strategic conservation areas
  - Biodiversity opportunity areas
  - Areas not suitable for biodiversity protection and therefore suitable for development

The guiding principles for conservation planning in the BCS were applied to identify the biodiversity opportunity areas. The investigation areas reflect the areas considered most likely to meet the guiding principles for both strategic conservation areas and biodiversity opportunity areas based on current information.

Biodiversity opportunity areas and investigation areas are identified in the BCS and include:

- In the NGGA: Seven biodiversity opportunity areas. The majority of these relate to drainage areas that are likely to be required for various types of stormwater related infrastructure. These areas may also provide co-benefits to biodiversity by retaining or enhancing habitat values and potential movement corridors for threatened fauna across the growth area, as well as improving stream flow and water quality outcomes

- In the WGGA:
  - Four biodiversity opportunity areas. These relate to drainage areas that are likely to be required for various types of drainage infrastructure. These areas may also provide co-benefits to biodiversity and provide biodiversity links and habitat connectivity across the growth area
  - Seven investigation areas, including around the Batesford Quarry, opportunities for expanding the existing Dog Rocks Flora and Fauna Sanctuary, and other opportunities for additional avoidance

The BCS includes commitments and measures to consider further avoidance within biodiversity opportunity areas and investigation areas during precinct planning (see the Commitments and Measures document). To support these commitments and measures, the BCS includes precinct profiles that identify the currently known biodiversity values within the biodiversity opportunity areas and investigation areas, and the opportunities and priorities that should be considered in making decisions on further avoidance of these areas during precinct planning.

2.5 MINIMISATATION OF IMPACTS

In addition to minimising impacts through the avoidance planning process, impacts on biodiversity values will be further minimised by managing development to mitigate indirect impacts on biodiversity values that are avoided or that occur outside the Growth Areas. Development within the Growth Areas has the potential to lead to a range of indirect impacts that may adversely affect surrounding biodiversity values. These impacts relate to:

- Altered fire regimes
- Changes to water flows and water quality
- Disturbance due to noise, dust, or light
- Disturbance from increased public access to natural areas
- Fauna mortality and barriers to movement
- Inadvertent impacts on adjacent habitat or vegetation
- Predation or competition by pest or domestic fauna
- Spread of infection or disease
- Spread of weeds

The BCS includes commitments (see the Commitments and Measures document) to minimise these impacts, including requirements to implement:

- Standard mitigation measures delivered through the planning system. The Victorian planning system will deliver a range of standard mitigation measures through the development and implementation of PSPs and the provisions of the Greater Geelong Planning Scheme. These include measures such as stormwater management, erosion control, and management of construction sites. The BCS includes a commitment to ensure these standard measures continue to be implemented. The process for identifying and implementing these measures is described in the BCS
- Additional specific mitigation measures to address key biodiversity values associated with waterways, riparian areas and wetlands, and to protect the strategic conservation areas. These additional specific mitigation measures were defined through the assessment of the indirect impacts of the development on MNES in the EPBC Strategic Assessment Report. While these address specific risks to MNES associated with waterways, riparian areas and wetlands, and other biodiversity values within the strategic conservation areas, these additional measures will also minimise impacts to State and local biodiversity values
- Requirements to prepare and implement Conservation Management Plans for each of the strategic conservation areas

The measures in the BCS to deliver these commitments include incorporating these standard and additional specific mitigation measures as requirements and guidelines in PSPs and/or as conditions on permits, as appropriate.

2.6 OFFSETTING IMPACTS

Both State and Commonwealth level offsets will be delivered through implementation of the BCS.

At the State level, offsets for the removal of native vegetation within the Growth Areas will be established in accordance with the requirements of the Native Vegetation Guidelines through the preparation of NVPPs.

NVPPs will outline the offset requirements for native vegetation that can be removed and detail the obligations for each property within the precinct in accordance with the Native Vegetation Guidelines.

The securing of offsets will be the responsibility of the individual proponent. It is expected that proponents will secure offsets through the existing Victorian Native Vegetation Credit Register.

NVPPs and planning permits issued for use and development will require offset obligations to be met prior to the removal of native vegetation in accordance with the Native Vegetation Guidelines. Ongoing management, monitoring and reporting on offsets will occur in accordance with the Native Vegetation Guidelines.

Biodiversity offsets are also required at the Commonwealth level for residual adverse impacts within the NGGA to the following MNES:

- Natural Temperate Grassland of the Victorian Volcanic Plan (listed as critically endangered)
- Striped Legless Lizard (listed as vulnerable)
- Golden Sun Moth (listed as vulnerable)

The EPBC offsets package is presented in Appendix C to the BCS and was developed to provide strong, positive outcomes for the three relevant MNES by:

- Ensuring the offsets are in accordance with the principles of the EPBC Act Environment Offsets Policy (DSEWPC, 2012b)
- Maximising the opportunities that are provided by taking a strategic approach to offsetting rather than the usual site-by-site approach
- Mitigating the risks associated with strategic offsetting

The EPBC offsets package will also benefit native vegetation and State-listed matters (including Striped Legless Lizard and Golden Sun Moth, which are both Commonwealth and State-listed).

2.7 CONSIDERATION OF CUMULATIVE IMPACTS

The cumulative impacts of development in the Growth Areas are required to be considered under:

- The Native Vegetation Guidelines
- PPF Clause 12.01-1S – 'Protection of biodiversity'
- The FFG Act 'biodiversity duty'

2.7.1 CUMULATIVE IMPACTS IN RELATION TO THE NATIVE VEGETATION GUIDELINES

The Native Vegetation Guidelines (DELWP, 2017a) require the following to be taken into account in the context of the cumulative impacts of development on native vegetation:

- Past removal of native vegetation
- Assumed losses of native vegetation
- Consequential losses of native vegetation

These requirements aim to ensure cumulative impacts are taken into account if permits are split and projects involving the removal of native vegetation are staged over time, and that vegetation removal resulting from proposed use and development is considered wholistically and broadly (DELWP, 2018).

PAST REMOVAL OF NATIVE VEGETATION

Past removal of native vegetation refers to vegetation removed '*on the same property or on contiguous land in the same ownership as the applicant, in the five-year period before the application for a permit is lodged'* (DELWP, 2017a).

Past removal of native vegetation is considered when determining the assessment pathway of an application to remove native vegetation and determining the proportional impact on habitat for rare or threatened species.

ASSUMED LOSS OF NATIVE VEGETATION

Assumed loss of native vegetation refers to losses that are likely to occur because of (DELWP, 2018):

- Excessive lopping of trees for maintenance or encroachment of development within tree protection zones or structural root zones that cause damage to the trees
- Proximity of native vegetation to dwellings
- Indirect impacts due to shading, stormwater runoff, changes to hydrology and other indirect impacts

CONSEQUENTIAL LOSS OF NATIVE VEGETATION

Consequential loss of native vegetation refers to losses that are likely to occur because of access to exemptions in Clause 52.16 and 52.17 as a consequence of a permit approval (DELWP, 2018).

This includes, for example, the approval of a subdivision that creates lots smaller than 0.4 ha, which allows a proponent to access an exemption to remove the vegetation within those lots.

APPLICATION OF PAST REMOVAL AND ASSUMED AND CONSEQUENTIAL LOSSES IN THE GROWTH AREAS

The City will consider cumulative impacts in the context of past removal of native vegetation and assumed and consequential losses at a precinct scale through the preparation of PSPs and NVPPs for each precinct.

Justification for this precinct scale approach to cumulative impacts is provided in Section 3.3.

2.7.2 OTHER CUMULATIVE IMPACT REQUIREMENTS

The relevant strategy that sits under Clause 12.01-1S of the PPF requires the following in relation to cumulative impacts:

"Ensure that decision making takes into account the impacts of land use and development on Victoria's biodiversity, including consideration of:

- *Cumulative impacts…"*

Similarly, the FFG Act 'biodiversity duty' includes a requirement for public authorities to consider the potential impacts on biodiversity, including cumulative impacts.

There is no guidance as to how cumulative impacts should be considered to meet either of these requirements; including how cumulative impacts should be defined or the scale at which these impacts should be assessed. The City has therefore sought to meet these obligations relating to cumulative impacts in three different ways:

- By meeting the cumulative impact requirements relating to past vegetation removal that are set out in the Native Vegetation Guidelines (see Section 3, Table 5 under the response in relation to offsets)
- In developing the BCS and implementing the strategic biodiversity planning steps at the Growth Area scale. By planning for biodiversity at this scale, as opposed to site or precinct scale planning, this process has delivered some of the key elements of cumulative impact assessments. Namely, understanding how biodiversity values are represented and distributed at a broader landscape scale in order to:
  - Avoid and manage the most important and viable areas for long-term protection
  - Identify corridors or linkages across the landscape
  - Most appropriately focus development and impacts on the areas with the least biodiversity value
- In undertaking a cumulative impact assessment as part of the strategic assessment under Part 10 of the EPBC Act. This assessment is presented in the Strategic Assessment Report and aimed to:
  - Understand cumulative impacts and threatening processes to MNES in the Study Area, which included the NGGA, the northern two precincts in the WGGA, the bordering 'strategic assessment area' and the landscape within a 20 km radius of that area
  - Understand how development under the Plan may contribute to or exacerbate these threatening processes
  - Evaluate the adequacy of the EPBC Plan's proposed avoidance, mitigation, and offset commitments in relation to these threatening processes

3 Assessment against each specific requirement

3.1 INTRODUCTION

This section provides responses to each of the specific requirements of:

- PPF Clause 12.01 'Biodiversity'
- Native Vegetation Removal Regulations
- Environmental Significance Overlay 4
- Section 4B of the *Flora and Fauna Guarantee Act* (FFG Act) (the FFG Act 'biodiversity duty')

It draws on and refers to the more detailed descriptions for how the City has addressed considerations that are common across these key State planning and regulatory requirements for biodiversity in Section 2.

It is important to note that this is not a complete assessment against each key State planning and regulatory requirement for biodiversity that may be needed to support permit applications or to justify an NVPP and incorporate it into the Greater Geelong Planning Scheme. This further assessment and justification will be completed during precinct planning or at the permit application stage in accordance with the requirements of the planning scheme and other relevant requirements, such as the Native Vegetation Guidelines.

3.2 PLANNING POLICY FRAMEWORK CLAUSE 12.01 'BIODIVERSITY'

The PPF is the policy content of planning schemes. The PPF provides context for spatial planning and decision-making by planning and responsible authorities. A planning policy includes objectives (a statement of what a policy seeks to achieve) and strategies (statements that outline how an objective is to be achieved). A planning policy may also include policy guidelines, which indicate how an objective can be met and how a strategy can be implemented.

A planning authority must take into account the PPF when preparing an amendment to a planning scheme. A responsible authority must take into account and give effect to the PPF when it makes a decision under the planning scheme, such as a decision to grant a permit for use or development.

3.2.1 CLAUSE 12.01-1S

Clause 12.01-1S – 'Protection of biodiversity' includes an objective to 'protect and enhance Victoria's biodiversity' and identifies a range of strategies to achieve this objective, and is assessed in Table 2.

Table 2: Assessment against Clause 12.01-1S

Strategies	Response
Use biodiversity information to identify important areas of biodiversity, including key habitat for rare or threatened species and communities, and strategically valuable biodiversity sites	The City has considered this PPF strategy in developing the BCS. The BCS uses the best available biodiversity information to identify important areas of biodiversity and inform decisions to protect biodiversity within the Growth Areas (see Section 2). This information included: • Ecological surveys across the majority of the Growth Areas by Ecology and Heritage Partners (EHP, 2021) • Species records obtained through the VBA (DELWP, 2022) • DELWP habitat and vegetation modelling (DELWP, 2005, 2017b) State and local biodiversity values will be further considered during precinct planning through the preparation of NVPPs and to meet any additional requirements of the Greater Geelong Planning Scheme NVPPs will be prepared in accordance with Clause 52.16, including the Native Vegetation Guidelines (DELWP, 2017a)
Strategically plan for the protection and conservation of	The City has considered this PPF strategy in developing the BCS. The BCS is part of a strategic planning process undertaken by the City to identify areas for

Strategies	Response
Victoria's important areas of biodiversity	development and growth to meet economic, social and planning challenges and protect high biodiversity value areas (see Section 2) The strategic planning process for the Growth Areas involved several key steps that are consistent with the steps outlined in *Planning for biodiversity: guidance* (DELWP, 2017c). It has led to the avoidance of the most important biodiversity in the Growth Areas within strategic conservation areas. These are high biodiversity value areas that contain the most important Commonwealth, State and local biodiversity values in the Growth Areas and are considered likely to be viable in the long-term because of their size, condition, shape and location in the landscape Furthermore, the City's strategic approach to offsetting MNES under the EPBC Plan aims to protect and conserve important areas of biodiversity outside the Growth Areas and maximise the biodiversity benefits of offsetting MNES. This approach will also benefit State biodiversity values with habitat in the Growth Areas, including Golden Sun Moth and Striped Legless Lizard. This strategic approach to offsetting will be achieved through two key approaches: • Prioritising advanced offsetting, early in the life of the Plan • Strategic site selection that focuses on large sites that are well located in the landscape. Priority will be given to offset sites that are larger and adjacent to and/or connected to other patches of habitat (including reserves) and that could form broad habitat corridors across the landscape The strategic delivery of offsets is described in the NWGGA Strategic Assessment Report (see Chapter 29.3)
Ensure that decision making takes into account the impacts of land use and development on Victoria's biodiversity, including consideration of: • Cumulative impacts • Fragmentation of habitat • The spread of pest plants, animals and pathogens into natural ecosystems	The City has considered this PPF strategy in developing the BCS. The BCS was informed by a strategic assessment process that assessed the impacts of the development in the Growth Areas on MNES in the NWGGA Strategic Assessment Report and informed the development of the commitments and measures in the BCS to address these impacts. This included long and short-term impacts, direct and indirect impacts, and cumulative impacts. The NWGGA Strategic Assessment Report also considers potentially threatening processes including the fragmentation of habitat and the spread of pest plants and animals and pathogens. The overall beneficial and detrimental impacts of the development and BCS, taking into account the commitments and measures in the BCS to address these, are also evaluated The impacts of the development on State biodiversity values, including cumulative impacts in the context of past native vegetation removal, will be assessed during precinct planning through the preparation of NVPPs and to meet any additional requirements of the Greater Geelong Planning Scheme NVPPs will be prepared in accordance with Clause 52.16, including the Native Vegetation Guidelines (DELWP, 2017a)
Avoid impacts of land use and development on important areas of biodiversity	The City has considered this PPF strategy in developing the BCS. The BCS was informed by an avoidance planning process undertaken for the development within the Growth Areas to avoid and minimise impacts to biodiversity values (see Section 2). The BCS avoids and protects 'strategic conservation areas', which contain the most important Commonwealth, State and local biodiversity values in the Growth Areas and are considered most likely to be viable in the long-term because of their size, condition, shape and location in the landscape The BCS identifies several further opportunities to avoid and minimise impacts on biodiversity values in the Growth Areas within biodiversity opportunity areas and investigation areas. Opportunities for further avoidance and minimisation within these areas will be considered further during precinct planning through the preparation of NVPPs and to meet any additional requirements of the Greater Geelong Planning Scheme. The BCS includes commitments and measures to consider further avoidance within these areas, and identifies through precinct profiles the opportunities and priorities that should be considered in making decisions on further avoidance of these areas during precinct planning

Strategies	Response
Consider impacts of any change in land use or development that may affect the biodiversity value of national parks and conservation reserves or nationally and internationally significant sites, including Ramsar, JAMBA, CAMBA, and ROKAMBA sites	The City has considered this PPF strategy in developing the BCS. There are several reserves within the vicinity of the Growth Areas. These are identified in Chapter 3.3.5 of the NWGGA Strategic Assessment Report, and include: • Cowies Creek Frontage – A small (approximately 0.9 ha) Natural Feature Reserve occurring adjacent to Cowies Creek downstream from the WGGA • Moorabool River Water Frontage – A Natural Feature Area which follows the Moorabool River, occurring adjacent to the WGGA • Brisbane Ranges National Park – occurs approximately 15 km north of the Strategic Assessment Area Three areas of the Port Phillip Bay (Western Shoreline) and Bellarine Peninsula Ramsar site occur within the Study Area (Point Wilson/Limeburners Bay, Werribee/Avalon, and Lake Connewarre Complex). The potential impacts of the development on the ecological character of this site are assessed in Chapter 22 of the NWGGA Strategic Assessment Report and relate to: • Changes to water flows and quality • Disturbance from increased public access to natural areas The BCS includes commitments and measures that are expected to adequately manage the potential indirect impacts of the development on the Port Phillip Bay (Western Shoreline) and Bellarine Peninsula Ramsar site. These include: • Continuing to implement standard mitigation measures to minimise the indirect impacts of the development in accordance with the requirements of the Greater Geelong Planning Scheme • Implementing specific mitigation measures to minimise the indirect impacts of the development on protected matters associated with waterways, riparian areas and wetlands including: o Galaxiella toourtkoourt (Little Galaxias) o *Litoria raniformis* (Growling Grass Frog) o *Prototroctes maraena* (Australian Grayling) o *Lachnagrostis adamsonii* (Adamson's Blown-grass) o Port Phillip Bay (Western Shoreline) and Bellarine Peninsula Ramsar site

Table 3: Response to relevant policy documents listed in Clause 12.01-1S

Policy documents	Response
Any applicable biodiversity strategies, including the relevant Regional Catchment Strategy	The City has considered its Environment Strategy and the Corangamite Regional Catchment Strategy in developing the BCS. The goals, principles and directions of the Environment Strategy for protecting and enhancing the region's biodiversity, and the outcomes and priority directions in the Corangamite Regional Catchment Strategy, were considered in developing the guiding principles for the BCS and are particularly reflected in the principles for conservation planning. These were also considered in determining the strategic conservation areas and the biodiversity opportunity areas and investigation areas. Key relevant near-term outcomes and priority directions in the Regional Catchment Strategy include: • Land use change including urban expansion does not occur to the detriment of biodiversity and other natural assets (L6) By 2027: • There is an overall net gain of habitat for all flora and fauna species within the region (BO3)

Policy documents	Response
	• Threats to biodiversity from pest species are recognised and controlled in priority locations across all land tenures (B04) • 4,500 hectares of revegetation in priority locations for habitat connectivity is established (B08) • There is an improvement in riparian extent and condition, hydrological regime and water quality compared to 2022 baselines in priority waterways in Corangamite Waterway Strategy (WO1) • Waterway amenity will be improved for high priority urbanised waterways to enhance the user experience and connection to the natural landscape, compared to 2021 baseline (WO3) • There is an increase in the extent of in-stream habitat compared to 2021 baseline in priority waterways for resilience of threatened native fish and waterway dependent species (WO9) Priority locations are the areas across Victoria where management actions maximise benefits to threatened and other species. The Growth Areas include priority locations for the management of several threats, including: • Pest herbivore control • Weed control • Revegetation The BCS includes commitments and measures consistent with these near-term outcomes and priority directions. This includes the protection and management of the NGGA Conservation Area, Cowies Creek Conservation Area, Moorabool River Corridor and Barwon River Corridor. The NGGA Conservation Area overlaps with a priority location for revegetation, and the Moorabool River Corridor overlaps with priority locations for revegetation, pest herbivore and weed control
Biodiversity Conservation Strategy for Melbourne's Growth Corridors (DEPI, 2013)	The *Biodiversity Conservation Strategy for Melbourne's Growth Corridors* was prepared as part of an EPBC Part 10 strategic assessment for four new growth corridors in the Melbourne area. The key purpose of this strategy was to: • Guide the preparation of the Growth Corridor Plans for Melbourne • Outline how conservation outcomes for MNES in the Program Report that was prepared for the growth corridors as part of the EPBC Part 10 strategic assessment will be achieved spatially within the growth corridors and how impacts on these matters will be mitigated • Identify the land within the growth corridors that is required to be protected due to the sub-regional species strategies and the prescriptions that both set out protection requirements for MNES The Growth Areas occur outside the area covered by the *Biodiversity Conservation Strategy for Melbourne's Growth Corridors* as defined in section 1.3 of the strategy. However, the Program Report includes targets to protect 80% of 'confirmed high persistence habitat' for Golden Sun Moth, Spiny Rice-flower and Matted Flax-lily on the Victorian Volcanic Plain. Some of these mapped areas may occur within the Growth Areas. Detailed ecological surveys have confirmed that Spiny Rice-flower and Matted Flax-lily are not present within the Growth Areas. These species will not be affected by development. Golden Sun Moth has been confirmed within the Growth Areas. A detailed planning and assessment process has been undertaken to ensure that the avoidance, mitigation and offsets provided for this species are appropriate.
Guidelines for the removal, destruction or lopping of native vegetation	The City's consideration of Native Vegetation Guidelines is described in Section 3.3

Policy documents	Response

Protecting Victoria's Environment – Biodiversity 2037	The City has considered *Protecting Victoria's Environment – Biodiversity 2037* (DELWP, 2017e) in developing the BCS. This strategy establishes a long-term vision, and goals, targets and priorities. The overall statewide targets for the goal 'Victoria's natural environment is healthy' include:
	• A net improvement in the outlook across all species by 2037, so that:
	  ○ No vulnerable or near-threatened species will become endangered
	  ○ All critically endangered/endangered species will have at least one option available for being conserved ex situ or re-established in the wild (where feasible under climate change) should they need it
	• A net gain of the overall extent and condition of habitats across terrestrial, waterway and marine environments
	Contributing targets in *Protecting Victoria's Environment* that are expected to help achieve these overall statewide targets are:
	• 1.5 million ha of pest predator control and 1.5 million hectares of weed control in priority locations sustained for 20 years
	• 4 million ha of pest herbivore control in priority locations for 20 years
	• 200,000 ha of revegetation in priority locations for habitat connectivity by 2037 (an average of 10,000 ha per year)
	Priority locations are the areas across Victoria where management actions maximise benefits to threatened and other species. The Growth Areas include priority locations for the management of several threats, including:
	• Pest herbivore control
	• Weed control
	• Revegetation
	The BCS includes commitments and measures consistent with these goals and targets. This includes the protection and management of the NGGA Conservation Area, Cowies Creek Conservation Area, Moorabool River Corridor and Barwon River Corridor. The NGGA Conservation Area overlaps with a priority location for revegetation, and the Moorabool River Corridor overlaps with priority locations for revegetation, pest herbivore and weed control

3.2.2 CLAUSE 12.01-1L

Clause 12.01-1L – 'Protection of biodiversity' includes a single strategy, and is assessed in Table 4.

Table 4: Assessment against Clause 12.01-1L

Strategy	Response
Ensure that land use and development enhances areas of native vegetation and other habitats	The City has considered this PPF strategy in developing the BCS. The BCS establishes a set of outcomes and commitments and measures that will protect and restore and enhance biodiversity and ecological processes. These are set out in the BCS and include the protection and management of the: • NGGA Conservation Area • Cowies Creek Conservation Area • Moorabool River Corridor • Barwon River Corridor Together, these areas will protect: • The largest habitat area for Striped Legless Lizard in the NGGA • A substantial area of habitat for Golden Sun Moth in the NGGA

Strategy	Response
	• All habitat for Growling Grass Frog within the WGGA • Multiple other Commonwealth, State and local biodiversity values • Areas of key habitat connectivity across the Growth Areas • Riparian areas that will help maintain ecological processes and water flows and quality

3.2.3 CLAUSE 12.01-2S

Clause 12.01-2S – 'Native vegetation management' includes an objective to 'ensure that there is no net loss to biodiversity as a result of the removal, destruction or lopping of native vegetation' and a single strategy to achieve this objective, which is:

> *Ensure decisions that involve, or will lead to, the removal, destruction or lopping of native vegetation, apply the three-step approach in accordance with the Guidelines for the removal, destruction or lopping of native vegetation (Department of Environment, Land, Water and Planning, 2017):*
>
> - *Avoid the removal, destruction or lopping of native vegetation*
> - *Minimise impacts from the removal, destruction or lopping of native vegetation that cannot be avoided*
> - *Provide an offset to compensate for the biodiversity impact from the removal, destruction or lopping of native vegetation*

An assessment of the BCS against the three-step approach is provided in Section 3.3.

3.3 NATIVE VEGETATION REMOVAL REGULATIONS

A permit is usually required to remove native vegetation in Victoria. Removal of native vegetation is regulated through clause 52.16 (NVPP) and clause 52.17 (Native vegetation) of planning schemes.

NVPPs will be used to assess and manage the impacts of native vegetation removal in the Growth Areas. NVPPs will be prepared for each precinct within the Growth Areas containing native vegetation in conjunction with the preparation of PSPs. NVPPs will be incorporated into the Greater Geelong Planning Scheme and will switch off the need for a permit to remove native vegetation where removal is in accordance with an NVPP.

The purpose of a NVPP is to ensure no net loss to biodiversity because of the removal of native vegetation. This is to be achieved by applying the three-step approach in the Native Vegetation Guidelines (DELWP, 2017a), which is:

- Avoid the removal of native vegetation
- Minimise impacts from the removal of native vegetation that cannot be avoided
- Provide an offset to compensate for the impact of the removal of native vegetation

An assessment against the three-step approach is provided in Table 5.

NVPPs must be prepared in accordance with Clause 52.16, including the Native Vegetation Guidelines, and in consideration of the Greater Geelong Planning Scheme, including (DELWP, 2017d):

- Planning Policy Framework Clause 12.01 – 'Biodiversity'
- Other relevant plans, strategies or policies that are incorporated in the Greater Geelong Planning Scheme, including the *Northern and Western Geelong Growth Area Framework Plan* (the Framework Plan) (The City of Greater Geelong, 2021) and any relevant PSP

The preparation of an NVPP requires an assessment of the importance of the native vegetation for biodiversity, land and water protection, landscape and cultural values. This information is provided as part of the planning scheme amendment material that justifies the NVPP. A site assessment report must be prepared to include information on the native vegetation proposed to be removed and retained, including:

- A habitat hectare assessment, including information on the condition, extent, Ecological Vegetation Class and bioregional conservation status of the native vegetation
- Information on large trees within patches and scattered trees

- Information on rare and threatened species habitat derived from habitat importance maps

The site assessment report can include an on-site habitat assessment that determines whether habitat at the site is consistent with the habitat requirements of the rare or threatened species mapped by DEECA at the site. While targeted species surveys are not required, this information can be used to inform the preparation of the NVPP (DELWP, 2017d).

The *Assessor's Handbook – applications to remove, destroy or lop native vegetation* (DELWP, 2018) (Assessor's Handbook) guides the assessment of applications for a planning permit to remove native vegetation under clauses 52.16 and 52.17.

Responsible and referral authorities should use the Assessor's Handbook when assessing clause 52.16 or 52.17 permit applications and when providing information to applicants about the requirements of the Native Vegetation Guidelines.

Table 5: Assessment against the three-step approach in the Native Vegetation Guidelines

Requirement	Response
Avoid Efforts to avoid the removal of and minimise the impacts on native vegetation should be commensurate with the biodiversity and other values of the native vegetation and focus on areas of native vegetation that have the most value An application to remove native vegetation must demonstrate that no options exist to avoid and minimise native vegetation removal that will not undermine the objectives of the development	The BCS was informed by an avoidance planning process undertaken for the development within the Growth Areas to avoid and minimise impacts to biodiversity values (see Section 2) Efforts to avoid the removal of and minimise the impacts on native vegetation through the avoidance planning process were commensurate with the biodiversity and other values of the native vegetation and focused on areas of native vegetation that have the most value. The BCS will protect and manage strategic conservation areas, which contain the most important Commonwealth, State and local biodiversity values in the Growth Areas and are considered most likely to be viable in the long-term because of their size, condition, shape and location The biodiversity outcomes that will be delivered as a result of the avoidance planning undertaken at the Growth Areas scale will provide for more meaningful and longer-term results. This is because the process has allowed cumulative prioritisation and investment in the best biodiversity areas, compared to the alternative precinct scale avoidance planning which results in smaller fragments of unmanaged, lower condition vegetation. The Growth Areas represents the strategic prioritisation and delivery of new development as part of the long-term growth of the Geelong region. The need for the Growth Areas has been justified as part of a broader and long-term strategic planning process for Geelong that aims to address a range of key planning challenges facing the region, including population growth, and housing affordability and availability. The outcomes of this process are reflected in the *Northern and Western Geelong Growth Areas Framework Plan* (The City of Greater Geelong, 2021) The Framework Plan represents a key response by the City to the planning and growth challenges facing the Geelong region and is incorporated into the Greater Geelong Planning Scheme at Clause 11.02. It includes a range of urban and other planning objectives and outlines the land uses and development to deliver the new communities, and essential infrastructure and services needed to provide for the future population growth of the Geelong region The City considers that no further avoidance options beyond the strategic conservation areas exist without undermining the urban and other planning objectives of the Growth Areas as outlined in the Framework Plan
Minimise An application to remove native vegetation must demonstrate that no options exist to avoid and minimise native vegetation removal that will not undermine the objectives of the development	Part of the response to this requirement is set out above under 'avoidance' In addition to minimising impacts through the avoidance planning process to locate and design the development footprint, minimisation can occur by managing development in the Growth Areas to mitigate impacts to native vegetation that is avoided or that occurs outside the Growth Areas The BCS includes commitments and measures to minimise impacts to native vegetation that is avoided or that occurs outside the Growth Areas

Requirement	Response
	It is not expected that further mitigation measures will be needed to minimise impacts beyond the standard mitigation measures that will be delivered through PSPs and the provisions of the Greater Geelong Planning Scheme and the additional specific mitigation measures identified in the BCS. However, the PSP and planning permit process may determine further mitigation measures are needed to address specific State and local biodiversity values. The City, as the responsible authority for most development in the Growth Areas, will make decisions about what standard mitigation is implemented through PSPs and the planning permit process, and whether any additional measures are needed to address impacts on specific State and local biodiversity values. This will be done in accordance with the Greater Geelong Planning Scheme and precinct or site-specific circumstances
Offset An application to remove native vegetation must include an offset strategy that includes evidence that an offset that meets the offset requirements for the proposed native vegetation removal is available, and explains how the offset will be secured if a permit is granted	Offsets for the removal of native vegetation within the Growth Areas will be established in accordance with the requirements of the Native Vegetation Guidelines through the preparation of NVPPs NVPPs will outline the offset requirements for native vegetation that can be removed and detail the obligations for each property within the precinct in accordance with the Native Vegetation Guidelines The securing of offsets will be the responsibility of the individual proponent. It is expected that proponents will secure offsets through the existing Victorian Native Vegetation Credit Register NVPPs and planning permits issued for use and development will require offset obligations to be met prior to the removal of native vegetation in accordance with the Native Vegetation Guidelines. Ongoing management, monitoring and reporting on offsets will occur in accordance with the Native Vegetation Guidelines

3.3.1 PAST REMOVAL OF NATIVE VEGETATION AND ASSUMED AND CONSEQUENTIAL LOSSES

The City will consider cumulative impacts in the context of past removal of native vegetation and assumed and consequential losses at a precinct scale through the preparation of PSPs and NVPPs for each precinct (see Section 2.7).

State policies in relation to native vegetation removal, including the Native Vegetation Guidelines, do not provide for the assessment of native vegetation removal at a Growth Area scale. To the extent that the policies set out in the Native Vegetation Guidelines are relevant in a strategic planning context, they are applicable at a precinct scale.

The Growth Areas comprise nine PSP and NVPP areas. Each PSP and NVPP will be the subject of a separate planning approval process under the *Planning and Environment Act 1987* (PE Act), and relevant policies in the Native Vegetation Guidelines in relation to native vegetation removal will be considered and applied at that stage of the planning process.

The Native Vegetation Guidelines are required to be considered by the City when preparing each of the planning scheme amendments for the nine PSPs within the Growth Areas, and are required to be applied by the City when developing each of the NVPPs. In these circumstances, the Growth Areas are best understood as a series of separate projects comprising each PSP, NVPP and associated planning scheme amendment.

This precinct-scale approach further supported by guidance in the Assessor's Handbook (DELWP, 2018). The Assessor's Handbook includes a set of criteria in Table 11 of the handbook and descriptions and examples at pages 48 to 50 to help determine if development should be considered as a single project or multiple separate projects.

The criteria in Table 11 of the Assessor's Handbook and a brief response to each is set out in Table 6. The guidance in the handbook supports the consideration of State policies in relation to native vegetation removal at a precinct scale.

This precinct-scale approach is also consistent with the current approach across Victoria in areas of large scale urban development, where in practice, individual PSP and NVPPs are commonly treated as a separate project in the application of State policies in relation to native vegetation removal.

Table 6: Consideration of criteria in Table 11 of the Assessor's Handbook

Criteria	Response
Is the entire project planned by one applicant?	The City is preparing a series of separate and distinct PSPs and NVPPs which will be the subject of individual planning scheme amendments within the Growth Areas over a period of approximately 10 to 15 years
Will the project receive a single approval?	Each PSP and NVPP will receive a single approval via an associated planning scheme amendment (rather than the Growth Areas receiving a single approval)
Will the project be funded to meet a single objective?	Each PSP will be prepared and funded to achieve multiple objectives, and those objectives will not be defined until the relevant PSP is prepared. Funding agreements with different landholders will facilitate the individual PSPs
Were all components or stages of the project planned together?	All components of an individual PSP and NVPP will be planned together at a level of detail that allows an assessment of native vegetation removal. Conversely, when the Framework Plan was implemented in the planning scheme, the components of the Growth Areas were not planned together at a level enabling this assessment
Are all components or stages of the project reliant on each other?	All components of an individual PSP and NVPP are reliant on each other and are planned together and introduced via a specific planning scheme amendment. The nine PSPs within the Growth Areas are not wholly reliant on each other, and can progress individually in the absence of the other PSPs
Are the individual components or stages or the project in close proximity?	The components of the individual PSPs and NVPPs are interconnected and in close proximity to each other. The individual precincts which make up the Growth Areas are not all in close proximity to each other

3.4 ESO4 – GRASSLANDS WITHIN THE WERRIBEE PLAINS HINTERLAND

An Environmental Significance Overlay (ESO) is a complementary planning control to a zone that seeks to control a specific aspect of the development of land to better protect the environment. An overlay contains purposes that specify the outcome sought by the overlay and to be achieved through the application of planning controls in the overlay.

Schedule 4 to clause 42.01 ESO 'Grasslands within the Werribee Plains Hinterland' is an overlay shown on the Greater Geelong planning scheme map as ESO4. The ESO was applied by the Victorian Government in 2010 through planning scheme amendment VC68. This was introduced to support the objectives of *Delivering Melbourne's Newest Sustainable Communities*, which included a review of Melbourne's urban growth boundary and the identification of four new growth areas for Melbourne, and the outcomes of the Melbourne Strategic Assessment conducted under Part 10 of the EPBC Act. Melbourne's new growth areas are resulting in impacts to native grasslands of the Victorian Volcanic Plain. ESO4 applies to areas of native grasslands and associated vegetation communities within the City of Greater Geelong and a similar control applies to several other local government areas on the volcanic plain to provide an additional level of protection to these areas. The ESO was intended to be revised within a few years on the basis of more detailed mapping of native grasslands across the Werribee Plains, to better target the ESO to the most important areas (DSE, 2009).

As part of the permit application process for use of development or to subdivide land, the ESO requires proponents to prepare a flora and fauna assessment for the land, including a flora and fauna survey and habitat hectare assessment, and a land and environmental management plan, including measures for revegetation, and weed and pest animal management. In granting a permit within ESO4, the responsible authority must consider a range of matters in addition to other matters required to be considered elsewhere under the planning scheme.

The statement of environmental significance for ESO4 states the native vegetation of the Victorian Volcanic Plain is some of the most depleted vegetation in Victoria. The Werribee Plains hinterland, which is part of the volcanic plain, formerly supported extensive areas of native grasslands that integrated with other vegetation communities, including woodland communities in riparian areas. Although the vegetation has been extensively cleared, some large areas of native vegetation remain that are also important for several threatened species, including Spiny Rice-flower and Striped Legless Lizard. The Statement of environmental significance concludes:

> [Despite the loss and degradation of native vegetation] … *a range of conservation assets are present and significant opportunities exist to establish relatively large areas and networks of areas that are managed sympathetically for conservation. Such networks could include a range of vegetation types and land tenures and relatively large and intact areas of open grassland, grassy woodland and wetland communities.*

Development within the Growth Areas consistent with the biodiversity outcomes of the BCS would lead to the removal of native vegetation and habitat on some land within ESO4. This would comprise land that is not included in areas to be avoided and protected under the BCS through strategic conservation areas, or areas that are further avoided and protected within biodiversity opportunity areas or investigation areas during precinct planning.

Despite the BCS leading to the removal of native vegetation and habitat within the ESO, the City considers the BCS is consistent with the environmental objectives of the ESO4 (see Table 7). The City also considers the BCS is likely to improve outcomes for native grasslands compared to individual permit applications under the ESO 4 requirements, as the detailed ecological assessment and avoid, minimise and offset requirements have been applied in a strategic planning context (see Table 7 and further discussion of the benefits of strategic planning in Section 2).

ESO4 is proposed to be removed from areas identified for urban development in the Framework Plan as part of the planning scheme amendment to implement the BCS and the outcomes from the EPBC Plan (see Section 1.3 of the BCS). The ESO4 will be retained on the land within the NGGA Conservation Area to provide additional protection to this area.

The existing and proposed new extent of ESO 4 is shown in Figure 1 and Figure 2.

Table 7: Response against each environmental objective of ESO4

Objective of ESO4	Response
To prevent a decline in the extent and quality of native vegetation and native fauna habitat of the Victorian Volcanic Plain	The City considers that the BCS will ensure the development in the Growth Areas does not lead to a decline in the extent and quality of native vegetation and fauna habitat of the Victorian Volcanic Plain. This outcome is being achieved through: • Strategic planning – the BCS was developed as part of a strategic planning process (see Section 2). Strategic planning is the most effective planning process to protect and conserve biodiversity (DELWP, 2017c). The strategic planning process has led to the avoidance and protection of the most important biodiversity in the Growth Areas within four strategic conservation areas. These are high biodiversity value areas that contain important Commonwealth, State and local biodiversity values and are considered likely to be viable in the long-term because of their size, condition, shape and location in the landscape. Strategic planning has also enabled a strategic approach to offsetting MNES under the EPBC Plan (see NWGGA Strategic Assessment Report Chapter 29.3), which aims to protect and conserve important areas of biodiversity outside the Growth Areas and maximise the biodiversity benefits of offsetting MNES. This approach will also benefit State biodiversity values with habitat in the Growth Areas, including Golden Sun Moth and Striped Legless Lizard. This strategic approach to offsetting will be achieved through two key approaches: o Prioritising advanced offsetting, early in the life of the Plan o Strategic site selection that focuses on large sites that are well located in the landscape from a biodiversity perspective. Priority will be given to offset sites that are larger and adjacent to and/or connected to other patches of habitat (including existing reserves) and that could form broad habitat corridors across the landscape • Assessing the impacts of the development on biodiversity values and understanding the implications of these impacts for the persistence of biodiversity values in the Growth Areas. For Commonwealth-listed matters, this was done through the NWGGA Strategic Assessment Report. For State and local biodiversity values, this will be done during precinct planning through the preparation of NVPPs and to meet any additional requirements of the Greater Geelong Planning Scheme. NVPPs will be prepared in accordance with Clause 52.16, including the Native Vegetation Guidelines (DELWP, 2017a)

Objective of ESO4	Response
	• Establishing a set of outcomes and commitments and measures in the BCS to address the impacts of the development on biodiversity values and the implications of these impacts for the persistence of biodiversity values The outcomes, commitments and measures will be monitored and adaptively improved if necessary over time to ensure they are achieved and that biodiversity values are protected in the long-term
To enhance the environmental and landscape values of the area	The City considers that the BCS will enhance the environmental and landscape values of the Geelong area. The BCS establishes a set of outcomes and commitments and measures that will protect and enhance biodiversity values and ecological processes within the landscape These include the protection and management of the strategic conservation areas within the Growth Areas. The primary purpose of these conservation areas is the protection, management and restoration of biodiversity values, including native grasslands and fauna habitat. Conservation Management Plans will be prepared and implemented for the areas that will include management actions to improve the condition of habitat for Striped Legless Lizard and Golden Sun Moth in the northern Growth Area, and Growling Grass Frog along riparian corridors in the Western Growth Area The BCS also provides for a strategic approach to offsetting MNES under the EPBC Plan (see NWGGA Strategic Assessment Report Chapter 29.3). This approach will also benefit State biodiversity values with habitat in the Growth Areas, including Golden Sun Moth and Striped Legless Lizard. This approach improves the outcomes of offsetting and ensures the BCS contributes to this ESO objective of enhancing the landscape values of the area
To avoid the fragmentation of contiguous areas of native vegetation or native fauna habitat	The City considers the BCS avoids fragmentation of the most important areas of native vegetation and fauna habitat in the Growth Areas. The BCS was informed by an avoidance planning process undertaken for the development within the Growth Areas to avoid and minimise impacts to biodiversity values (see Section 2). The BCS will protect and manage strategic conservation areas, which contain the most important Commonwealth, State and local biodiversity values in the Growth Areas and are considered most likely to be viable in the long-term because of their size, condition, shape and location in the landscape The strategic conservation areas will avoid and protect: • The largest habitat area for Striped Legless Lizard in the NGGA • A substantial area of habitat for Golden Sun Moth in the NGGA • All habitat for Growling Grass Frog within the WGGA • Multiple other Commonwealth, State and local biodiversity values • Areas of key habitat connectivity across the Growth Areas • Riparian areas that will help maintain ecological processes and water flows and quality The BCS identifies several further opportunities to avoid and minimise impacts on biodiversity values in the Growth Areas within biodiversity opportunity areas and investigation areas. Opportunities for further avoidance and minimisation within these areas will be considered further during precinct planning through the preparation of NVPPs and to meet any additional requirements of the Greater Geelong Planning Scheme. The BCS includes commitments and measures to consider further avoidance within these areas, and identifies through precinct profiles the opportunities and priorities that should be considered in making decisions on further avoidance of these areas during precinct planning The BCS also includes commitments and measures to minimise the impacts of the development on surrounding native vegetation and other biodiversity values, including requirements to implement: • Standard mitigation measures delivered through the planning system

Objective of ESO4	Response
	• Additional specific mitigation measures to address key biodiversity values associated with waterways, riparian areas and wetlands, and to protect the strategic conservation areas • Requirements to prepare and implement conservation management plans for each of the strategic conservation areas
To ensure that any use, development or management of the land is compatible with the long-term conservation, maintenance and enhancement of the grasslands	The City considers that the BCS will ensure the development in the Growth Areas is compatible with long-term conservation and enhancement of native grasslands. This outcome is being achieved through the key processes identified above in the response to the first ESO objective
To avoid the destruction of habitat for native fauna resulting from the modification of land form and disturbance of surface soils and rocks	The City considers that the BCS avoids and minimises impacts to the most important areas of native fauna in the Growth Areas within the four strategic conservation areas (see response to the third ESO objective above). It also identifies several further opportunities to avoid and minimise impacts on native vegetation in biodiversity opportunity areas and investigation areas
To enable areas of environmental significance, due to their native vegetation or habitat values, to be identified	The City considers that the BCS uses the best available biodiversity information to identify important areas of native grasslands and associated vegetation communities that are the focus of protection under the ESO (see Section 2). This information included: • Ecological surveys across the majority of the Growth Areas by Ecology and Heritage Partners (EHP, 2021) • Species records obtained through the VBA (DELWP, 2022) • DELWP habitat and vegetation modelling (DELWP, 2005, 2017b) State and local biodiversity values will be further considered during precinct planning. This includes through the preparation of NVPPs and any additional requirements of the Greater Geelong Planning Scheme NVPPs will be prepared in accordance with the requirements of Clause 52.16 and the Native Vegetation Guidelines, which specify the biodiversity information required to prepare these plans

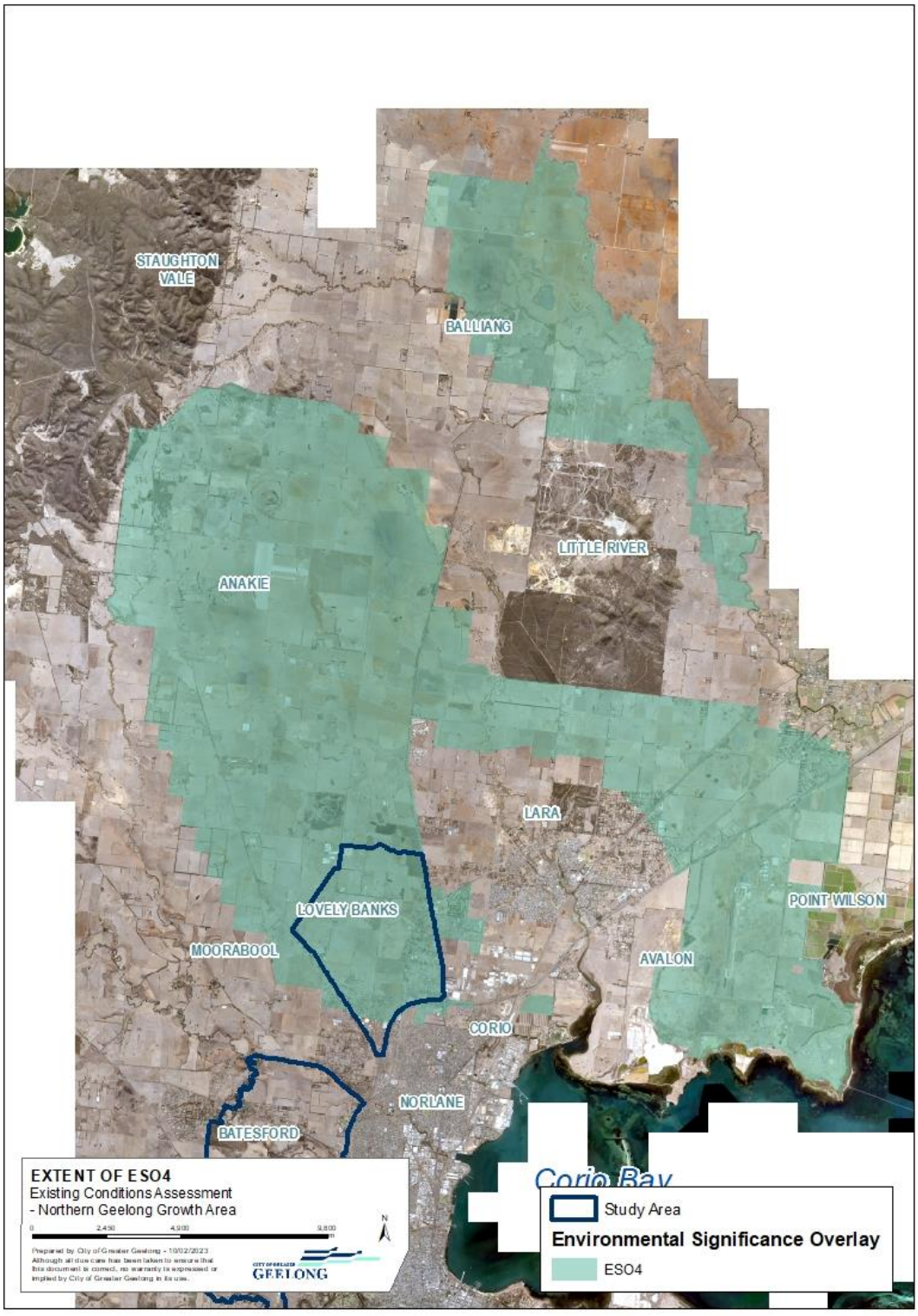

Figure 1: Existing extent of ESO 4 within the Study Area

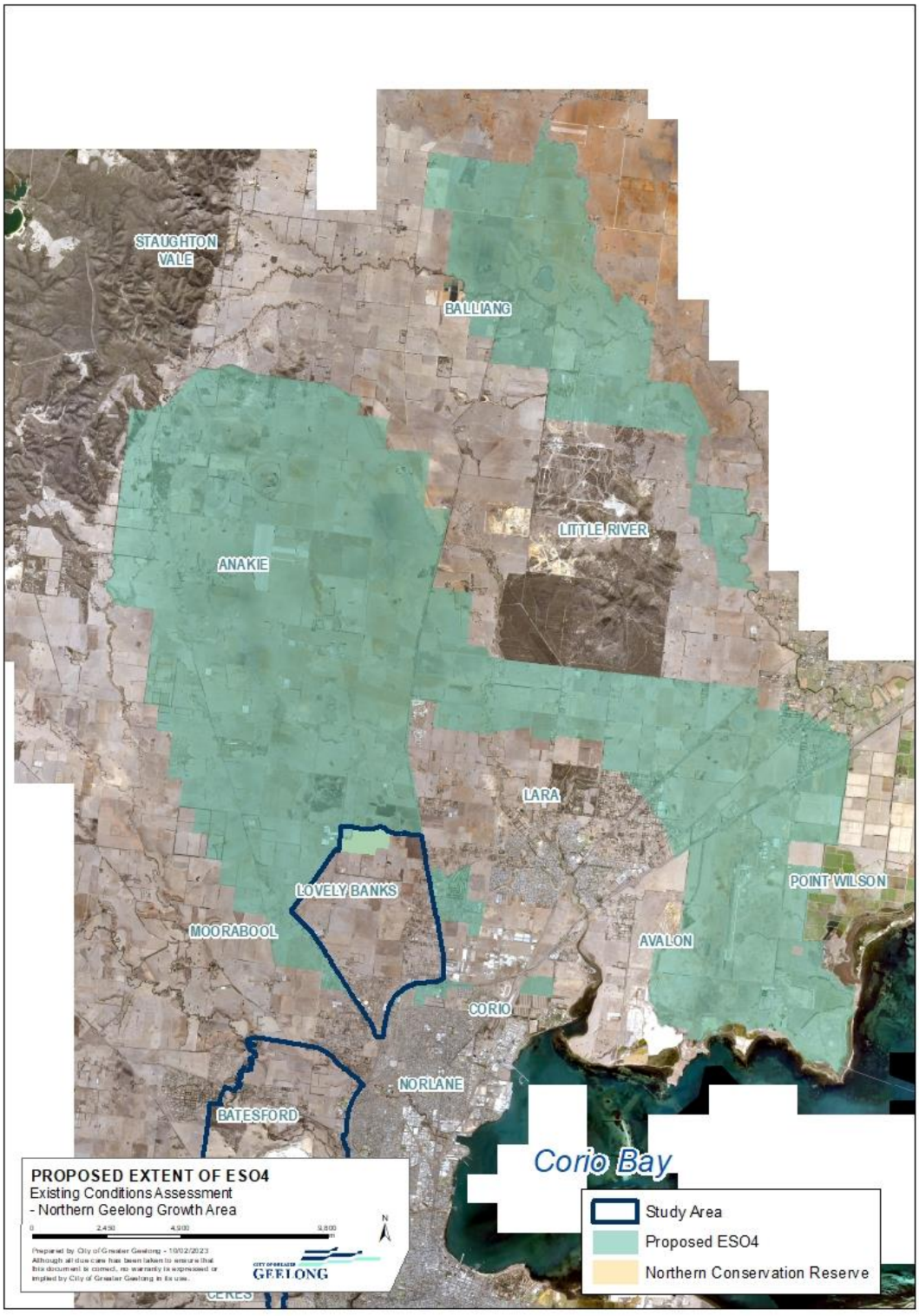

Figure 2: Proposed new extent of ESO 4 within the Study Area

3.5 FFG ACT 'BIODIVERSITY DUTY'

The FFG Act imposes a duty on public authorities to 'give proper consideration to' the Act's objectives in performing any of their functions that may impact on biodiversity, as well as consider several other additional matters. The intent of the duty is to:

- Strengthen government leadership and accountability for biodiversity outcomes in Victoria (Parliament of Victoria, 2018), which is a key theme of *Protecting Victoria's Environment – Biodiversity 2037* (DELWP, 2017e)
- Ensure whole-of-government consideration of biodiversity in decision-making (Parliament of Victoria, 2018)
- Support regulatory frameworks for assessing and minimising impacts to biodiversity by encouraging early consideration of biodiversity in decision making, before regulatory approval is required (DELWP, 2021)

The new duty came into effect on 1 June 2020 and applies to all levels of the Victorian Government, including an administrative office, government department, council, public entity and state-owned enterprises.

The duty applies to the City of Greater Geelong in relation to the development of the BCS as there is a reasonable expectation that the carrying out of this function may impact biodiversity. It is important to note that:

- Meeting the duty requires the City to give 'proper consideration' to the Act's objectives and several other matters rather than mandating specific outcomes that the City must achieve for biodiversity
- The City is required to comply with the duty in a manner which is consistent with the proper exercise of its functions under any other Act. The duty does not override the City's other statutory obligations. The duty does not prevent the City from exercising its statutory powers and discretion to weigh biodiversity matters against other matters it is required to consider when making decisions, such as social or economic objectives under the *Planning and Environment Act 1987*

The FFG Act provides that the Minister may make guidelines in relation to the proper consideration of the Act's objectives and help define what is reasonably expected under the duty. No guidelines have currently been made.

Assessment against the FFG Act 'biodiversity duty'

Section	Response
4B (1) A Minister and a public authority must give proper consideration to the objectives of this Act, so far as is consistent with the proper exercising of their functions The objectives of this Act are—	-

Section	Response
(a) To guarantee that all taxa of Victoria's flora and fauna, other than taxa specified in the Excluded List, can persist and improve in the wild and retain their capacity to adapt to environmental change	The City has given proper consideration to this objective in developing the BCS. This has been done through: • Strategic planning – the BCS was developed as part of a strategic planning process (see Section 2). Strategic planning is the most effective planning process to protect and conserve biodiversity (DELWP, 2017c). The strategic planning process has led to the avoidance and protection of the most important biodiversity in the Growth Areas within four strategic conservation areas. These are high biodiversity value areas that contain important Commonwealth, State and local biodiversity values and are considered likely to be viable in the long-term because of their size, condition, shape and location in the landscape, including their connectedness to other areas of native vegetation and habitat. Strategic planning has also enabled a strategic approach to offsetting MNES under the EPBC Plan (see NWGGA Strategic Assessment Report Chapter 29.3), which aims to protect and conserve important areas of biodiversity outside the Growth Areas and maximise the biodiversity benefits of offsetting MNES. This approach will also benefit State biodiversity values with habitat in the Growth Areas, including Golden Sun Moth and Striped Legless Lizard • Assessing the impacts of the development on biodiversity values and understanding the implications of these impacts for the persistence of biodiversity values in the Growth Areas. For Commonwealth-listed matters, this was done through the NWGGA Strategic Assessment Report. For State and local biodiversity values, this will be done during precinct planning through the preparation of NVPPs and to meet any additional requirements of the Greater Geelong Planning Scheme. NVPPs will be prepared in accordance with Clause 52.16, including the Native Vegetation Guidelines (DELWP, 2017a) • Establishing a set of outcomes and commitments and measures in the BCS to address the impacts of the development on biodiversity values and the implications of these impacts for the persistence of biodiversity values For Commonwealth-listed matters impacted by the development, the outcomes and commitments aim to ensure that these persist within the Growth Areas and their long-term viability will be supported, and that matters associated with waterways, riparian areas, and wetlands are protected from any notable adverse impacts. Unavoidable impacts on Commonwealth-listed matters will be offset outside the Growth Areas. The outcome for these offsets in the BCS is that they will make an important contribution to the recovery efforts for these matters For State and local biodiversity values, the outcomes and commitments are designed to ensure no net loss to biodiversity because of the removal of native vegetation. This is consistent with the objectives of State planning policy set out in the PPF and this FFG Act objective The outcomes, commitments and measures will be monitored and adaptively improved if necessary over time to ensure they are achieved and that biodiversity values are protected in the long-term

Section	Response
(b) To prevent taxa and communities of flora and fauna from becoming threatened and to recover threatened taxa and communities so their conservation status improves	The City has given proper consideration to this objective in developing the BCS through the steps outlined above in relation to FFG Act objective (a), including strategic planning, assessing impacts and establishing a set out outcomes and commitments and measures to address the impacts of the development on biodiversity values For State and local biodiversity values, the outcomes and commitments are designed to ensure no net loss to biodiversity because of the removal of native vegetation. This is consistent with the objectives of State planning policy set out in the PPF and this FFG Act objective Unavoidable impacts on Commonwealth-listed matters will be offset outside the Growth Areas. The outcome for these offsets in the BCS is that they will make an important contribution to the recovery efforts for these matters consistent with this FFG Act objective to recover threatened species and communities so their status improves
(c) To protect, conserve, restore and enhance biodiversity, including— o flora and fauna and their habitats o genetic diversity o ecological communities o ecological processes	The City has given proper consideration to this objective in developing the BCS by establishing a set of outcomes and commitments and measures that will protect and restore and enhance biodiversity and ecological processes. These are set out in the BCS and include the protection and management of the: • NGGA Conservation Area • Cowies Creek Conservation Area • Moorabool River Corridor • Barwon River Corridor Together, these areas will protect: • The largest habitat area for Striped Legless Lizard in the NGGA • A substantial area of habitat for Golden Sun Moth in the NGGA • All habitat for Growling Grass Frog within the WGGA • Multiple other Commonwealth, State and local biodiversity values • Areas of key habitat connectivity across the Growth Areas • Riparian areas that will help maintain ecological processes and water flows and quality
(d) To identify and mitigate the impacts of potentially threatening processes to address the important underlying causes of biodiversity decline	The City has given proper consideration to this objective in developing the BCS by identifying potentially threatening processes that may cause biodiversity decline and putting in place a set of commitments and mitigation measures to address these. The threatening processes that are impacting biodiversity values within and surrounding the Growth Areas are identified in the BCS (see Chapter 4.3), and are: • Climate change • Habitat loss and fragmentation • Invasive weeds • Pest animals • Recreational disturbance • Water system modification These relate to several potentially threatening processes listed under the FFG Act. The BCS recognises that the effective management of threatening processes is critical to its successful delivery. The City has made a range of commitments to reduce these threats, including: • Continuing to implement standard mitigation measures to minimise the indirect impacts of the development in accordance with the requirements of the Greater Geelong Planning Scheme

Section	Response
	• Implementing specific mitigation measures to minimise the indirect impacts of the development on biodiversity values associated with waterways, riparian areas and wetlands • Implementing specific mitigation measures to minimise the indirect impacts of the development on the NGGA Conservation Area and Cowies Creek Conservation Area These commitments are set out in the BCS
(e) To ensure the use of biodiversity as a natural resource is ecologically sustainable	This objective is not relevant to the BCS – the BCS is not facilitating the use of biodiversity as a natural resource
(f) To identify and conserve areas of Victoria in respect of which critical habitat determinations are made	This objective is not relevant to the BCS – no critical habitat determinations are currently made under the FFG Act
4B (2) A Minister and a public authority, so far as is consistent with the proper exercising of their functions, must give proper consideration to any instrument made under this Act, including—	-

Protecting Victoria's Environment – Biodiversity 2037 (DELWP, 2017)	The City has given proper consideration to *Protecting Victoria's Environment – Biodiversity 2037* (DELWP, 2017e) in developing the BCS. This strategy establishes a long-term vision, and goals, targets and priorities. The overall statewide targets for the goal 'Victoria's natural environment is healthy' include:
	• A net improvement in the outlook across all species by 2037, so that:
	  o No vulnerable or near-threatened species will become endangered
	  o All critically endangered/endangered species will have at least one option available for being conserved ex situ or re-established in the wild (where feasible under climate change) should they need it
	• A net gain of the overall extent and condition of habitats across terrestrial, waterway and marine environments
	Contributing targets in *Protecting Victoria's Environment* that are expected to help achieve these overall statewide targets are:
	• 1.5 million ha of pest predator control and 1.5 million hectares of weed control in priority locations sustained for 20 years
	• 4 million ha of pest herbivore control in priority locations for 20 years
	• 200,000 ha of revegetation in priority locations for habitat connectivity by 2037 (an average of 10,000 ha per year)
	Priority locations are the areas across Victoria where management actions maximise benefits to threatened and other species. The Growth Areas includes priority locations for the management of several threats, including:
	• Pest herbivore control
	• Weed control
	• Revegetation
	The BCS includes commitments and measures consistent with these goals and targets. This includes the protection and management of the NGGA Conservation Area, Cowies Creek Conservation Area, Moorabool River Corridor and Barwon River Corridor. The NGGA Conservation Area overlaps with a priority location for

Section	Response
	revegetation, and the Moorabool River Corridor overlaps with priority locations for revegetation, pest herbivore and weed control
Action Statements	Action Statements have been prepared for four State-listed species known to occur (as indicated by records or mapped habitat) in the Growth Areas. These are: • Golden Sun Moth • Striped Legless Lizard • Spiny Rice-flower • Adamson's Blown Grass The EHP report (EHP, 2021) identified several other State-listed species with a high likelihood of occurrence in the Growth Areas, however, none of these species have Action Statements prepared for them The City has given proper consideration to these Action Statements in developing the BCS. The City considers that the commitments in the BCS to address the impacts of the development in the Growth Areas are consistent with the conservation objectives of the Actions Statements and will not undermine or prevent the achievement of these objectives **Golden Sun Moth** The major conservation objective of the Action Statement (DSE, 2004b) is to protect known populations of Golden Sun Moth by: • Maintaining the seven extant colonies with greater than 500 individuals • Increasing the number of known populations • Maximising grassland habitat at the seven sites • Protecting and enhancing suitable habitat areas to ensure that the percentage cover of Austrodanthonia is greater than 40% Note that information in the Action Statement is outdated and the species is now known from 164 sites (DAWE, 2021). Of these, 104 sites occur in Victoria The EPBC Strategic Assessment Report assessed the impacts of development in the Growth Areas on Golden Sun Moth and concluded that the commitments in the EPBC Plan and BCS relating to the avoidance and offsetting of impacts to habitat for the species are expected to maintain a viable population for the species in both the local area and more broadly through the protection and management of strategic offsets. This will be delivered through: • The management and restoration of habitat values within the NGGA Conservation Area to the point where habitat condition, and therefore the viability of the population improves, and the area is regarded as important to the conservation of the species in the region. In the absence of urban development within the NGGA, the condition of the grassland habitat in the Growth Area is likely to continue to decline and the probability of the NGGA Golden Sun Moth population persisting over the long-term is uncertain • The delivery of strategic offsets external to the Growth Areas, which will identify, protect and manage higher quality areas of Golden Sun Moth habitat that are likely to be important to maintaining the long-term presence of the species across its range into the future These commitments in the EPBC Plan and BCS to address the impacts of the development in the Growth Areas are considered to be consistent with the conservation objectives of the Action Statement. Further information justifying this conclusion and the adequacy of the commitments for Golden Sun Moth is provided in Part 4 of the EPBC Strategic Assessment Report

	Striped Legless Lizard The major conservation objective of the Action Statement (DSE, 2003) is to: • Ensure the Striped Legless Lizard can survive, flourish and maintain its potential for evolutionary development in the wild The interim target is to: • Maintain or establish a minimum of five areas of suitable habitat where threats to the species are removed or minimised, with each area supporting a viable population, and the total population being not less than 1000 individuals The EPBC Strategic Assessment Report assessed the impacts of development in the Growth Areas on Striped Legless Lizard and concluded that the commitments in the EPBC Plan and BCS will avoid and protect the largest area of confirmed habitat for SLL in the Growth Areas within the NGGA Conservation Area, which will provide for the long-term persistence of the local population. Furthermore, the management of this area will support population recovery by improving connectivity to enable the species to colonise areas of habitat in the conservation area where the species has not yet been recorded. While development under the Plan will lead to the loss of the remaining three populations in the Growth Areas, the habitat condition and viability of these areas is more marginal compared with the area to be avoided and protected. Despite this, these populations are considered important and their loss will lead to a residual adverse impact on the species. The EPBC Plan and BCS includes commitments to offset this residual impact, including: • Protection and ongoing management of 74 ha of Striped Legless Lizard habitat within the NGGA Conservation Area • Protection and ongoing management of 301 ha of Striped Legless Lizard habitat outside the Growth Areas These offsets will be delivered strategically, with a significant proportion secured early and in advance of impacts to the species' habitat. This package will make an important and positive contribution to the long-term viability of the species and is considered to appropriately compensate for the residual impacts of development These commitments in the EPBC Plan and BCS to address the impacts of the development in the Growth Areas are considered to be consistent with the conservation objectives of the Action Statement. Further information justifying this conclusion and the adequacy of the commitments for Striped Legless Lizard is provided in Part 4 of the EPBC Strategic Assessment Report **Spiny Rice-flower** The long-term objective of the Action Statement (DSE, 2008) is to: • Ensure the Spiny Rice-flower can survive, flourish and maintain its potential for evolutionary development in the wild Other specific objectives include to: • Secure populations or habitat from incompatible land use • Improve the condition of habitat The EPBC Strategic Assessment Report assessed the impacts of development in the Growth Areas on Spiny Rice-flower and concluded that the development is not expected to adversely influence the long-term viability of the Spiny Rice-flower The assessment determined that Spiny Rice-flower has not been recorded within the Growth Areas, despite targeted surveys. The condition and habitat attributes across the Growth Areas are generally considered to be suboptimal for the species. While there are several records within the broader study area outside the Growth Areas, these populations are unlikely to be adversely affected by development in the Growth Areas. There is some potential for the species to occur within the external infrastructure footprints outside the Growth Areas, noting that existing land use and development within the Strategic Assessment Area reduces the likelihood of an unknown population occurring within these corridors

Section	Response
	The EPBC Plan and BCS includes a commitment to ensure that any new population identified through surveys within the external infrastructure corridors will be appropriately avoided and managed to ensure the persistence of any such population in the long-term This commitment in the EPBC Plan and BCS to address the impacts of the external infrastructure development outside the Growth Areas is considered to be consistent with the conservation objectives of the Action Statement. Further information justifying this conclusion and the adequacy of the commitments for Spiny Rice-flower is provided in Part 4 of the EPBC Strategic Assessment Report **Adamson's Blown-grass** The long term objective of the Action Statement (DSE, 2004a) is to: • Allow for an average population size above 250,000 plants, with a minimum of 10 large populations (> 5,000) and with no reduction in extent of occurrence Other specific objectives include to: • Protect as far as possible all large or strategic populations • Provide sufficient secure habitat on private land to allow for natural recolonisation from existing roadside populations or introduction The EPBC Strategic Assessment Report assessed the impacts of development in the Growth Areas on Adamson's Blown-grass and concluded that development in the Growth Areas is unlikely to adversely influence the long-term viability of the species. The development will not impact the species directly and the EPBC Plan and BCS includes several commitments to protect the species from any potential impacts from changes in hydrology or the spread of weeds within marginal potential habitat along Cowies Creek in the WGGA These commitments include protecting and managing the Cowies Creek Conservation Area, including managing potential habitat for Adamson's Blown-grass within this area to maintain the suitability of the habitat in the long-term. This will positively contribute to the protection of the species in the region These commitments in the EPBC Plan and BCS to address the impacts of the development in the Growth Areas are considered to be consistent with the conservation objectives of the Action Statement. Further information justifying this conclusion and the adequacy of the commitments for Adamson's Blown-grass is provided in Part 4 of the EPBC Strategic Assessment Report
Critical habitat determinations	No critical habitat determinations have been made under the FFG Act
Management plans	No management plans have been made under the FFG Act
4B (3) Without limiting subsections (1) and (2), consideration must be given to the potential impacts on biodiversity, including—	-
(a) Long and short-term impacts; and (b) Beneficial and detrimental impacts; and (c) Direct and indirect impacts; and (d) Cumulative impacts; and (e) Impacts of potentially threatening processes	The City has given proper consideration to the potential impacts of the development in the Growth Areas in developing the BCS consistent with this requirement and in accordance with Commonwealth and State regulatory requirements for assessing biodiversity impacts For Commonwealth-listed matters, this assessment was done through the NWGGA Strategic Assessment Report. The NWGGA Strategic Assessment Report assesses long and short-term impacts and direct and indirect impacts, and considers potentially threatening processes (see Chapters 19 to 24) and cumulative impacts (see Chapter 25). The overall beneficial and detrimental impacts, taking into account the commitments and measures to be put in place to address impacts, are also evaluated (see Chapter 29)

Section	Response
	For State and local biodiversity values, this assessment, including cumulative impacts in the context of past native vegetation removal, will be done during precinct planning through the preparation of NVPPs and to meet any additional requirements of the Greater Geelong Planning Scheme NVPPs will be prepared in accordance with Clause 52.16, including the Native Vegetation Guidelines (DELWP, 2017a)
4) The Minister may make guidelines in relation to the proper consideration of the objectives of this Act and the instruments made under it by public authorities.	No guidelines have been made under the FFG Act

References

DAWE (2021) 'Conservation Advice for *Synemon plana* (Golden Sun Moth)', *2021* [Preprint]. Department of Agriculture, Water and the Environment.

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THE CITY OF
GREATER GEELONG

NORTHERN AND WESTERN GEELONG GROWTH AREAS

MAY 2023

DRAFT BIODIVERSITY CONSERVATION STRATEGY

APPENDIX C: EPBC OFFSETS PACKAGE

CITY OF GREATER GEELONG

DOCUMENT TRACKING

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1 Introduction

This appendix to the Northern and Western Geelong Growth Areas (NWGGA) Biodiversity Conservation Strategy (BCS) describes the biodiversity offsets package for the NWGGA strategic assessment under Part 10 of the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). The strategic assessment is being undertaken by the City of Greater Geelong (the City).

Biodiversity offsets are required for residual adverse impacts within the Northern Geelong Growth Area (NGGA) to the following Matters of National Environmental Significance (MNES):

- Natural Temperate Grassland of the Victorian Volcanic Plan (NTG) (listed as critically endangered)
- Striped Legless Lizard (SLL) (listed as vulnerable)
- Golden Sun Moth (GSM) (listed as vulnerable)

No offsets are required for development within the Western Geelong Growth Area (WGGA).

This appendix sets out:

- The context and approach to developing the offsets package
- The offset targets to be delivered over the life of the Plan
- The approach to implementing the offset package
- An evaluation of the offset package against the EPBC offset principles at Attachment A

For further information and context about the strategic assessment, please refer to the NWGGA:

- The Plan for a full description of the strategic assessment including development, conservation, and assurance
- Strategic Assessment Report (SAR) for detailed descriptions and analysis of the environment including the three MNES that require offsets
- BCS for a full description of the outcomes and approaches to biodiversity conservation that will be applied within the Growth Areas. This includes a description of the approach to offsets under State regulation which are not discussed in this appendix
- Funding Program for details about how the offsets will be funded
- Commitments and Measures document for the specific commitments and measures that will be implemented in relation to the EPBC offsets package

2 Context and approach to developing the EPBC offsets package

Offsetting impacts to MNES is the final step in the mitigation hierarchy. It is intended to compensate for any residual adverse impacts that remain after impacts have been avoided, minimised and mitigated.

The EPBC offsets package was developed to provide strong, positive outcomes for the three relevant MNES by:

- Ensuring the offsets are in accordance with the principles of the EPBC Act Environment Offsets Policy (DSEWPC, 2012)
- Maximising the opportunities that are provided by taking a strategic approach to offsetting rather than the usual site-by-site approach
- Mitigating the risks associated with strategic offsetting

2.1 PRINCIPLES OF THE EPBC OFFSETS POLICY

The EPBC Act environmental offsets policy (DSEWPC, 2012) outlines the Australian Government's approach to the use of biodiversity offsets under the Act. The policy establishes ten principles for offsetting which are set out in Table 1.

Clause 3(d) of the endorsement criteria for the Plan (see Attachment 2 to the Strategic Assessment Agreement), states that "*The Plan must… provide for appropriate offsets in accordance with the principles of the EPBC Act Environment Offsets Policy…*".

The EPBC offsets policy is accompanied by the offset assessment guide. The guide was developed in order to give effect to the requirements of the policy for site-by-site projects, using a balance sheet approach to estimate impacts and offsets for threatened species and ecological communities. The guide is an Excel spreadsheet with embedded formula and is essentially an impact and offset calculator.

It is important to note that the guide was not developed for strategic assessments and is not considered appropriate to use to calculate the offset requirements for the NWGGA strategic assessment. This is because the guide does not adequately consider key issues relevant to strategic assessments that have a significant effect on the conservation outcomes to be delivered, such as:

- The timing of impacts and offset delivery over the life of the Plan
- Environmental trend over the life of the Plan
- The conservation benefits of advanced offsets
- The landscape context of offset sites
- The risk of loss values for offset sites and how they may change over the life of the Plan
- The confidence ratings for risk of loss and the predicted quality of offset sites and how they may change over the life of the Plan
- The fact that the majority of offset sites for the strategic assessment are not specifically known during the assessment phase of the project
- The benefits of coordinating the delivery of offsets as part of a strategic offsets package

As a consequence, the principles were used to design and prepare the offsets package while the guide was used to test and validate the proposed offset targets. This is consistent with the policy which states, "*strategic assessments may consider alternative metrics other than the Offset assessment guide (e.g. if a jurisdiction has developed a metric tailored to their needs) provided the principles of this policy are met*". Further information about the approach to design the offset package is provided in Section 3, and an evaluation of how the package meets each of the principles is provided in Attachment A.

Table 1: Principles of the EPBC Act Environmental Offsets Policy

Offset principles	
Suitable offsets must: 1. Deliver an overall conservation outcome that improves or maintains the viability of the aspect of the environment that is protected by national environment law and affected by the proposed action 2. Be built around direct offsets but may include other compensatory measures 3. Be in proportion to the level of statutory protection that applies to the protected matter 4. Be of a size and scale proportionate to the residual impacts on the protected matter 5. Effectively account for and manage the risks of the offset not succeeding 6. Be additional to what is already required, determined by law or planning regulations or agreed to under other schemes or programs (this does not preclude the recognition of state or territory offsets that may be suitable as offsets under the EPBC Act for the same action, see section 7.6 [of the offset policy])	7. Be efficient, effective, timely, transparent, scientifically robust and reasonable 8. Have transparent governance arrangements including being able to be readily measured, monitored, audited and enforced **In assessing the suitability of an offset, government decision-making will be:** 9. Informed by scientifically robust information and incorporate the precautionary principle in the absence of scientific certainty 10. Conducted in a consistent and transparent manner

2.2 MAXIMISING THE OPPORTUNITIES OF STRATEGIC OFFSETS

Strategic assessments offer a range of opportunities to design and implement an offset package that achieves better conservation outcomes than can be achieved through site-by-site assessments. The EPBC Act Guide to Undertaking Strategic Assessments (DSEWPC, 2011) states that the advantages of strategic assessments include the:

- "*Capacity to achieve better environmental outcomes and address cumulative impacts at the landscape level*
- *Coordinated establishment and management of offsets*"

Conservation planning science supports the potential benefits of strategic approaches to offsetting. In particular, improved conservation outcomes (compared to site-by-site projects) that are driven by the opportunities to secure offsets:

- Earlier than would be delivered through site-by-site assessments which helps promote greater improvements to biodiversity (e.g. by the earlier management of threats)
- With better landscape context which also improves conservation outcomes. For example, larger sites and/or sites that are located strategically to enhance biodiversity (e.g. within a biodiversity corridor or adjacent to an existing reserve)

These two factors lead to improved conservation outcomes over time. For example, modelling of the potential benefits of strategic offsetting (early, well located) in a grassland context similar to Geelong showed approximately a 40% better conservation outcome when compared to normal site-by-site offsetting (Gordon *et al.*, 2011). It is important to note that this assumed all offsets being delivered at the commencement of the modelling period.

The EPBC Advanced Offsets Policy (DoEE, 2017) also supports the benefit of earlier offsetting and states that "*Advanced offsets* [i.e., offsets delivered ahead of impacts] *generally have greater conservation benefits*" and that consequently "*the magnitude of the offset required* [to deliver the same conservation outcome] *is less*".

The offsets package was developed with an emphasis on both early offsetting and better landscape context to maximise the opportunities of the strategic assessment.

2.3 MITIGATING THE RISKS OF STRATEGIC OFFSETS

In 2010 the Melbourne Strategic Assessment was the first project to be endorsed under Part 10 of the EPBC Act. Since that time a range of strategic assessments have been endorsed around Australia and there are clear lessons learnt about the risks associated with strategic offsets.

The risks include:

- Offset delivery not keeping pace with the rate of impacts from development because of some combination of:
  - Inadequate funding to secure the necessary offsets over the life of the strategic assessment. This risk has been realised for a number of other projects due to offset land prices increasing faster than the rate of funding
  - Lack of available offsets in the region of the strategic assessment. This has often been driven by high competing demand for offsets from other large scale projects in a region
  - Inappropriate governance and/or mechanisms to adaptively manage offset delivery to ensure the offset program stays on track should challenges arise
- The quality of potential offset sites declining before they are secured

These risks were considered and addressed in designing the offset package to ensure it has the greatest chance of success.

3 Offset targets

The offset package is based on the delivery of "direct offsets" for each of the three MNES which is consistent with Principle 2 of the EPBC offset policy. The policy defines direct offsets as "*actions that provide a measurable conservation gain for an impacted* [MNES]" and provides the following examples around conservation gain that are relevant to this project:

- Improving existing habitat for the MNES
- Creating new habitat for the MNES
- Reducing threats to the MNES
- Averting the loss of an MNES or its habitat that is under threat

Based on the focus on direct offsets, the following offset targets are established for each MNES:

- Area targets which specify the area of known habitat that must be protected and managed in perpetuity using an appropriate offset mechanism
- Early delivery targets which specify the percentage of the overall area target that must be delivered by the end of year five of implementation of the Plan

3.1 IMPACTS THAT REQUIRE OFFSETS

Table 2 sets out:

- The impacts to the three MNES that require offsets. This includes:
  - Known impacts within surveyed areas
  - Predicted impacts in unsurveyed areas
  - Total impacts within the NGGA
- The average quality score for the impact areas (or impact quality score)
- The relevant section of the SAR that provides the detailed assessment for each MNES. This information should be read in conjunction with this EPBC offsets package

Table 2: Impacts that require offsets

MNES	IMPACTS		AVERAGE IMPACT QUALITY SCORE [1]	RELEVANT SECTION OF THE SAR
	NGGA location	Area (ha)		
NTG	Surveyed land	12.7	3	Section 21.1
	Unsurveyed land	5.9		
	Total	***18.6***		
SLL habitat	Surveyed land	106.4	7	Section 19.3
	Unsurveyed land	47.0		
	Total	***153.4***		
GSM habitat[2]	No-Low habitat			Section 19.1
	Surveyed land	530.1	2	
	Unsurveyed land	90.0		
	Total	***620.1***		
	Mod-High habitat			
	Surveyed land	37.6	5	
	Unsurveyed land	0.0		
	Total	***37.6***		

MNES	IMPACTS		AVERAGE IMPACT QUALITY SCORE [1]	RELEVANT SECTION OF THE SAR
	NGGA location	Area (ha)		
	Combined habitat			
	Total	***657.7***	N/A	

TABLE NOTES:

1. Impact quality score

Impact quality score is a parameter that is used in the EPBC offset assessment guide which was used to test and validate the offset package. The score is a measure of how well a site supports a particular threatened species or ecological community and contributes to its ongoing viability. As described in the guide, there are three components that contribute to the calculation of habitat quality: site condition, site context, and species stocking rates. The score is determined separately for each MNES with consideration of these components. See Attachment C for details about NTG, SLL and GSM.

2. GSM habitat categories

As described in the Strategic Assessment Report (Chapter 19, Section 19.1.2), habitat for GSM was mapped into four categories. The relevant text from the SAR is as follows:

> *Much of habitat within the NGGA is unlikely to represent an important or high quality area necessary for the long-term maintenance of the species (as described in the Conservation Advice (DAWE, 2021a), due to the level of weeds, land modification, and rate of decline. To distinguish between native vs non-native habitat for the assessment of impacts to GSM and to reflect this declining trend in condition, habitat within the surveyed areas of the Growth Areas has been mapped according to the following categories:*
>
> - [High] *Higher potential native habitat, which identifies the habitat areas with the greatest likelihood of supporting native vegetation based on the result of EHP surveys and the more recent landholder surveys*
> - [Mod] *Moderate potential native habitat, which identifies the habitat areas that have the potential to still support native vegetation identified through the EHP surveys, but recognising the declining trend in condition observed elsewhere in the Growth Areas and lack of more recent surveys for these areas*
> - [Low] *Lower potential native habitat, which identifies the habitat areas which have likely declined since the time of EHP surveys and are no longer expected to support native vegetation, based on the results of more recent landholder surveys*
> - [No] *Non-native habitat, which identifies areas of GSM habitat which do not support native vegetation*

The offsets work has grouped Mod-High habitat and No-Low habitat in order to understand impacts and determine the appropriate quantum of offsets.

3.2 AREA TARGETS

Area targets were determined for each MNES to establish the overall quantum of offsets that need to be delivered over the life of the Plan (see Table 3). These targets are included as commitments in the Plan. Information about delivery of the offsets is provided in Section 3.4 below.

The area targets were determined by:

- Considering the scale and quality of the residual impacts to each MNES (consistent with Principle 4)
- Considering the conservation status for each MNES (consistent with Principle 3)
- Considering the conservation outcome (or gain) that is required to improve or maintain the viability of each MNES (consistent with Principle 1). This step included evaluation of the different elements of conservation gain that are defined in the offsets policy including:
  - Improving existing habitat for each MNES within the offset sites through appropriate management actions
  - Where possible, creating new habitat for each MNES. A key focus for this will be the parts of the NGGA Conservation Area that currently provide suitable but not confirmed habitat for SLL
  - Reducing threats to each MNES within the offset sites through appropriate management actions
  - Averting the loss of an MNES or its habitat that is under threat. This is particularly relevant to the part of the NGGA Conservation Area that currently occurs within the Urban Growth Zone which supports habitat for both SLL and GSM
- Accounting for the risks of some proportion of the offsets not succeeding (consistent with Principle 5). This step considered risks around adequate offset availability and risks around management actions at offset sites being unsuccessful

Testing and validation of the area targets was done by applying the offsets calculator against the alternative scenario of offsets being delivered under Part 9 of the EPBC Act over the life of the Plan. This was done to ensure that the targets (in combination with the overall design of the offsets program) will lead to equivalent or better conservation outcomes than can be achieved through site-by-site assessments. Sensitivity analysis was undertaken by varying parameters within the calculator to understand the outcomes under a range of different scenarios.

The results of the testing confirm that the area targets are appropriate and broadly equivalent to what could be required if the strategic assessment was not in place and offsets were applied under Part 9 of the Act.

Table 3: Offset targets

MNES	Area target (ha)
NTG	45
SLL	375
GSM	585

3.3 EARLY DELIVERY TARGETS

Given the opportunities provided by a strategic approach to offsets and the conservation benefits of advanced offsetting, early delivery targets are established for each MNES (see Table 4). These targets are included as commitments in the Plan.

Early offsetting is defined as delivery by the end of year 5 of the Plan. Considerations for establishing the early delivery targets included:

- The predicted rate of impacts to each MNES within the NGGA as each precinct is released
- Maximising the potential conservation outcomes associated with advanced offsetting
- Minimising the risks around offset availability becoming more limited over time by securing a substantial proportion of the offsets early in the life of the Plan
- The conservation status of each MNES
- The scale of offsets required for each MNES
- Challenges around funding early offsets

Processes around the delivery of both the early and remaining offsets are set out in Section 4.

Table 4: Early delivery targets

MNES	Early delivery target (%)	Early delivery target (ha)
NTG	100%	45.0
SLL	70%	262.5
GSM	50%	292.5

3.4 PREDICTED AVERAGE OFFSET QUALITY

The predicted average quality of the offset sites was considered to help understand the conservation outcomes to be delivered through the offsets package. This process evaluated:

- The known quality of other offset sites for each MNES within Victoria over recent years
- The appropriate starting quality of offset sites to provide the opportunity for good conservation gains through management actions

The predicted average quality of habitat to be protected within the offset sites is set out in Table 5. It is noted that the start quality of sites is expected to vary which is appropriate when a number of sites will be secured that will provide a range of different opportunities for conservation gain.

Table 5: Predicted average start quality of offset sites

MNES	Average start quality of offset sites *
NTG	6
SLL	7
GSM	6

* Quality score based on the approach set out in the EPBC offset assessment guide and the associated method for each MNES set out in Attachment C

4 Approach to implementing the offset package

The approach to implementing the offset package is designed to ensure successful delivery and address the risks associated with a large scale, strategic approaches to offsets.

4.1 GOVERNANCE FOR THE OFFSET PACKAGE

Strong governance arrangements are critical for the successful delivery of the offsets package and are consistent with Principle 8 of the offsets policy. The overall governance framework for the strategic assessment is described in Section 6 of the Plan and is not repeated here in detail. However, governance for the offset package sits within this overall framework and the key elements relating to offsets are described below.

The delivery of the offset package will be coordinated by the City. As approval holder for the strategic assessment, the City will be responsible for ensuring the commitments and measures relating to offsets are met. Central coordination by the City:

- Allows for the aggregation of funds to facilitate securing larger and better offset sites
- Enables the ability to secure a significant proportion of offsets ahead of impacts occurring
- Maximises the efficiency of the delivery of offsets

The City will be responsible for:

- Securing offsets in accordance with the commitments of the Plan
- Securing funding to pay for the offsets (see Section 4.6 below)
- Working with support partners to help deliver the offset package (see below)
- Monitoring and reporting on the:
    - Implementation of offsets to ensure delivery is on track (see Section 4.4 below)
    - Ongoing improvement and management of the secured offset site/s
- Implementing contingency steps (see Section 4.5 below) if monitoring indicates that offsets are not being delivered successfully

Support partners for the offset package include:

- The Victorian Government Department of Energy, Environment and Climate Action (DEECA) or Trust for Nature who manage mechanisms to secure offset land
- Developers within the NGGA who may help secure suitable offset sites as part of a works in kind (WIK) contribution in lieu of other funding options (see Section 4.6 below)
- Private landholders who may enter into on-title management agreements to secure their land for offsets
- Wadawurrung Traditional Owners Aboriginal Corporation who may provide advice and assistance in relation to the management of the NGGA Conservation Area

4.2 OFFSET SITE SELECTION

Offset sites will be selected to maximise the conservation outcomes of the offset package and provide for the in-perpetuity protection and management of sites.

At the time of the preparing the Plan, the NGGA Conservation Area was the only confirmed offset site. Other sites to meet the offset commitments will be identified external to the NGGA as part of implementation of the Plan.

4.2.1 NGGA CONSERVATION AREA

GENERAL DESCRIPTION

The NGGA Conservation Area is 108.6 ha in size and is located in the northwest corner of the NGGA (see maps at Attachment B). The site was surveyed as part of the EHP surveys (EHP, 2021) for the strategic assessment and supports habitat values for SLL and GSM as set out in Table 6 and Table 7 respectively. There is no NTG present within the Conservation Area.

The Conservation Area will be delivered in two stages as follows:

- Stage 1 which is 82.3 ha will be delivered by the end of year 5 of the Plan. This area was identified for conservation in the NWGGA Framework Plan (The City of Greater Geelong, 2021) and is currently zoned farming and urban growth zone
- Stage 2 which is 26.3 ha will be delivered by the end of year 11 of the Plan. This area was identified for inclusion to the Conservation Area as part of the strategic assessment process and is currently zoned as Urban Growth Zone

Table 6: SLL values of the NGGA Conservation Area

Habitat type	Area of habitat (ha)			Description
	Stage 1	Stage 2	Total	
Confirmed habitat	47.0	0	47.0	The confirmed habitat (all of which occurs in the Stage 1 area) is the largest confirmed patch of habitat within the NGGA, supporting multiple remnants of native grassland. Eleven individuals of SLL were recorded as part of the EHP surveys. The area (in addition to the adjacent suitable habitat) is likely to be considered critical to the survival of the species based on the definition outlined in the species Conservation Advice (TSSC, 2016). The offset start quality score for the confirmed habitat area is calculated at 8.
Suitable habitat	3.6	23.8	27.4	The suitable habitat is adjacent to the confirmed habitat and occurs in a patch of native grassland. It represents an important opportunity to expand a known area for SLL. The offset start quality score for the suitable habitat area is calculated at 5. This lower score is driven by a lack of records during the EHP surveys. However, the overall score for the NGGA conservation area is calculated at 7 based on the relative areas of the confirmed and suitable habitat.
Total habitat	**50.6**	**23.8**	**74.4**	

Table 7: GSM values of the NGGA Conservation Area

Habitat type	Area of habitat (ha)			Description
	Stage 1	Stage 2	Total	
Mod-High habitat	33.3	21.8	55.1	Approximately half of the GSM habitat in the Conservation Area is currently Mod-High quality. All of this area is mapped as moderate. This habitat occurs in a number of discrete patches interspersed with non-native habitat. EHP recorded the species across large parts of this habitat. The offset start quality score is calculated at 5 and is applied across the whole Conservation Area.

Habitat type	Area of habitat (ha)			Description
	Stage 1	Stage 2	Total	
No-Low habitat	49.0	4.6	53.5	The other half of the GSM habitat in the Conservation Area is mapped as No-Low quality. The vast majority of this is mapped as non-native. The No-Low quality habitat occurs in between the patches of Mod-High, and supports a wide range of records of GSM. Weed management and restoration of the non-native habitat offers a critical opportunity for a conservation gain for GSM.
Total habitat	**82.3**	**26.3**	**108.6**	

Maintaining the values of the Conservation Area before it is secured

Given the conservation area will not be secured until the end of year 5 for Stage 1 and year 11 for Stage 2, it is critical that the MNES values are maintained until that point.

The Stage 1 area is existing rural land and it is expected that the historical management regime that has supported the MNES values will be maintained until the land is purchased by the City. Given the land was identified for conservation in the NWGGA Framework Plan and is identified in the Plan, there are no incentives for the current landholders to alter their management. The City has worked, and will continue to work with the landholders to ensure land management is appropriate.

For the Stage 2 area the City is liaising with the current landholder to implement actions to help maintain the values of the land. This will comprise either:

- Managing the land on behalf of the owner, or
- Providing funding and expertise to assist the landholder manage the land appropriately.

It is expected that the approach to both Stage 1 and 2 will maintain the MNES values until the land can be formally secured.

Mechanisms to secure the Conservation Area

The Conservation Area will be secured by acquisition and vesting of the land to the City. It will be zoned appropriately for conservation and managed to protect its biodiversity values.

Management of the Conservation Area

The Conservation Area will be managed in-perpetuity to maintain and improve the MNES values that are present.

Aims of the conservation area

The key aims of the conservation area will be to protect and manage native vegetation and 74 ha of habitat for SLL and 108 ha of habitat for GSM in perpetuity. It will do this by:

- Protecting habitat supporting populations of SLL and GSM
- Improving the condition of habitat for SLL and GSM
- Where possible, increasing the area of occupied habitat for the SLL through regeneration or restoration of any potentially suitable areas

Conservation Management Plan

The Plan includes a commitment to prepare and implement a conservation management plan (CMP) for the Conservation Area. The CMP will be prepared to give effect to the aims of the conservation area (discussed above) and in accordance with the Commonwealth Environmental Management Plan Guidelines (DoE, 2014). It will include the following information:

- Boundary of the conservation area

- Native vegetation to be retained
- Extent and condition of habitat and records for SLL and GSM
- Management actions and arrangements to protect SLL and GSM, including management methods, standards and techniques, roles and responsibilities, timing for implementation, funding and monitoring and reporting

Given the currently degraded state of parts of the grassland habitat, there are significant opportunities to improve the condition of habitat within the Conservation Area. Rehabilitation and regeneration of habitat will be a priority of the CMP.

Ongoing monitoring of species and species habitat within the Conservation Area will be important to ensure that performance of the CMP is understood, and to ensure that management is responsive and adapts to any changing circumstances. See Section 4.4 below for a discussion about monitoring.

Detailed costing for implementation of the CMP will be undertaken when it is developed. However, indicative costing was undertaken as part of preparing the Plan. It is estimated that management and monitoring over the first 10 years would cost in the order of $6 million. This includes the establishment management actions for the Conservation Area but does not include the cost of acquisition.

What does success look like in the NGGA Conservation Area?

The NGGA Conservation Area will be a success if:

- The populations of SLL and GSM persist and remain viable over the long term
- Habitat for SLL and GSM is retained and condition improves over time

4.2.2 EXTERNAL OFFSET SITES

The external offset area targets for each MNES (after the delivery of the NGGA Conservation Area) are:

- NTG = 45 ha
- SLL = 301 ha
- GSM = 477 ha

These offsets will be delivered outside of the NGGA.

SITE SELECTION

In order to ensure sites are appropriate and contribute to the strategic benefit of the offset package, sites will be selected that meet at least one of the following strategic landscape criteria:

- Protection of areas of habitat that would be considered large for each MNES
- Located within a key biodiversity corridor and improves connectivity across the landscape
- Connection to an existing conservation reserve

Surveys by an appropriately qualified ecologist applying the appropriate survey techniques will be undertaken for each site prior to it being secured. Only sites with confirmed values for each MNES will contribute to meeting the offset targets.

OFFSET AVAILABILITY

Offset availability or the potential lack of availability is a key risk. The ability to meet the commitments in the Plan is dependent on sufficient offset sites being available to secure.

In developing the offset package, the City commissioned a range of analysis to ensure that there is confidence in the current and future supply of offset sites. This analysis included:

- Review of the offset sites that were on the market at the time of preparing the Plan
- Discussions with offset brokers in Victoria to understand their views on the market and the potential availability of sites for the three MNES

- Discussions with those developers who have insight into offsets in the region. Some of the developers had identified potential offset sites relating to development in the NGGA
- Evaluation of the broader landscape to understand the potential quantum of available offsets over the life of the Plan

The analysis suggests that there is sufficient availability. Particularly because:

- There were a number of suitable sites on the market at time of preparing the Plan
- The Plan's focus on early offsetting helps mitigate the risk of offsets becoming less available as time progresses
- The long life of the Plan allows for other offset sites to come onto the market

However, the analysis also emphasised that securing offsets early will be important and coordination by the City to find offsets will be critical.

MECHANISMS TO SECURE AND MANAGE SITES

Offset sites outside the NGGA will be secured and managed using standard offsetting approaches in Victoria including mechanisms such as Section 69 agreements prepared under the *Conservation Forests and Lands Act 1987* or Trust for Nature covenants prepared under the *Victorian Conservation Trust Act 1972*.

These mechanisms:

- Provide for the in-perpetuity protection of sites
- Are accepted by DCCEEW as appropriate mechanisms for EPBC offsets
- Facilitate the necessary management, monitoring and reporting to ensure a conservation gain for each MNES

4.3 TIMING OF DELIVERY

The Plan includes two commitments around the timing of offset delivery. They are commitments to:

- Ensure that the delivery of offsets remains ahead of the level of impacts over the life of the Plan
- Deliver early offsets (by the end of year 5) for each MNES

These commitments are important to help maximise the benefits of the strategic approach to offsets, and deliver a conservation outcome that improves or maintains the viability of each MNES (consistent with Principle 1).

Offset delivery occurring ahead of impacts will be tracked and calculated as follows:

- Impacts will be tracked as development proceeds. This will be done by:
  - Tracking planning permits
  - Calculating the impact area for NTG, SLL and GSM as it relates to each planning permit. The baseline data for the strategic assessment will be used for these calculations
  - Keeping a running record of total impacts to NTG, SLL and GSM as planning permits are issued
- Calculating the running offset target for each MNES. This will be done by multiplying the running record of total impacts for each MNES by the ratio of total offset area to total impact area
- Tracking offset delivery and keeping a running record of the total offsets delivered for NTG, SLL and GSM
- Ensuring that total offset delivery is always ahead of the running offset target for each MNES

4.4 MONITORING AND REPORTING

The City will monitor and report on the offsets package through the Plan's MERI framework (see Section 6 of the Plan). This process will include:

- Tracking impacts and offset delivery as outlined above
- Monitoring the NGGA Conservation Area and the implementation of the CMP
- Evaluating the ongoing success of the external offset sites in protecting biodiversity and their contribution to the biodiversity outcomes of the Plan

For the purposes of tracking offset delivery, offsets will be considered secured when the appropriate mechanism (e.g. Trust for Nature covenant) has been finalised.

4.5 CONTINGENCY STEPS

To help mitigate risks around offset delivery, the Plan includes a measure to implement contingency steps if the early offset targets are not on track, or the rate of offsets is not ahead of the rate of impacts.

The contingency steps are:

- The City will notify DCCEEW about the shortfall and outline proposed steps to remedy the issue
- The City will make every effort to secure the necessary offsets within 12 months of a shortfall being identified
- If the necessary offsets cannot be secured within the 12 month period, the City will pause planning permits within the NGGA until sufficient offsets are secured to address the level of impact to MNES

4.6 FUNDING

Sufficient funding is another key aspect of the offset package. As outlined in Section 6 of the Plan, the Plan includes a funding framework that will provide funding for implementation of all of the commitments (including offsets).

From an offsetting perspective, offsets will be funded through a biodiversity levy on developers which will be indexed over the life of the Plan. The City is also considering providing the option for developers to make a works in kind (WIK) contribution in lieu of payment of the biodiversity levy amount. Under a WIK contribution, a developer would agree that they will provide offsets and/or works in full or partial satisfaction of the requirement to pay the biodiversity levy amount. The WIK contribution would be limited to certain circumstances to ensure commitments for offsets under the Plan can be effectively delivered (e.g. any offset site would have to meet the offset site selection criteria and be secured using an appropriate mechanism).

The City has prepared a Funding Program to implement the conservation program related to the strategic assessment. The Funding Program will be implemented into the Greater Geelong Planning Scheme by inclusion as a mandatory requirement in the urban growth zone. All proponents undertaking development will need to fulfil the requirements of the EPBC Plan and funding contribution.

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Attachment A: Evaluation against the EPBC offset policy

The offset package meets the principles of the EPBC offset policy as set out in Table 8.

Table 8: Evaluation of the offset package against the principles of the EPBC offset policy

EPBC offset principles	How the offsets package meets each principle
Suitable offsets must:	
1. Deliver an overall conservation outcome that improves or maintains the viability of the aspect of the environment that is protected by national environment law and affected by the proposed action	The offset package will help deliver an overall conservation outcome that improves or maintains the viability of NTG, SLL and GSM. This is based on: • The focus on direct offsets (as per Principle 2) which provides the most tangible conservation gains for MNES • Delivery of the offsets by the City as part of a coordinated program (as per Principle 8) which will ensure efficient, effective, timely, and transparent outcomes (as per Principle 7) • Appropriate area targets for each MNES that: o Consider conservation status (as per Principle 3) o Are proportionate to the size and scale of residual impacts (as per Principle 4) o Account for the risk of offsets not succeeding (as per Principle 5) • Consideration of the predicted average quality of the offset sites • Delivery of offsets that are additional to what is already required (as per Principle 6) • The landscape nature of the offset package which improves the conservation outcome of offsets. This includes focusing on sites that: o Will protect areas of habitat that would be considered large for each MNES o Are located within a key biodiversity corridor and improves connectivity across the landscape o Connect to an existing conservation reserve • The focus on early offsetting for each MNES which will provide the conservation benefits of substantial advanced offsetting • The fact that testing and validation of the offset targets using the offset calculator showed that the targets are appropriate and sit within the range of what would be potentially required if the strategic assessment was not in place and offsets were applied under Part 9 of the Act This meets Principle 1.

EPBC offset principles	How the offsets package meets each principle
2. Be built around direct offsets but may include other compensatory measures	The offset package is entirely based on direct offsets. This meets Principle 2.
3. Be in proportion to the level of statutory protection that applies to the protected matter	The offsets are proportional to the conservation status of each of the MNES. Both the area and early delivery targets were developed with consideration of conservation status. Where a higher status (e.g. critically engendered versus vulnerable) led to proportionally higher area targets and a greater emphasis on early offsets. While the offset calculator was not used to develop the targets, it was used to test and validate the targets (as described in Section 3.2 above). The calculator uses conservation status to help determine the appropriate level of offsets, and the results of the testing confirm that the area targets are appropriate and sit within the range of what would be potentially required if the strategic assessment was not in place and offsets were applied under Part 9 of the Act. This meets Principle 3.
4. Be of a size and scale proportionate to the residual impacts on the protected matter	The offsets are proportionate in size and scale to the residual impacts to NTG, SLL and GSM. This is reflected by the area targets for each MNES which were developed against the criteria set out in Section 3.2 above. These criteria included: • The scale and quality of the residual impacts to each MNES. These impacts are described and assessed fully in the SAR • The conservation status for each MNES • The conservation outcome that is required to improve or maintain the viability of each MNES This meets Principle 4.
5. Effectively account for and manage the risks of the offset not succeeding	The offsets package accounts for and manages the risks of the offsets not succeeding. These risks are set out in Section 2.3 above and are mitigated through the design of the package. In particular, key aspects of risk mitigation include: • An appropriate funding framework and program to ensure the offsets can be purchased (Section 4.6 above) • Analysis of the availability of offsets that provides confidence in the implementability of the package (Section 4.2.2 above), combined with a set of contingency steps to ensure offsets are delivered if challenges arise in implementation (Section 4.5 above) • An appropriate governance framework to ensure implementation is successful (Section 4.1 above) • Mechanisms to maintain the values of the NGGA Conservation Area prior to it being secured (Section 4.2.1 above) This meets Principle 5.

EPBC offset principles	How the offsets package meets each principle
6. Be additional to what is already required, determined by law or planning regulations or agreed to under other schemes or programs (this does not preclude the recognition of state or territory offsets that may be suitable as offsets under the EPBC Act for the same action, see section 7.6)	The proposed offsets are all additional to what is already required. This includes: • The NGGA Conservation Area which will be protected and managed as a conservation reserve in-perpetuity. This was not planned prior to the commencement of the strategic assessment • The external offset sites which will only be selected where they don't have an existing level of protection This meets Principle 6.
7. Be efficient, effective, timely, transparent, scientifically robust and reasonable	The offset package is designed to be efficient, effective, timely, transparent, scientifically robust and reasonable as follows: • The package is based on scientifically robust information about each MNES (as set out in the SAR) and about the potential offsets sites. Further scientific information will be collected during implementation to help establish, monitor and manage sites • The commitments and measures to deliver the offsets package meet the SMART principle (Specific, Measurable, Achievable, Relevant, and Time-Bound). This ensures that there is clarity around the implementation of the package and that the offsets will be efficient, effective and timely • The process to develop the offset package is transparent (as discussed for Principle 10) and implementation of offsets will be based on transparent governance, monitoring and reporting (as discussed for Principle 8) • The offset package is designed to provide a positive conservation outcome for MNES and be reasonable to fund and deliver. Testing and validation of the offset targets using the offset calculator showed that the targets are appropriate (and reasonable) and sit within the range of what would be potentially required if the strategic assessment was not in place and offsets were applied under Part 9 of the Act This meets Principle 7.
8. Have transparent governance arrangements including being able to be readily measured, monitored, audited and enforced	As discussed in Sections 4.1 and 4.4 above, implementation of the offset package is supported by appropriate governance, monitoring, and reporting arrangements. This meets Principle 8.

EPBC offset principles	How the offsets package meets each principle
In assessing the suitability of an offset, government decision-making will be:	
9. Informed by scientifically robust information and incorporate the precautionary principle in the absence of scientific certainty	This principle is largely a matter for DCCEEW as it relates to government decision-making. However, preparation of the documents for the strategic assessment (including the offsets package) is based on scientifically robust information and processes. In addition, the precautionary principle has been applied appropriately to the project as set out in Part 5 of the SAR. This meets Principle 9.
10. Conducted in a consistent and transparent manner	This principle is largely a matter for DCCEEW as it relates to government decision-making. However, the City is working with stakeholders throughout the strategic assessment to ensure transparency and the project will meet all of its statutory obligations around consultation. This meets Principle 10.

Attachment B: Maps of the NGGA Conservation Area

Figure 1: NGGA Conservation Area

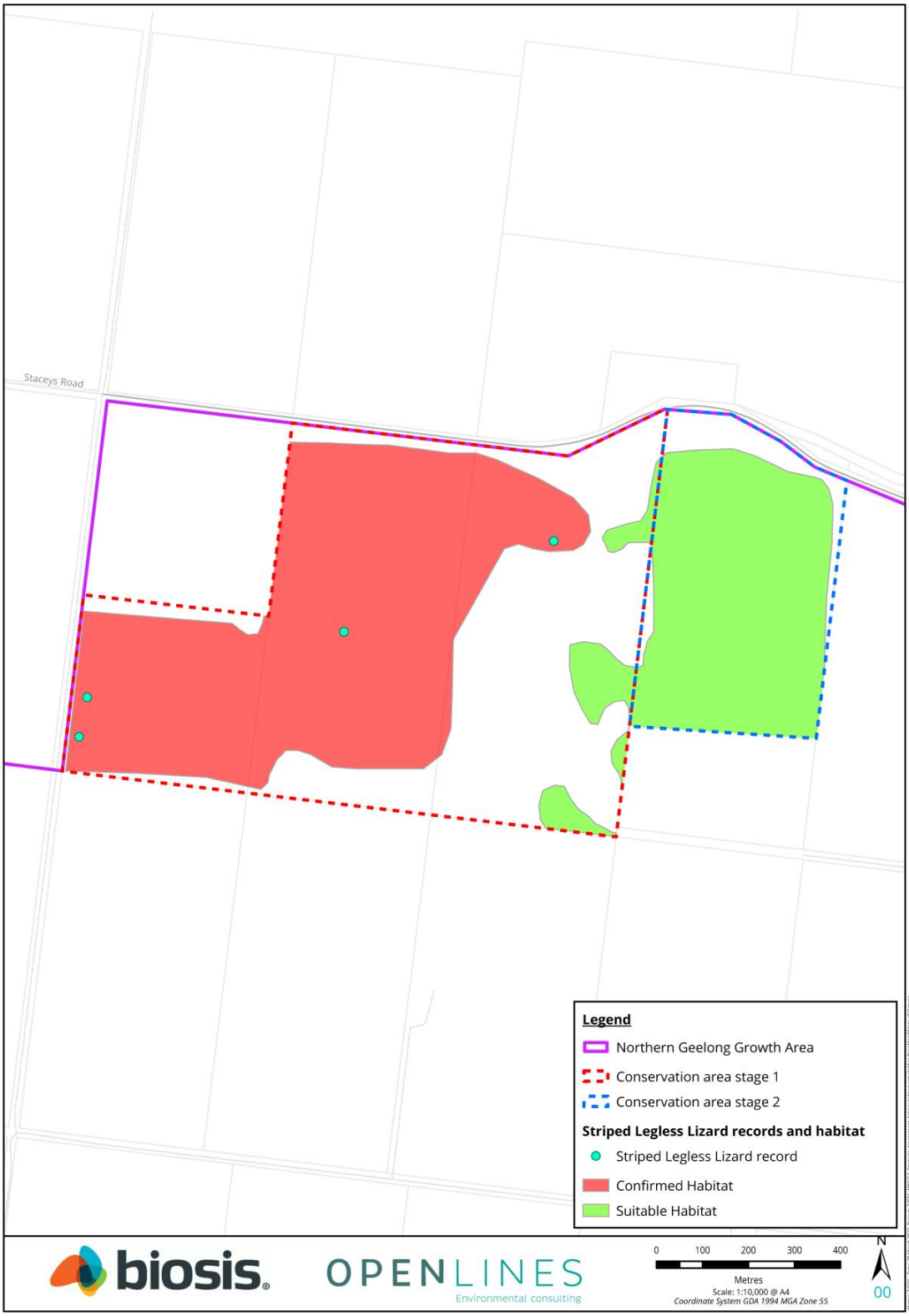

Figure 2: SLL habitat and records in the NGGA Conservation Area

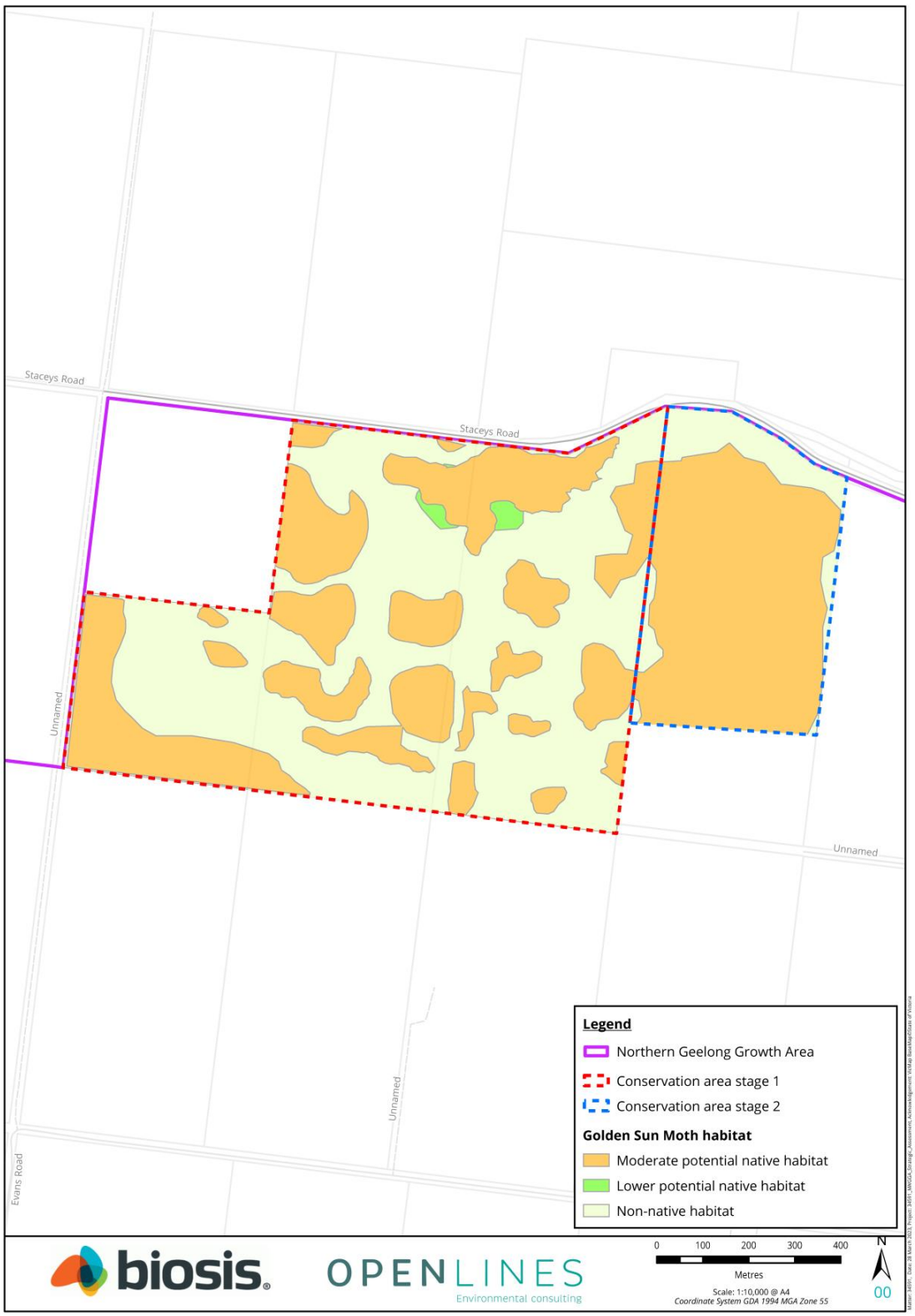

Figure 3: GSM habitat in the NGGA Conservation Area

Attachment C: Impact and offset quality scores

QUALITY SCORES

Quality scores are parameters that are used in the EPBC offset assessment guide (Commonwealth of Australia, 2012) which was used to test and validate the offset package. Scores are applied to both the impact and offset sites.

The scores are a measure of how well a site supports a particular threatened species or ecological community and contributes to its ongoing viability. As described in the guide, there are three components that contribute to the calculation of habitat quality: site condition, site context, and species stocking rates. The scores are determined separately for each MNES with consideration of these components.

NATURAL TEMPERATE GRASSLAND

For NTG, impact quality is based on the habitat hectare scores calculated by EHP (EHP, 2021) using a weighted average for each habitat zone rounded to the nearest equivalent quality value. The weighted average score for all NTG was 3.

A starting offset quality score of 6 for NTG is assumed based on the average rounded habitat hectare score assessed for other offset sites in Victoria.

STRIPED LEGLESS LIZARD

QUALITY PARAMETER	DESCRIPTION / METHOD	IMPACT QUALITY SCORE	OFFSET START QUALITY SCORE
Site context (X/4)	**Connectivity** The habitat of SLL (natural temperate grassland and grassy woodland) is severely depleted and fragmented, which means many populations are now functionally isolated. Nevertheless, SLL populations are known to persist in very small habitat fragments, including sites less than 1 ha. These isolated sites can still support high densities of the species. For example, 86 individuals were trapped in a 0.4 ha grassland remnant in Keilor Downs in Melbourne (Megan O'Shea, pers. comm.). This grassland remnant had been isolated from nearby populations by urban development for at least 40 years. Low landscape and functional connectivity is now typical for most sites occupied by SLL. However, surveys and research has demonstrated that in many cases SLL appear to be able to persist in these isolated remnants. Therefore, connectivity to other populations may not necessarily be essential for the persistence of a population in the medium term, provided habitat structure remains suitable and existing and future threats are appropriately managed. 'Connectivity' has therefore been scored out of 2 according to the size of the habitat remnant, as follows. • 1/2= Site < 0.5 ha • 2/2 = Site equal to or 0.5 ha The site context assessment includes the total area of known or suspected SLL habitat within the impact site and connected to that habitat (i.e. including contiguous habitat offsite). Based on the results of EHP, the NGGA is scored at 2.	2	2
	Importance of the site The Conservation Advice for the species states that: "All populations of the SLL are likely to be important for the species recovery. The basis for this is the major loss and degradation of its grassland habitat, the ongoing pressures in remaining habitat and the highly fragmented nature of known habitat and populations". and "The understanding of fine scale population structure is limited and difficult to assess given the fragmented and disturbed nature of the species habitat and the difficulty in detecting the species due to its cryptic nature. For these reasons it is considered that when one or more individuals are found on a site that they are a member/s of an important population." Therefore, all potential impact sites with confirmed SLL are likely to support an important population and 'importance' is not given any weighting for site context.	N/A	N/A
	Threats Threats impacting SLL and their approximate severity of risk, are listed in Table 1 of the Conservation Advice for the species. All SLL populations are likely to be subject to varying levels of cat and fox predation and this threat, which is difficult to compare between sites, is not used when scoring the 'threat' component of Site Context.	1	1

QUALITY PARAMETER	DESCRIPTION / METHOD	IMPACT QUALITY SCORE	OFFSET START QUALITY SCORE
	Fire and grazing have both been shown to be positively correlated with the persistence of SLL, by maintaining an appropriate grassland structure and floristic diversity. However, sites that are subject to intensive and concurrent application of these disturbance regimes have been shown to have lower population persistence (Scroggie *et al.*, 2019). Similarly, low or no biomass reduction is also considered to be a threat to the species, as it can result in a dense sward that has reduced structural complexity and floristic diversity (Scroggie *et al.*, 2019). The build-up of biomass can also lead to more intense and extensive uncontrolled fires, which could lead to increased mortality and habitat deterioration. Threats are defined as follows: • Site currently subject to continuous, intensive grazing by livestock or kangaroos, thereby reducing the floristic and structural complexity of the habitat. • Site subject to frequent, widespread and intense fires, including deliberate burns that are not sympathetic to the maintenance of Striped Legless Lizard habitat • Site subject to historical or ongoing ploughing, pasture improvement and agricultural intensification • Site subject to historical or ongoing removal of surface and/or embedded or rock • Site subject to frequent slashing or thereby reducing the structural complexity of the habitat • Site dominated by exotic grasses to the extent that the majority of the site is no longer defined as native vegetation • Site currently not subject to any form of appropriate biomass reduction (e.g. low-moderate intensity grazing or sympathetic ecological burns to maintain structural and floristic diversity of the habitat 'Threats' have been scored as follows: • 0/2 = Site subject to 5 or more of the above threats • 1/2 = Site subject to between 1 and 4 of the above threats • 2/2 = Site subject to none of the above threats Based on the results of EHP, the NGGA is scored at 1.		
Site condition (X/3)	Sites that have the best potential to support viable SLL populations are located in areas that supported or once supported native grasslands or grass woodlands. These areas must contain suitable tussock structure, appropriate soil type and minimal major disturbance such as ploughing(Coulson, 1990; Hadden, 1995; O'Shea, 1996; Dorrough and Ash, 1999). Sites that are rich in native tussock-forming grass species (often >20-50% cover) such as Kangaroo Grass *Themeda triandra*, Spear-grasses *Austrostipa* spp. and Poa tussocks *Poa* spp. provide good habitat for SLL, although the species can also inhabit areas dominated by introduced grass species where the site has a history of grazing and pasture improvement(Coulson, 1990; Dorrough and Ash, 1999; Smith and Robertson, 1999; Commonwealth of Australia, 2011). The species tends to find shelter within grass tussocks, think ground cover, soil cracks, rocks and ground debris such as timber(Smith and Robertson, 1999). Site condition is assessed as a score out of three (of the overall total of 10), following the conditions below: • 1/3 = Poor - Site (on average) supports a species-poor ground flora with low structural complexity (reflecting inadequate biomass management). Dominated by a few native or predominantly introduced tussock-forming grasses with no or very few native forbs with or without embedded and/or surface rock	2	2

QUALITY PARAMETER	DESCRIPTION / METHOD	IMPACT QUALITY SCORE	OFFSET START QUALITY SCORE
	• 2/3 = Satisfactory - Site (on average) supports a moderately diverse ground flora with good structural complexity (reflecting some biomass management). Dominated by an average diversity of native tussock-forming grasses and average diversity of native forbs with or without embedded and/or surface rock • 3/3 = Good - Site (on average) supports a species-rich and structurally complex ground flora (reflecting appropriate biomass management). Dominated by an above average diversity of native tussock-forming grasses and above average native forbs, together with embedded and/or surface rock Based on the results of EHP, the NGGA is scored at 2.		
Species Stocking Rate (X/3)	SLL is a cryptic species and has the potential to go undetected despite presence at a site, even with suitable survey methods outlined by the survey guidelines. Recapture rates can be very low and therefore cannot be a true representation of the size of a population (Smith & Robertson 1999). Density within populations is highly variable and has been reported ranging from 0.78 SLL/ha to 155 SLL/ha, but typically less than 30 SLL/ha (ARAZPA, 1996; Biosis, 2012; O'Shea, 2016). The scoring of stocking rate set out here contributes a potential 3 points out of the overall total of 10 points. Artificial shelter (tile) surveys for SLL are generally conducted to detect the presence of the species at impact and offset sites. Rarely is the technique used for estimating site level densities to calculate 'stocking rates'. This is because estimating density requires SLL encountered under the tiles to be captured and photographed so that they can be reliably identified from the unique scale pattern on their head. The technique necessitates a degree of skill and training. Capturing and processing the animals is time consuming. It also involves a level of risk to SLL as they sometimes drop their tail during capture and may be unduly stressed. Therefore, an alternative method using the maximum number of SLL detected at a tile grid during any one site survey is used as a surrogate for density. This includes counts of sloughs as well as actual lizards (sloughs are routinely encountered under artificial shelters). The following rationale has been used to derive an approximate density rate of SLL per hectare. It assumes that habitat and distribution of SLL are relatively uniformly distributed across the subject site. While it is recognised that those assumption may not hold across all sites, they are necessary underlying assumption of all survey techniques that involve representative sampling of a site, including the use of tile grids. A grid of 50 tiles set out at 5 metre intervals has the assumption that each tile has a 'capture' or 'encounter' area for SLL that covers 25m² (i.e., a tile in the middle of a 5 x 5 metre square), hence the entire 50 tiles cover a total capture area of 1250m² (i.e., including the external capture area of each tile on the outside perimeter of the grid). The entire grid of 50 tiles is thus sampling one eighth (12.5%) of a hectare. Hence, for the present purposes, we can assume that the maximum number of SLL encountered under the tile grid during any one of the seven monitoring events can be multiplied by 8 to provide an approximate density of lizards per hectare. By this reckoning, if the maximum number of SLL encountered during any one monitoring event is one, we can assume a density of between 1 and 8 animals per hectare. If the maximum number encountered during any one monitoring event is two, we can assume a density of between 8 and 16 animals per hectare. If the number encountered as greater than 2, we can assume a density of greater than 16 animals per hectare. These rates conform quite closely with densities described for eight sites by(O'Shea, 2016). Four of those sites had density rates of between 1.2 and 4.9 SLL per hectare; while the other four sites had densities of 17.5, 18.8, 44 and 156 per hectare. On the basis of this reckoning, the scoring method for 'stocking rate' is as follows: • 1/3 = A maximum of 1 individual, or slough encountered under the tile grid during any one of 7 monitoring events • 2/3 = A maximum of 2 individuals or sloughs encountered under the tile grid during any one of 7 monitoring events	2	2

QUALITY PARAMETER	DESCRIPTION / METHOD	IMPACT QUALITY SCORE	OFFSET START QUALITY SCORE
	• 3/3 = Three or more individuals or sloughs encountered under the tile grid during any one of 7 monitoring events Surveys must be carried out as per the survey standards in the referral guidelines, including the minimum number of grids based on the area of the site. This standard requires fortnightly tile grid checks between 1 September and 31 December (a minimum of 7 checks). More frequent checks can be undertaken (e.g. weekly), but this is not mandatory. All sloughs must be removed during each check. Based on the results from EHP, the NGGA is scored at 2.		
	Total impact quality score for SLL out of 10	**7**	**7**

GOLDEN SUN MOTH

QUALITY PARAMETER	SCORING RANGE	NOTES	IMPACT QUALITY SCORE		OFFSET START QUALITY SCORE
			No-low habitat	Mod-High habitat	
Site context (max. 3 points)					
Connectivity with other suitable/known habitat or remnants?	0-1	Noting that while there is a general lack of survey for GSM across the Study Area, GSM habitat in the NGGA is likely to be connected (or partially connected) to habitat within the broader agricultural landscape in the region. Habitat modelling for the species shown in Figure 19-1 of the SAR supports this and provides an indication of the potential connectivity. Given the fragmented and disturbed nature of the landscape, connectivity is scored at 0.75.	0.75	0.75	0.75
Importance of the site in relation to the overall species population?	0-1	Consistent with the notes for the previous parameter, there are likely to be significant areas of GSM habitat across the region's agricultural landscape. This reduces the importance of the site in relation to the overall species population. Mod-High habitat which supports areas of native vegetation is scored more highly at 0.75. No-Low habitat which is dominated by exotic vegetation and part of a declining trend across the landscape is scored at 0.1.	0.1	0.75	0.75
Threats that occur on or near site?	0-1	The Conservation Advice for GSM identifies a range of different threats (e.g. soil disturbance, lack of biomass removal, and weed invasion). A higher score for this parameter indicates lower threats. The declining trend in the condition of grasslands in the NGGA is evidence of a high level of threat. In particular, weed invasion appears to be a significant issue. Mod-High habitat is scored at 0.5. No-Low habitat is scored at 0.1.	0.1	0.5	0.7
Site condition (max. 3 points)					
What is the structure and condition of the vegetation on the site?	0-1	The vegetation structure and condition across the NGGA is generally poor and declining. EHP reported that: • Condition varies across the Growth Area and is mostly degraded • The landscape is highly modified due to agricultural land use and is largely dominated by non-native species No-Low is scored at 0.1 and Mod-High is scored at 0.5.	0.1	0.5	0.75

QUALITY PARAMETER	SCORING RANGE	NOTES	IMPACT QUALITY SCORE		OFFSET START QUALITY SCORE
			No-low habitat	Mod-High habitat	
What is the diversity of relevant habitat species present (including both endemic and non-endemic)?	0-1	Similar to structure and condition, the diversity of relevant habitat species is affected by the declining trend in the environment within the NGGA. No-Low is scored at 0.1 and Mod-High is scored at 0.75.	0.1	0.75	0.75
What relevant habitat features are on the site?	0-1	Similar to the previous two parameters, the quality of relevant habitat features is affected by the declining trend in the environment within the NGGA. No-Low is scored at 0.25 and Mod-High is scored at 0.75.	0.25	0.75	0.75
Species stocking rate (max. 4 points)					
What is the presence of the species on the site (i.e. confirmed / modelled)?	N/A	This parameter is not used for scoring given that the species is present, and the parameter about density (see below) addresses the question of abundance.	N/A	N/A	N/A
What is the density of species known to utilise the site?	0-4	Scoring for density is based on the following: • 0/4 = species not present • 1/4 = 0-5 males per hectare • 2/4 = >5-20 males per hectare • 3/4 = >20-50 males per hectare • 4/4 = >50 males per hectare Averaged results from the EHP surveys found less than 5 males per hectare. Both No-Low and Mod-High habitat are scored at 1.	1	1	2
What is the role of the site population in regards to the overall species population?	N/A	This parameter is not used for scoring given that the importance of the site to the overall species population is addressed under Site Context.	N/A	N/A	N/A
		Total quality score for GSM out of 10 (rounded)	**2**	**5**	**6**

THE CITY OF
GREATER GEELONG

NORTHERN AND WESTERN GEELONG GROWTH AREAS

DRAFT STRATEGIC ASSESSMENT FUNDING PROGRAM

CITY OF GREATER GEELONG

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1. Introduction

The Northern and Western Geelong Growth Areas Strategic Assessment Funding Program (Funding Program) and resulting Conservation Levy (Levy) has been prepared by the City of Greater Geelong.

The Funding Program:

- Outlines the conservation land, offsets, resources and works that the required to give effect to the commitments of the endorsed *Environment Protection and Biodiversity Conservation Plan* (Plan), associated *Commitments and Measures* and *Biodiversity Conservation Strategy.*
- Directly responds to Commitment No. 17 in the Plan, by establishing the arrangements to fund the implementation of the Plan's commitments and measures over the life of the Plan.
- Sets out a detailed framework within which development proponents will be required to make a financial contribution towards the recovery of costs associated with the implementation of the Plan's conservation commitments and measures throughout the life of the Plan, or alternatively provide land, works or offsets which the approval holder accepts in lieu of the obligation to make a financial contribution.
- Directly responds to Commitment No. 12 in the Plan, by enabling the approval holder to request that a development proponent provide offsets in lieu of a financial contribution, to ensure that offset delivery occurs ahead of impacts within the NGGA.
- Ensures the costs of delivering the Plan's conservation commitments to protect matters of national environmental significance (MNES) are shared equitably between development proponents.
- Provides certainty about how the Levy will be administered.

The City of Greater Geelong (the City) is the approval holder for the Plan. As approval holder, the City is responsible for:

- Ensuring the Plan's outcomes are achieved and implementing the commitments and measures
- Ensuring regulated third-parties who undertake an approved action or any part of an approved action under the endorsed Plan take these actions in accordance with the Plan and implementation documents and with the Commonwealth approval conditions
- Taking reasonable steps to ensure regulated third-parties:
  - Are informed of any relevant requirements of the endorsed Plan and Commonwealth approval conditions that regulates or restricts the way in which the action is taken
  - Comply with the endorsed Plan and Commonwealth approval conditions
- Notifying Department of Climate Change Energy Environment and Water of any known non-compliances with conditions by third parties

REPORT STRUCTURE

The Funding Program comprises:

- Conservation commitments
- Calculating the contribution
- Administration and Implementation
- Appendices

2. Conservation commitments and measures

The strategic basis for the funding framework and this program is outlined in the NWGGA Strategic Assessment. The EPBC Plan outlines objectives, outcomes, commitments and measures to manage impacts to MNES. The relationship of the components and the documents is shown in Figure 1.

The commitments and measures in the Plan to protect MNES that are funded projects over the life of the Plan are outlined in Table 1.

The scope of the projects are detailed in Appendix 1.

The Funding Program uses a project identification system of project category and sequential number in its tables and plans.

The following types of projects are included in the Funding Program:

- Offsets - OF
  - Golden Sun Moth - GSM
  - Striped Legless Lizard – SLL
  - Natural Temperate Grasslands of the Victorian Volcanic Plains – NTG
- Conservation Areas – CA
  - Land – L
  - Conservation works - CW
- Plan implementation and governance - PI
  - Finance costs – F
  - Plan preparation costs – PC
  - Compliance – C
  - MERI Framework – M

The Funding Program does not include infrastructure items associated with a typical growth area that are delivered by a proponent or funded through a Development Contributions Plan (DCP) or Infrastructure Contributions Plan such as roads, community centres or drainage. A separate DCP will apply to each precinct subject to the Funding Program.

The Funding Program does not include amenity upgrades associated with the Cowies Creek and Moorabool River corridors. These amenities such as toilet blocks and shared paths will be funded through the requisite DCP for the Precinct Structure plan (PSP) area. The riparian corridors for the Moorabool River and Cowies Creek are not included as land items in the Funding Program. These corridors are encumbered land, unsuitable for development and will be vested as part of the subdivision of the adjacent land as part of the progress of development.

Figure 1: Relationship of Strategic Assessment components

Components of the outcomes and funding framework	Description of each component	Where each component is presented
Objectives	The broad contribution to be achieved by implementing the EPBC Plan	EPBC Plan
Outcomes	The positive impacts or changes which will achieve the overall objectives	EPBC Plan
Commitments	The direct results of implementing the measures which will achieve the outcomes	EPBC Plan, BCS, Commitments and Measures
Measures	The specific actions that will be undertaken to meet the commitments	Commitments and Measures
Funded Projects	The projects to be funded to deliver the measures	Funding Program

CONSERVATION COMMITMENTS AND MEASURES

Table 1: Conservation commitments and measures funded by the Levy

Commitment	Description	ID	Projects
Conservation Areas			
Northern Geelong Growth Area Conservation Area	The NGGA Conservation Area will be established to protect and manage native vegetation and 74 ha of habitat for Striped Legless Lizard and 108 ha of habitat for Golden Sun Moth in perpetuity (Commitment 3 and 10)	CA_L_1	Part of 135 Staceys Road as conservation land
		CA_L_2	165 Staceys Road as conservation land
		CA_L_3	195 Staceys Road as conservation land
		CA_L_4	Part of 225 Staceys Road as conservation land
		CA_CW_1	Conservation contractors and works
		CA_CW_2	Conservation staff (1EFT)
Cowies Creek Conservation Area	Managing the Cowies Creek Conservation Area as avoided land (Commitments 5 and 6)	CA_CW_3	Conservation contractors and works
Offsets			
Securing offsets	Offset sites will be established in strategic locations to protect and manage a minimum of MNES offsets. (Commitment 10)	OF_NTG	45 ha of Natural Temperate Grassland
		OF_SLL	375 ha of habitat for Striped Legless Lizard
		OF_GSM	585 ha of habitat for Golden Sun Moth
Waterways			
	Specific mitigation measures will be implemented to minimise the indirect impacts of the development on MNES associated with waterways, riparian areas and wetlands. (Commitment 9)		To be confirmed at PSP stage

Plan implementation and governance			
Monitoring, evaluation, reporting and improvement (MERI) program	Implementation of the Plan's MERI framework over the life of the Plan (Commitment 18)	PI_M_1	MERI framework development and implementation
		PI_M_2	Project management and administration costs (1 EFT)
Compliance	Implementation of the Plan's compliance framework over the life of the Plan (Commitment 20)	PI_C_1	Compliance and education costs (1 EFT)
Plan preparation costs	Preparation of the Plan, BCS and SIA	PI_PP_1	
	Technical studies to determine how avoid and mitigate potential downstream impacts as precincts are planned and developed (Commitment 9)	PI_PP_2	Technical study for Limeburner's Bay
		PI_PP_3	Technical study for Moorabool River
	Preparation of the conservation management plans for conservation areas (Commitment 6 and 4)	PI_PP_4	Conservation management plan for NGGA Conservation Reserve
		PI_PP_5	Conservation management plan for Cowies Creek Conservation Reserve
Finance costs	Costs associated with securing of the offsets package early during Plan implementation to ensure that the biodiversity benefits of protecting and managing MNES are realised as far in advance of impacts as possible (Commitment 13)	PI_F_1	Finance costs

3. Calculation of contributions

EPBC APPROVAL

The Plan has been prepared to meet the requirements of the *Environment Protection and Biodiversity Conservation Act 1999*. Following endorsement and associated approvals under the EPBC Act, the Plan enables the development that is described in Chapter 4 of the Plan to proceed without the need for further assessment and approval for impacts on protected matters under the EPBC Act.

The City is the approval holder for the Plan. As approval holder, the City has primary responsibility for implementing the Plan and ensuring the Plan's outcomes are achieved and its commitments are delivered.

The City is also responsible for ensuring third-parties who undertake an approved action under the endorsed Plan take these actions in accordance with the requirements of the Plan. The legislative framework also requires that third parties undertake relevant classes of action in accordance with the Plan.

Development is approved under Part 10 of the EPBC Act through 'classes of actions' that represent the scope of development that may be undertaken in accordance with the Plan.

There are five classes of actions that are included in the Plan:

- Urban and commercial development
- Industrial development
- Rural development
- Supporting infrastructure and services
- Environmental management

These classes of actions are outlined in Chapter 4 of the Plan.

Any person can undertake development within the Plan area and access the associated approval under Part 10 of the EPBC Act provided the following requirements are met:

- Development must fall within the classes of actions as defined in the Plan;
- Development must only occur within the development land as defined the Plan;
- Development must proceed in accordance with any Commonwealth conditions of approval;
- Development must proceed generally in accordance with the Plan, including the avoidance and minimisation, mitigation and offset requirements of the Plan;
- Developers must pay the biodiversity Levy outlined in this Funding Program; and
- Development must be registered in accordance with the developer registration system.

BIODIVERSITY LEVY AREA

The area covered by the Plan is known as the Strategic Assessment Area. It covers 7,101 ha within the Victorian Volcanic Plains Bioregion. It includes:

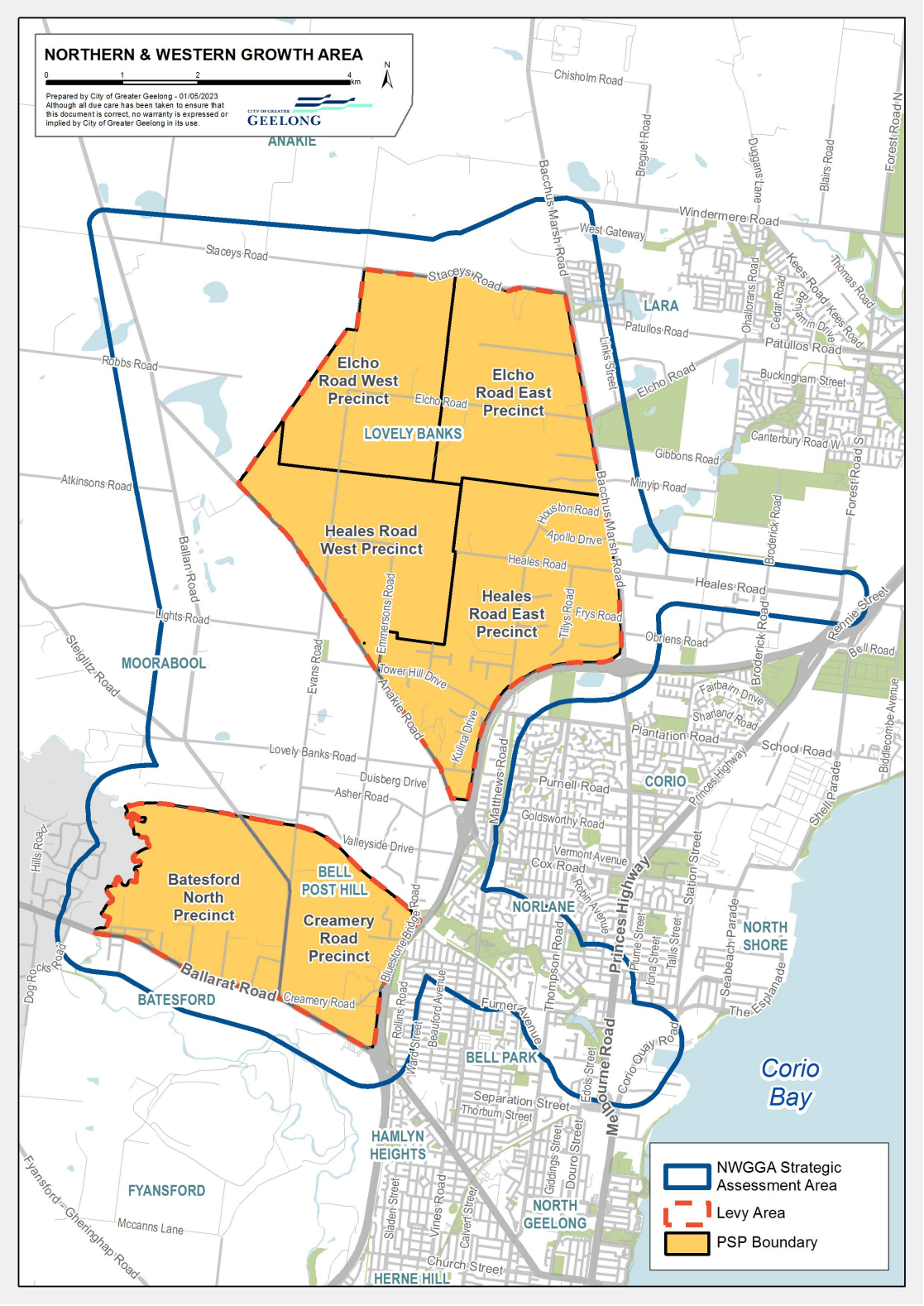
- The entire NGGA as described in the Framework Plan which occurs in the Lovely Banks locality and covers 2,103.9ha
- The two northern precinct structure plans within the WGGA which covers 767.2ha and occurs in the Bell Post Hill and Batesford localities.

The Levy applies to the area shown in Figure 2. This in the 'Levy Area'. Within the Levy Area there are separate levies for the Northern Geelong Growth Area (NGGA Levy) and the Western Geelong Growth Area (WGGA Levy).

When preparing a PSP and calculating the levy per property the City will identify any areas that should be included or excluded from the land use budget and Levy calculation.

If land in the Levy Area is exempt from Part 10 of the EPBC Act and the commitments of the Plan then this land will be excluded from the Levy calculation. The exclusion of that land will occur at PSP approval.

Figure 2: Plan of biodiversity levy area



The City will recover the full cost of the delivery and implementation of the commitments set out in the Plan from landholders/developers within the NWGGA during the life of the Plan.

Given the substantial difference in environmental values and impacts of the two growth areas, it is appropriate that separate and distinct levies apply to each of the NGGA and WGGA.

The NGGA Levy will fund:

- Securing and managing the conservation land in the NGGA
- Technical studies for water related issues relevant to the NGGA
- Securing external offsets
- A share of the planning and administrative costs of preparing and implementing the strategic assessment proportionate to the overall cost proportionate to the overall cost of implementation of the conservation commitments

The WGGA Levy will fund:

- Management of the GGF corridor in the growth area
- Technical studies for water related issues relevant to the WGGA
- A share of the planning and administrative costs of preparing and implementing the strategic assessment proportionate to the overall cost of implementation of the conservation commitments

The Levy is payable on the net developable area (NDA) of land within a property. For the purposes of the Funding Program the NDA is defined as the total amount of land within the precinct that is made available for development. It is the total precinct area minus community facilities, educational facilities, open space and encumbered land.

There are six precincts that will benefit from the EPBC Plan and approval. These precincts will share the costs of delivering the projects that make up their respective Levy as outlined in Table 2.

The share of costs attributed to each precinct is based on the nominated land use and gross areas reflected in the *Northern and Western Geelong Growth Areas Framework Plan August 2020*. This share of costs is fixed and not subject to change. Areas nominated for Future Residential Potential and Future Employment Potential have been excluded from this calculation as a land use change in these areas is not confirmed.

indexing and reconciling levy costs are outlined in Chapter 4.

Table 2: Share of costs to be applied per PSP

Precinct	Residential (HA)	Employment (HA)	Share (%)
Western Growth Area			
Creamery Road	236		47
Batesford North	266		53
TOTAL			100%
Northern Growth			
Elcho Road East	346		25
Elcho Road West	309		22
Heales Road East	169	177	25
Heales Road West	406		29
TOTAL			100%

The NDA used to calculate the Levy for each precinct will be determined on the approval and gazettal of the respective PSP within the levy area. At this point in time, the Funding Program will be updated with an appendix outlining the NDA of each property and the Levy for the precinct.

Once a PSP is approved the contributions per property will not be amended to respond to changes to the land budget that may result from the subdivision process.

The purpose of determining levies at approval of the PSPs is to ensure that the levy area accurately reflects the land which benefits from the EPBC Plan and to ensure that the Levy provides for the accurate recovery of costs associated with implementation of the Plan's conservation commitments. The process of adjusting,

PROJECT COSTS

Each project has been assigned a land, construction or administration cost, as listed in Table 3 and 4. The costs are expressed in 2023 dollars and will be adjusted annually in accordance with the method specified in Chapter 4.

For the conservation land forming part of the Levy, the values have been calculated through a site-specific valuation on a 'before and after basis.

Refer to Appendix 1 for project cost sheets.

Table 3: NGGA project costs

Project number	Project	Land area (HA)	Project cost	Share of cost [1]	Cost to Levy
Conservation Area					
CA_L_1	Part of 135 Staceys Road as conservation land	26.32	TBC	100%	TBC
CA_L_2	165 Staceys Road as conservation land	34.10	TBC	100%	TBC
CA_L_3	195 Staceys Road as conservation land	32.60	TBC	100%	TBC
CA_L_4	Part of 225 Staceys Road as conservation land	15.00	TBC	100%	TBC
CA_CW_1	Conservation contractors and works	-	TBC	100%	TBC
CA_CW_2	Conservation staff (1EFT)		TBC	89%	TBC
Offsets					
OF_NTG	45 ha of Natural Temperate Grassland	-	TBC	100%	TBC
OF_SLL	375 ha of habitat for Striped Legless Lizard	-	TBC	100%	TBC
OF_GSM	586 ha of habitat for Golden Sun Moth	-	TBC	100%	TBC
Plan implementation and governance					
PI_M_1	MERI framework development and implementation	-	TBC	89%	TBC
PI_M_2	Project management and administration costs (1 EFT)	-	TBC	89%	TBC

[1] Share of cost to be updated when final costings known. Share based on current cost estimates. Share of cost will be fixed on the approval and gazettal of the first amendment that implements the funding program

PI_C_1	Compliance and education costs (1 EFT)	-	TBC	89%	TBC
PI_PP_1	Consultancy and design costs	-	TBC	89%	TBC
PI_PP_2	Technical study for Limeburner's Bay	-	TBC	100%	TBC
PI_PP_4	Conservation management plan for NGGA Conservation Reserve	-	TBC	100%	TBC
PI_F_1	Finance costs	-	TBC	89%	TBC
Total cost			**TBC**		**TBC**

Table 4: WGGA project costs

Project number	Project	Land area (HA)	Project cost	Share of cost	Cost to Levy
Conservation Area					
CA_CW_3	Conservation contractors and works	-	TBC	100%	TBC
CA_CW_2	Conservation staff (1EFT)	-	TBC	11%	TBC
Plan implementation and governance					
PI_M_1	MERI framework development and implementation	-	TBC	11%	TBC
PI_M_2	Project management and administration costs (1 EFT)	-	TBC	11%	TBC
PI_C_1	Compliance and education costs (1 EFT)	-	TBC	11%	TBC
PI_PP_1	Consultancy and design costs	-	TBC	11%	TBC
PI_PP_3	Technical study for Moorabool River	-	TBC	100%	TBC
PI_PP_5	Conservation management plan for Cowies Creek Conservation Reserve	-	TBC	100%	TBC
PI_F_1	Finance costs	-	TBC	11%	TBC
Total costs			**TBC**		**TBC**

BIODIVERSITY LEVY

The Levy per hectare of NDA by PSP area will be calculated as each PSP is approved and gazetted and Appendix 2 will be updated accordingly over time. The Levy payable for each PSP area is shown in Table 5 and Table 6.

The Levy is imposed to land with the Levy Area:

- For parcels wholly within the levy area, the whole of NDA within that parcel of land will be charged.
- For parcels partly within the levy area, the NDA of that part will be charged

The Levy payment will be coordinated with the development administrative processes outlined in section 4 in the following circumstances:

- The issue of a statement of compliance for a plan of subdivision in relation to a parcel of land wholly or partly within the levy area
- The making of an application for a building permit for the construction of a building on a parcel of land wholly or partly within the levy area
- The approval of a work plan or variation to a work plan under section 77G of the Mineral Resources (Sustainable Development) Act 1990 to carry out an extractive industry

The Levy is only payable once in respect of land. The payment of the levy will be recorded in the 'developer registration system' in accordance with the Plan and the administrative process outlined in section 4 below.

The Levy is payable by a development proponent irrespective of any particular impact to MNES caused by the specific subdivision and/or development proposal.

However, the City will monitor the impacts of specific development proposals on MNES, to ensure that the City is achieving the objectives, outcomes, commitments and measures in the Plan and supporting documents.

For the avoidance of doubt, the Levy is not payable in respect of development which occurs on land entirely outside the NDA of a property within a PSP area.

The City in its absolute discretion may waive or defer the requirement to pay the Levy in relation to a development proposal comprised of minor buildings, works and/or other development associated with a pre-existing land use.

The City in its absolute discretion may agree to the staging of the requirement to pay the levy to accord with staged development proposals. For example, subdivision would trigger of a parcel would trigger first administrative process listed above. The Council will consider staging proposals where land is part developed and part balance lots.

Table 5: WGGA Levy by precinct

Precinct	Residential (HA)	Employment (HA)	Share (%)	Share of total cost (2023)	Levy per HA of NDA
Creamery Road	TBC		47	TBC	TBC
Batesford North	TBC		53	TBC	TBC

Table 6: NGGA Levy by precinct

Precinct	Residential (HA)	Employment (HA)	Share (%)	Share of total cost (2023)	Levy per HA of NDA
Elcho Road East	TBC		25	TBC	TBC
Elcho Road West	TBC		22	TBC	TBC
Heales Road East	TBC	TBC	25	TBC	TBC
Heales Road West	TBC		29	TBC	TBC

4. Administration and Implementation

This section:

- Sets out how the Funding Program will be administered and implemented under the EPBC Act alongside development permitted under the Victorian planning system;
- Specifies when the Levy must be paid;
- Describes when and how the City may accept the delivery of works, land or offsets by a development proponent, or request the provision of offsets by a development proponent, in lieu of cash payments towards the Levy liability;
- Sets out how costs will be indexed over time;
- Specifies when the Funding Program will be reviewed and adjusted as necessary over time; and
- Describes how the Funding Program will be used by the City to monitor impacts to MNES over the life of the Plan, to ensure that offset delivery keeps pace with and occurs ahead of impacts within the NGGA (Commitment No. 12).

IMPLEMENTATION UNDER THE EPBC ACT AND COORDINATION WITH THE VICTORIAN PLANNING SYSTEM

Prior to taking an action, landholders/developers are required to seek the City's authorisation to proceed with that action and rely on the City's approval under Part 10 of the EPBC Act. Authorisation will be subject to compliance with Commonwealth conditions of approval and the Plan, including the obligation under the Plan to pay the Levy pursuant to this Funding Program.

The Figure 3 depicts how the Funding Program will be implemented under the EPBC Act and the Victorian planning system.

The diagram demonstrates that the City will administer and implement the Funding Program under the EPBC Act and coordinate this implementation with timeframes and milestones under Victorian planning system.

The ability of a development proponent to rely on the City's approval under Part 10 of the EPBC Act, and the obligation to pay the Levy, arise under the EPBC Act. The provisions of the Greater Geelong Planning Scheme, and the permit application process under the *Planning and Environment Act 1987* (Vic), will ensure that relevant development carried out within the NWGGA is consistent and coordinated with the Commonwealth conditions of approval, the Plan and supporting documents (including this Funding Program).

To rely on the City's approval under Part 10 of the EPBC Act, a development proponent will first need to lodge a 'developer registration form' with the City, which initiates the process set out in the 'EPBC Act Stream' on the above diagram. The City will administer this developer registration system in its capacity as the approval holder and in accordance with the Plan and supporting documents.

In addition, if a permit is required for the proposed development, a development proponent will need to demonstrate as part of that permit application that it has obtained the City's consent under the 'EPBC Act Stream', and thereafter meet the requirements set out in the 'Planning Stream' in the above diagram.

The requirement to submit a 'developer implementation plan' under both the 'EPBC Act Stream' and the 'Planning Stream' will ensure consistency and coordination across both processes. For example, it is critical that a person undertaking a class of development has consistency in the staging so that the class of action does not precede satisfaction of the EPBC Act obligations. Likewise changes in a development proposal over time (for example revised staging) will necessitate changes considered under the Plan and changes to be considered under the Planning and Environment Act 1987.

A 'developer implementation plan' must:

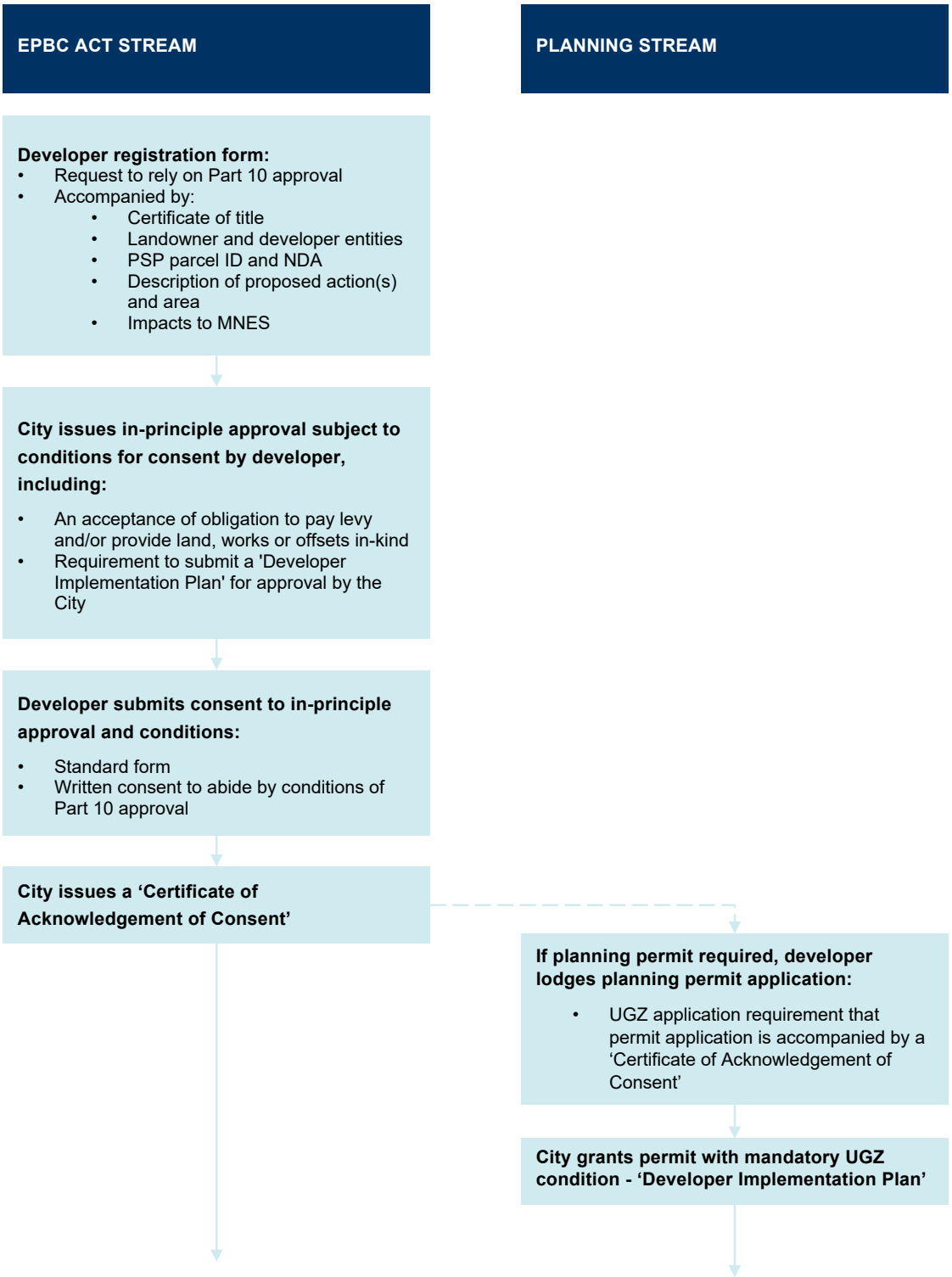
- Demonstrate that the proposed development satisfies all applicable Commonwealth conditions of approval and complies with the Plan and supporting documents; and
- address various matters including the total area of the plan, the NDA, the proposed development activities, land and/or works and/or offsets proposed to be delivered in lieu of a cash payment towards the Levy, impacts to MNES, and mitigation measures to minimise potential indirect impacts as outlined in the Plan and supporting documents.

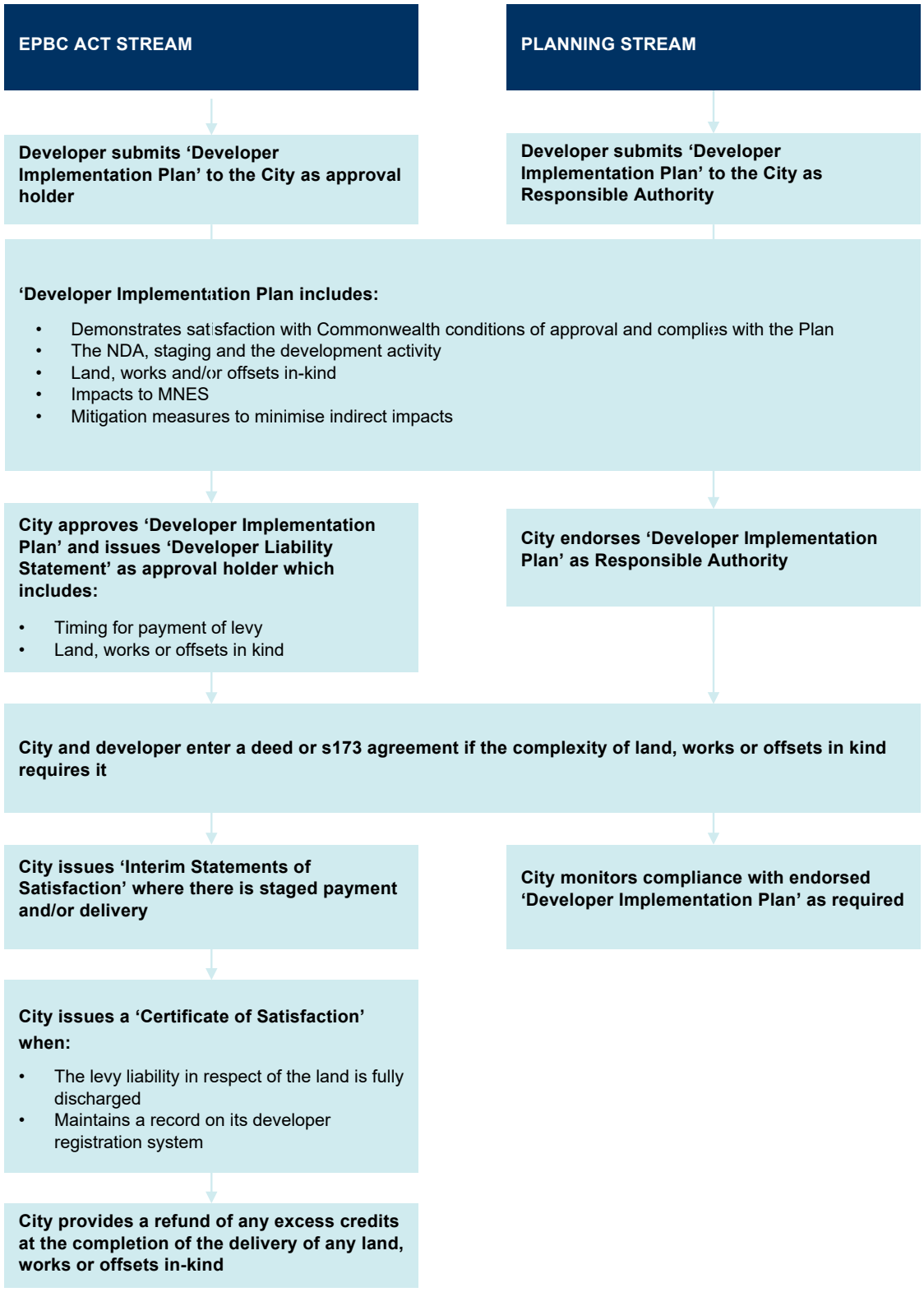
A 'developer implementation plan' must be approved by the City as the approval holder under the 'EPBC Act Stream,' and endorsed by the responsible authority under the 'Planning Stream'.

Upon the approval and endorsement of a 'developer implementation plan':

- The City as approval holder will issue a ‘developer liability statement’ under the ‘EPBC Act Stream’, which confirms the total Levy liability, the timing for the payment of the Levy liability, and any land, works or offsets in kind;
- If required due to the complexity of the land, works or offsets in kind, or any other requirement contained in the ‘developer implementation plan’, the City as approval holder and (if applicable) responsible authority may require that the development proponent enter into an agreement (such as a deed of agreement or an agreement under section 173 of the *Planning and Environment Act 1987*) to secure the developer’s obligations. The agreement must be prepared at the cost of the development proponent/permit holder.

Figure 3: Process outlining implementation of the funding program




EPBC ACT STREAM
PLANNING STREAM
Developer submits 'Developer Implementation Plan' to the City as approval holder
Developer submits 'Developer Implementation Plan' to the City as Responsible Authority
'Developer Implementation Plan includes:
Demonstrates satisfaction with Commonwealth conditions of approval and complies with the Plan
The NDA, staging and the development activity
Land, works and/or offsets in-kind
Impacts to MNES
Mitigation measures to minimise indirect impacts
City approves 'Developer Implementation Plan' and issues 'Developer Liability Statement' as approval holder which includes:
Timing for payment of levy
Land, works or offsets in kind
City endorses 'Developer Implementation Plan' as Responsible Authority
City and developer enter a deed or s173 agreement if the complexity of land, works or offsets in kind requires it
City issues 'Interim Statements of Satisfaction' where there is staged payment and/or delivery
City monitors compliance with endorsed 'Developer Implementation Plan' as required
City issues a 'Certificate of Satisfaction' when:
The levy liability in respect of the land is fully discharged
Maintains a record on its developer registration system
City provides a refund of any excess credits at the completion of the delivery of any land, works or offsets in-kind

Review

A development proponent/permit holder can seek a review of conditions attached to any 'in-principle approval' issued by the City under the 'EPBC Act Stream', or the City's decision to not approve a 'developer implementation plan', from the *Northern and Western Geelong Growth Areas EPBC Plan Executive Committee*.

Implementation in the Greater Geelong Planning Scheme

This Funding Program will be implemented in the Greater Geelong Planning Scheme as follows:

- It, along with the Plan, will be a policy document; and
- The Schedule to the Urban Growth Zone for each PSP within the NWGGA will include:
  - A permit application requirement regarding evidence of consent under the 'EPBC Act Stream'; and
  - A permit condition which generally requires: prior to the certification of a plan of subdivision or the commencement of development (whichever comes first), a 'Commonwealth biodiversity – developer implementation plan' must be submitted to, and approved by, the responsible authority (see above regarding 'developer implementation plans').

Discretion to require offsets in lieu of cash payments towards Levy liability

The City as the approval holder for the Plan may require that a development proponent provide offsets in lieu of a cash payment towards all or part of the Levy liability, in circumstances where the City determines in its discretion that offsets are required to ensure that offset delivery is keeping pace with and occurring ahead of impacts within the NGGA (Commitment No. 12 in the Plan). In those circumstances, a 'developer implementation plan' will be approved where it is demonstrated that, where required, offsets have been or will be secured to mitigate the impacts of the proposed development.

TIMING FOR PAYMENT OF LEVY LIABILITY

For subdivision of land

Provided it has not already been paid in respect of the subject land, the Levy liability must be paid to the City after certification of the relevant plan of subdivision but not more than 21 days prior to the issue of a Statement of Compliance in respect of that plan, or as otherwise agreed by the City. If the City agrees to alternative timing for payment, it must be reflected in the relevant 'developer implementation plan' and, if deemed necessary by the City, secured by way of a deed of agreement or section 173 agreement.

Where the subdivision is carried out in stages and the City has approved staged payment, the Levy liability for a stage must be paid to the City after certification of the relevant plan of subdivision for that stage, but not more than 21 days prior to the issue of a Statement of Compliance for that stage, or as otherwise agreed by the City. If the City agrees to alternative timing for payment, it must be reflected in the relevant 'developer implementation plan' and, if deemed necessary by the City, secured by way of a deed of agreement or section 173 agreement.

If payment is not received for the Levy, any deficit will be indexed annually.

For development of land where no subdivision is proposed

Provided it has not already been paid in respect of the subject land, the Levy liability must be paid to the City prior to the commencement of any development (development includes buildings, car park, access ways, landscaping and ancillary components).

If payment is not received for the Levy, any deficit will be indexed annually.

Where no planning permit is required

Where no planning permit is required for development of land within the Levy Area, a development proponent is still required to seek approval for the development under the 'EPBC Act Stream'.

Provided the Levy has not already been paid in respect of the subject land, the Levy liability must be paid to the City prior to the commencement of any development (including subdivisional works), or as otherwise agreed by the City as approval holder. If the City agrees to alternative timing for payment, it must be reflected in the relevant 'developer implementation plan' and, if deemed necessary by the City, secured by way of a deed of agreement.

WORKS-IN-KIND, LAND IN KIND AND OFFSETS

The City may choose to accept the delivery of works, land or offsets by a development proponent in lieu of cash payments towards the Levy liability, or request the provision of offsets by a development proponent in lieu of cash payments towards the Levy liability, provided that:

- The works, land or offsets constitute projects that are funded by the Levy;
- The City is satisfied that the timing of the delivery of the land or offsets is consistent with priorities in the Plan;
- The condition of the land is to the satisfaction of the City;
- The works are permanent. Temporary works will not be accepted as works in kind.
- The development proponent complies with all applicable requirements of the City, including tendering, documentation, supervision, and other related requirements.
- Offsets must be provided to the satisfaction of the City and fulfil the following criteria:
  - Secured in perpetuity.
  - Align with the offsets identified in the Plan and not already provided by another party.
  - Include a conservation management plan to outline the values on site and how the values will be improved overtime and conservation advice for the requisite species.
  - Need to meet the strategic landscape outcomes outlined in the Plan and be in accordance with guidelines published by the City.
- There must be no negative financial impact on the Funding Program implementation to the satisfaction of the City.

Where the City agrees to accept the delivery of works, land or offsets in lieu of a cash contribution, or requests the provision of offsets in lieu of a cash contribution, (subject to the above requirements):

- The credit for the works shall equal the final cost of the works as identified in this Funding Program, subject to indexation in accordance with this Funding Program, and the City has approved staged payment.
- The value of works will be applied as a credit against the Levy liability payable by the development proponent;
- No cash contributions towards the Levy liability will be required until the credit has been extinguished; and
- Where works identified in the Funding Program are delivered in part, the City will determine the credit having regard to any wasted costs or costs of mobilisation that are associated with partial delivery.

CREDIT FOR OVER PROVISION

Where the City agrees to accept the delivery of works, land or offsets, or requires the delivery of offsets, in lieu of a cash contribution, the situation may arise where the development proponent makes a contribution with a value that exceeds the applicable Levy liability under this Funding Program (over-provision).

In circumstances where the developer registers an overprovision recognised by the City, the City may agree to pay a cash reimbursement to the development proponent in the amount of the over-provision. The over-provision arrangements will be recorded in a deed of agreement or section 173 agreement.

The value of any credit and reimbursements for the construction of works, land or offsets shall equal the cost of the works identified in this Funding Program, subject to indexation in accordance with this Funding Program.

CREDIT FOR EARLY PROVISION

Where a developer is in credit against their Levy liability this credit balance will be indexed annually in accordance with the annual increase in the Levy.

The City may agree to accept early provision of offsets when approving the developer implementation plan.

FUNDS ADMINISTRATION

Levies which are collected under this Funding Program will be held by the City until required to be expended on implementation of the Plan's commitments and measures.

Details and records of funds received, and expenditures will be held by the City in accordance with the provisions of the *Local Government Act 2020* (Vic).

The administration of contributions made under the Funding Program will be transparent and demonstrate the:

- Amount and timing of funds collected
- Source of the funds collected
- Amount and timing of expenditure on specific projects

- Project on which the expenditure was made
- Details of works in kind, land in kind and offset arrangements

The City will provide for regular monitoring, reporting and review of the monies received and expended in accordance with this Funding Program.

The City will establish reserve accounts and all monies allocated to these accounts will be used solely for the provision of projects as itemised in the Funding Program.

Should Council achieve savings on any project or resolve not to proceed with any of the projects listed in this Funding Framework, the funds collected for these items will be used for alternative works necessary to deliver the commitments and measures of the Plan. Changes to the projects and offsets identified in this Funding Program will be agreed to by the *Northern and Western Geelong Growth Areas EPBC Plan Executive Committee*.

INDEXATION

The Project Costs outlined in this Funding Program are in 2023 dollars and will be adjusted by the City annually in accordance with the methodologies outlined below.

The adjusted Project Costs must be calculated as at 1 July in each year.

The adjusted Project Costs will inform the City will publish the amended Levy on it's website within 14 days of the adjustments being made.

Infrastructure Projects

Project Costs associated with the construction of infrastructure must be indexed annually in line with the *Australian Bureau of Statistics' Producer Price Indexes, Non-Residential Building Construction Index, Victoria*.

Land Projects

Project Costs associated with land value must be adjusted annually to reflect the value of the land as at the date of adjustment, to be determined by a registered valuer based on the same valuation principles that informed the initial valuation. Revisions may occur more frequently if market conditions warrant. Costs incurred by the acquiring authority under the *Land Acquisition and Compensation Act 1986* will be included in the Project Cost.

Offsets Projects

Project Costs associated with offsets must be adjusted annually pursuant to the following process:

- The City will seek an opinion of probable cost from a suitably qualified and experienced offset broker to inform the annual offset value per hectare.
- That offset value will be used to adjust the Project Costs associated with offsets.

REVIEW PERIOD

This Funding Program be reviewed when each PSP is prepared and approved to give effect to:

- Updates to any aspect of this Funding Program as required
- Review of projects required, as well as their costs and scope and provision trigger
- Preparation of a NDA and land budget for the new PSP for inclusion in this Funding Program.
- The publication of a Levy for the PSP area in question and updates to the Levy for any previous PSP areas as required.
- Review of land values for land to be purchased through the Plan.

MONITORING IMPACTS

The Plan identifies that impacts to MNES will not exceed offset delivery. This commitment and the early delivery of aspects of the offset program are central to the justification for the overall offset requirements.

The City will monitor impacts to MNES outlined in the Plan via the developer registration system under the 'EPBC Act Stream', as well as the PSP and planning permit process.

The PSP areas that area contributing impacts to MNES are shown in Table 7.

Table 7: MNES impact area and contribution to offset target

Precincts	Impact area (ha)	Offset target (ha)
Elcho Road East		
GSM – No/low value	217.04	173.63
GSM – High/moderate value	13.16	31.58
GSM – total	230.20	205.21
SLL	53.69	131.25
NTG	14.88	37.44
Elcho Road West		
GSM – No/low value	155.03	*124.02*
GSM – High/moderate value	9.40	*22.56*
GSM – total	164.43	146.58
SLL	46.02	112.50
NTG	1.40	3.51
Heales Road East		
GSM – No/low value	62.01	49.61
GSM – High/moderate value	3.76	9.02
GSM – total	65.77	58.63
SLL	30.68	75.00
NTG	1.40	3.51
Heales Road West		
GSM – No/low value	186.03	148.82
GSM – High/moderate value	11.28	27.07
GSM – total	197.31	175.90
SLL	23.01	56.25
NTG	0.93	2.34

Appendices

APPENDIX 1: PROJECT SHEETS

APPENDIX 2: LAND BUDGET BY PSP

CITY OF GREATER GEELONG
WADAWURRUNG COUNTRY
PO Box 104, Geelong VIC 3220
P: 5272 5272
E: contactus@geelongcity.vic.gov.au
www.geelongaustralia.com.au

CUSTOMER SERVICE CENTRE
Wurriki Nyal
137-149 Mercer Street, Geelong
8.00am – 5.00pm

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CITY OF GREATER GEELONG

2.5. Upcoming International Delegate Opportunities

Source: **Customer, Community and Economy**
Acting Executive Director: **Bryce Prosser**

Cr Kontelj declared a Conflict of Interest in Item 2.5 Upcoming International Delegate Opportunities in that one of the group of companies of which Cr Kontelj is a Board Member of the Advisory Board has a business/commercial relationship with Hanwha. Cr Kontelj was not present during discussion of this item.

Purpose

1. To seek approval on the upcoming delegate opportunities for the Mayor as part of the City's UNESCO City of Design Delegation and Memorandum of Understanding with City of Changwon (Changwon MOU).

Background

2. In 2017, Council became a member of the UNESCO Creative Cities Network (UCCN) in the field of design.

3. One of Council's obligations as designated secretariat is for the Mayor, as Council's lead representative, to attend the UCCN Annual Conference.

4. On the 14 December 2021 Council approved the progression of a Memorandum of Understanding (MOU) with South Korea's Changwon City.

5. The signing of the MOU on 31 March 2022, formalised an agreement to collaborate with Changwon City on trade, education and cultural exchanges, to promote investment and employment opportunities for the two cities.

Key Matters

6. The Mayor has received requests to participate in international delegate opportunities as part of the UNESCO Cities of Design delegation and MOU with Changwon, Korea. A summary of proposed international delegations is detailed in **Attachment 1**.

7. Attending the UCCN annual conference further develops the relationships with other UCCN designated cities, allows collaboration with other cities and enables Geelong to share projects that support our contribution to Development Goal 11 – Sustainable Cities and Communities.

8. A delegation to Korea reaffirms the City's commitment as per the MOU, strengthens ties with the Korea baseball league (having hosted Geelong-Korea baseball team 'Happy Rising' as well as Korean baseball training camps), reaffirms international education engagement with Deakin University, and demonstrates commitment to the investment by Hanwha Aerospace in the 32,000 specialist armoured vehicle manufacturing plant (in construction and due for completion in 2024).

9. The Mayor would be accompanied by one City Officer.

Cr Aitken moved, Cr Mason seconded -

That Council in accordance with the Council Expenses Policy, authorise the Mayor, Cr Trent Sullivan to attend the annual UNESCO Creative Cities Network annual conference in Istanbul and associated international delegate opportunities in September 2023 as per Attachment 1.

Lost

Division Requested:
For: Crs Aitken, Asher, Sullivan
Against: Crs Hathway, Cadwell, Murrihy, Mason, Moloney

Alternate Motion

Cr Aitken moved, Cr Asher seconded:

That Council in accordance with the Council Expenses Policy, authorise the Mayor, Cr Trent Sullivan to attend the annual UNESCO Creative Cities Network annual conference in Istanbul and Changwon in September 2023 as per Attachment 1.

Lost

Division Requested:
For: Crs Aitken, Asher, Sullivan
Against: Crs Hathway, Cadwell, Murrihy, Mason, Moloney

Financial Sustainability

10. The cost to the City for the Mayor is approximately $12,500.

11. There will be an additional expense of approximately $12,500 for a City Officer to accompany the Mayor.

12. The above estimated costs can be met within the existing FY23/24 budget provision.

Community Engagement

13. Key stakeholders were engaged in the development of the application for the City of Design designation including Deakin University, and the Australian Centre for Innovation and Design (ACID), the City's Arts and Culture Unit and Creative Geelong.

14. A working group has been established consisting of Deakin University, Geelong Performing Arts Centre, Design Institute of Australia, Creative Victoria and Geelong Manufacturing Council and Gordon TAFE.

Social Equity and Sustainability

15. One of the primary aims of the UCCN is a commitment to the UNESCO Sustainable Development Goals and in particular Goal #11, Sustainable Cities and Communities. Member cities are tasked with developing and influencing policy in support of this objective.

16. Through our membership we reiterated our commitment to the network's mission statement and strategic framework, further integrating culture and creativity within initiatives, policies and projects implemented at the local level. This includes a commitment to promoting diversity, gender equality and youth empowerment.

Relevant Law/Policy/Legal Implications

17. This report complies with requirements of the Council Expenses Policy.

Alignment to Community Plan and Vision

18. This report aligns with Our Community Plan 2021-2025 strategic priority:
Strong local economy.

19. This report aligns with the Community led 30-year Vision, "Greater Geelong: A Clever and Creative Future" community aspiration:
A prosperous economy that supports jobs and education opportunities.

Conflict of Interest

20. No officer involved in the preparation of this report declared a general or material conflict of interest.

Risk Assessment

21. Should the recommendation not be supported, there may be implications to the UNESCO City of Design designation due to not being able to fulfill requirement of attendance at the Annual AGM.

22. There is potential reputational risk to the City's relationship with Korea due to multiple invitations being made to visit Changwon by the Mayor of Changwon, Consul General for Korea and Hanwha CEO.

Environmental Sustainability

23. There are no known environmental implications associated with this report.

Attachments

1. 2023 06 13- International Delegation Proposal [**2.5.1** - 1 page]

THE CITY OF
GREATER GEELONG

INTERNATIONAL
DELEGATE OPPORTUNITIES

CITY OF GREATER GEELONG

Visit City of Changwon, Korea – Changwon MOU

Location: City of Changwon, Korea
Dates: 4-10 September 2023
Summary:
Opportunity to advance exchanges, cooperation and mutual understanding post the signing of the MOU, including a visit the Hanwha Aerospace facility, meetings with Korean baseball representatives and attendance at the World Smart City Expo.

UNESCO Creative Cities Network (UCCN) Annual Meeting 2023 – UCCN Annual conference

Location: Host City, Istanbul
Dates: 11-15 September 2023
Summary:
The main objectives of this event are to:

- Exchange updated information on activities carried out by cities intended to implement the objectives of the Network both at the local and international level and formulate new inter-city partnership initiatives;
- Determine the Network's strategy and operations, and agree upon important matters related to future developments, including the priorities of the Network for the coming year;
- Offer a key platform of dialogue between the Creative Cities and UNESCO, regarding the Organization's priorities on culture and development and other issues of mutual interests.

Outcomes:

- To attend and present at the Mayors Day;
- To participate in the City of Design (COD) sub network meetings;
- To continue to build relationships with like cities;
- To present on the Geelong Clever and Creative Vision;
- To present on the sub network meeting held in Geelong in March 2023; and
- To seek opportunities for collaboration based on current projects and calls from sub network cities.

UNESCO City of Design Inspiration Tour – UNESCO Inspiration Tour
(including post conference and pre tour invitation to visit City of Kortnijk, Belgium, 16-18 September 2023)

Location: Dundee, Scotland
Dates: 19-21 September 2023
Summary:
Visit a range of sites including:

- Dundee Waterfront Development Project
- 4J Studios (creators of Minecraft)
- Architectural V&A Museum (exploring Scotland's creative manufacturing industry)
- Biome Collective (creative co-working space)
- Michelin Scotland Innovation Park (industrial regeneration project)
- Other local innovative businesses.

2.6. Art and Heritage Collections Policy

Source: **Community Service Delivery**
Executive Director: **Robyn Stevens**

Cr Kontelj re-joined the meeting at 8.37pm.

Purpose

1. For Council to adopt the Art and Heritage Collections Policy **(Attachment 1).**

Background

2. The City of Greater Geelong Art and Heritage Collection (the Collection) is of national, state and local significance.

3. The Collection is a public inheritance of materials managed on behalf of the community. It is comprised of over 20,000 items, spanning municipal treasures including municipal and social history, cultural heritage and fine art valued at over $31 million. Further information is outlined in **Attachment 2** – Background Information City of City of Greater Geelong Art and Heritage Collections Policy.

Key Matters

4. The development of the *Arts and Heritage Collections Policy* (the Policy) is informed by ten years of research, benchmarking, collection audits, internal Council and external community engagements.

5. The Policy is the foundation and guiding principles document for the acquisition, care, management, access and de-accession of all art, heritage and cultural objects (tangible and intangible) that are or may be part of, be considered for, offered to, received by, commissioned by, purchased by, or might otherwise become, part of the City of Greater Geelong art, heritage and cultural collections. These include, but may not be limited to:

   5.1. Geelong Indoor Collection – incorporating four distinct sub-collections:

      5.1.1. Council Art and Heritage Collection;

      5.1.2. Geelong Naval and Maritime Collection;

      5.1.3. Old Geelong Gaol Collection; and

      5.1.4. National Wool Museum Collection.

   5.2. Geelong Outdoor Collection – incorporating three distinct sub-collections:

      5.2.1. Outdoor Artefacts Collection;

      5.2.2. Plaques and Memorials Collection; and

      5.2.3. Public Art Collection.

6. Lack of a purpose-built (to museum industry standards) collections management storage facility, however, is recognised as a major challenge for preserving and sharing Council and community collections across Victoria and Australia.

7. The Policy provides the mechanism to prioritise Art and Heritage Collection acquisitions and de-accessioning of items to best manage the Collection resource needs within larger Council budget considerations and constraints.

RESOLUTION - Item 2.6

Cr Cadwell moved, Cr Murrihy seconded -

That Council adopt the Art and Heritage Collections Policy.

Carried

Financial Sustainability

8. Ongoing budget resources are required to meet professional industry standards and community expectations.

9. The level of financial resourcing is subject to future budget allocations.

Community Engagement

10. Development of the Policy is informed by multiple projects and significant professional and community engagements over ten years. This has included extensive research, benchmarking, collection audits, internal Council workshops, community surveys and workshops and collection photography and documentation. Examples include:

    10.1. Visitor and community surveys and community heritage group workshops – part of the 25th Object exhibition (2014);

    10.2. 'Our Future' - Clever and Creative Vision survey (2017);

    10.3. Municipal Heritage Strategy stakeholder engagements and heritage studies reviews (2017);

    10.4. 'Have Your Say' community survey (2019) - *Our Heritage, Our Collection: Strategic Report on the Use and Management of the City of Greater Geelong's Heritage Collection (2020)*;

    10.5. *Arts & Cultural Strategy 2021-2031* community and stakeholder engagements (2019/2020); and

    10.6. National Wool Museum 30 Year Vision and Business Plan stakeholder workshops and #YourMuseumGeelong engagement project (2022-2023).

11. Proper care, management and access of heritage collections are identified as being of value and a priority of community and Council staff through the engagement for these projects.

12. Internal and external key stakeholder consultations have included:

    12.1. Wadawurrung Traditional Owners;

    12.2. Community Heritage and Collecting Organisations;

    12.3. Geelong Gallery;

    12.4. Geelong Regional Library Corporation – Geelong Heritage Centre;

    12.5. Geelong Gaol Museum;

    12.6. Internal City of Greater Geelong Departments; including Urban Design and Heritage;

    12.7. Arts and Cultural industry groups including heritage as part of the Arts and Cultural Strategy engagement and development; and

    12.8. External consultants.

Social Equity and Sustainability

13. Council acknowledges its role as caretakers of the Collection, a significant public inheritance of materials managed on behalf of the community.

14. The Policy directly engages with social equity, notably leadership and respect for principles of inclusion and diversity for Cultural and Linguistic Diversity, Refugees, LGBTQIA+, First Nations (Wadawurrung), Gender Equity and People with lived experience of disability.

15. The Collection is cared for by Council on behalf of the community. As such, members of the community have a right to know what is in the Collection and have a means to access and engage with it. Access is a principle that impacts other key obligations, including preservation, security, law and ethics. Access in this context is about how people can access both a collection and its records/metadata.

Relevant Law/Policy/Legal Implications

16. Policy, legal and statutory implications associated with the development of the Policy have been adequately considered and managed by the City's Arts and Culture Department in consultation with key departments. The adoption of the Policy will trigger further procedural and legal consideration and responsibilities, such as the development of Collections Management Guidelines and Operating Procedures and heritage approvals for major venue developments.

17. The Policy aligns with, and fulfils actions outlined in: *Clever and Creative Future 2017, Community Plan 2021-25, Our Heritage, Our Collection Strategic Report,* the *Arts and Cultural Strategy* 2021-2031 and *National Wool Museum 30-Year Future Vision and Business Plan* 2022.

18. Council and the City are aware of the legal and ethical obligations of caring for collections. These obligations prioritise:

    18.1. sound governance;

    18.2. health and safety;

    18.3. rights including copyright, moral and cultural rights and privacy; and

    18.4. protection of culture and heritage.

19. The Collection is managed in accordance with all relevant laws, industry standards and ethical frameworks. The key relevant legal, ethical and industry frameworks are detailed in Attachment 2 – Background Information.

20. The Collection is managed in accordance with Australian and international codes of practice and museological standards.

Alignment to Community Plan and Vision

21. This Policy aligns with Our Community Plan 2021-2025 strategic priority:
    Healthy, caring and inclusive community;
    Strong local economy;
    Sustainable growth and environment.

22. This Policy aligns with the Community led 30-year Vision, “Greater Geelong: A Clever and Creative Future” community aspiration:
A destination that attracts local and international visitors;
A prosperous economy that supports jobs and education opportunities;
An inclusive, diverse, healthy and socially connected community;
Creative and diverse culture.

Conflict of Interest

23. No officer involved in the preparation of this report declared a general or material conflict of interest.

Risk Assessment

24. The City is committed to preserving its significant art and heritage collections. Once in place, the Policy should be consulted as the foundation and guiding principles document for the acquisition, care, management, access and deaccession of all art, heritage and cultural objects (tangible and intangible).

25. Cultural and heritage collections play a significant role in building social cohesion, community connection and a sense of cultural representation, identity and belonging.

26. Responsibilities for Council's cultural assets, namely the art and heritage collections, the facilities that store and display them, and the staff that manage and program them, require financial commitments and a clear strategic pathway to provide access and deliver programs. This Policy provides the guidance and vision to achieve this and ensure these significant heritage and community assets are fit for purpose.

Environmental Sustainability

27. The Collection is managed with consideration for sustainability. Choices about materials and determined disposal will be considered for their impact on the natural environment.

28. With finite resources to support collections, decisions about acquisitions must also consider the sustainability of the Collection itself. Each item held represents ongoing costs in terms of space, energy, consumables and human resources. As such, unbridled expansion of the Collection is not viable. Every item collected reduces resources available to others and has a cost impact on Council budgets.

29. It is acknowledged that it is an option for some items to be retained as Council assets but not accessioned as collection items.

Attachments

1. Council Policy - City of Greater Geelong Art Heritage Collections Policy June 2023 [**2.6.1** - 9 pages]
2. Background Information - City of Greater Geelong Art Heritage Collections Policy June 2023 [**2.6.2** - 5 pages]

THE CITY OF
GREATER GEELONG

ART AND HERITAGE COLLECTIONS POLICY

VERSION:	*1.*
TYPE OF POLICY:	Council
APPROVAL DATE:	DD MONTH YYYY
REVIEW DATE:	DD MONTH YYYY
RESPONSIBLE OFFICER:	*Manager Community Programs & Venues*
AUTHORISING OFFICER:	*CEO*

CITY OF GREATER GEELONG

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Introduction

PURPOSE

The Policy sets out Council's commitment to, and the key principles for, the development, management, preservation, access and de-accessioning / disposal of the City of Greater Geelong's Art and Heritage Collection (the Collection) in alignment with Australian and internationally recognised museum practice standards.

SCOPE

This Policy applies to all art, heritage and cultural objects (tangible and intangible) offered to, received by, commissioned by, purchased by, that are or might become, part of the City of Greater Geelong art, heritage and cultural collections. These include, but may not be limited to:

- Geelong Indoor Collection – incorporating four distinct sub-collections:
  - Council Art and Heritage Collection (CAC)
  - Geelong Naval and Maritime Collection (GNM)
  - Old Geelong Gaol Collection (GGC)
  - National Wool Museum Collection (NWM)
- Geelong Outdoor Collection (GOC) – incorporating three distinct sub-collections:
  - Outdoor Artefacts Collection
  - Plaques and Memorials Collection
  - Public Art Collection

This Policy applies to the Council, City employees, consultants, contractors and volunteers.

Definitions

The following definitions apply to this Policy:

Term	Definition
City	The City of Greater Geelong organisation, led by the CEO.
City Staff	Includes employees, volunteers and contractors.
Council	The City of Greater Geelong Council comprised of elected councillors and led by the Mayor.
ELT	The Executive Leadership Team of the City, as constituted from time to time.
Access	Viewing and using the Collection via the following means: exhibitions, including internally developed and outward-travelling; online; mobile applications; publications; educational and community programs; physical access in collection storage or display spaces, facilitated by Council staff.
The Collection	The City of Greater Geelong's Art and Heritage Collection: a public inheritance of materials managed on behalf of the community. The Collection is comprised of: **Geelong Indoor Collection, incorporating four distinct sub-collections:** • Council Art and Heritage sub-collection (CAC): A collection of Council-owned moveable heritage items and works of art and including civic memorabilia and historical artefacts. • Geelong Naval and Maritime sub-collection (GNM): A collection of Council-owned moveable heritage items and works of art of a naval and maritime nature acquired through Amalgamation and formerly assets of the Shire of Corio. • Old Geelong Gaol sub-collection (GGC): A collection of Council-owned moveable heritage items discovered at the Old Geelong Gaol. • The National Wool Museum Collection (NWM): A collection of Council-owned moveable heritage objects and materials that represent significant developments and creative/artistic achievements in Australian wool, fibre and textile, with emphasis on how they relate to the history and heritage of Geelong. **Geelong Outdoor Collection (GOC), incorporating three distinct sub-collections:** • Outdoor Artefacts sub-Collection: A collection of Council-owned moveable heritage items and artefacts that are on display or intended to be on display outdoors and in the public realm. Examples include, but are not

Term	Definition
	limited to: military apparatus, former industrial machinery, fountains and architectural adornments. • Plaques and Memorials sub-collection: all plaques or memorials on the pavement or buildings, in parks, gardens, streets or public places. • Public Art sub-collection: works of creative and innovative practice that are planned, executed and intended for display in the public realm.
Collection Item	Any object or material that has been accessioned into the Collection.
De-accessioning	The physical removal of, and in some cases the destruction of, a collection item which has been recorded as de-accessioned from the Collection.
Disposal	The physical removal of, and in some cases the destruction of, a collection item which has been recorded as de-accessioned from the Collection.
Municipality	The geographic boundaries of the City of Greater Geelong.
Significance	The historical, social, artistic/aesthetic, cultural and/or research values (tangible or intangible) of an item which are enhanced by provenance, rarity, condition, cultural connection and interpretive potential.
Sustainability	A continual way of thinking that focusses on the best outcomes for people, environment and the economy both now and in the future.

Policy

Council acknowledges its role as caretakers of the Collection, a significant public inheritance of materials managed on behalf of the community.

Council recognises its responsibility for governance and administration, physical preservation and ethical decision-making in relation to the Collection.

Council is committed to the ongoing preservation, care, growth of and access to its art, heritage and cultural collections in line with the Council adopted Greater Geelong: A Clever and Creative Future, Our Heritage Our Collection Report, the Municipal Heritage Strategy, the Arts and Cultural Strategy and the National Wool Museum 30 Year Future Vision.

Council and the City are committed to informed professional collections management practices and guidelines aligned with the International Convention of Museums (ICOM) Code of Ethics, National Standards for Australian Museums and Galleries and the Victorian Museum Accreditation Standards.

1. PRINCIPLES

1.1 The following internationally recognised art, heritage and cultural principles underpin this Policy:

1.1.1 The Collection shall include important holdings of art and heritage with themes relating to key aspects of Geelong's contemporary and historic character.

1.1.2 The Collection shall reflect the 60,000-year histories, cultures and stories of the Geelong region, representing the ongoing presence, knowledges and living cultures of First Peoples, Wadawurrung Traditional Owners.

1.1.3 The Collection shall recognise all voices and experiences including those of marginalised groups and peoples.

1.1.4 This Policy shall align to, or with, First Peoples / Indigenous rights documents and cultural safety protocols regarding collection, storage and handling of, as well as access to and interpretation of, First People's cultural material – tangible or intangible.

1.1.5 The legal and ethical obligations of art, heritage and cultural collections management are: sound governance, health, safety and protection, rights including copyright, moral, cultural and privacy rights, protection of culture and heritage, regular auditing, external valuation and significance assessments.

1.1.6 Council commits to thoroughly documenting and authenticating the origin and/or history of the material to the highest standards, including documenting its chain of ownership.

1.1.7 Council commits to supporting the needs of the Collection to facilitate planning, care, management and access.

1.1.8 Council commits to understanding the full significance of the Collection and its key objects.

1.1.9 Council understands that managing the Collection shall be undertaken with consideration for sustainability. Choices about materials, acquisition, storage, display, access, de-accession and disposal will be considered for their impact on the environment, resources, fiscal responsibility and community well-being.

1.1.10 The City may, at its discretion and upon written agreement, loan items to a third party for public display. The borrower must demonstrate that they are able to appropriately secure, display and care for the item in question including consideration of environmental conditions.

2. ACQUISITION

2.1 Objects may be added to the Collection by purchase, commission, donation, bequest and/or by gift through the Commonwealth Taxation Incentives – Cultural Gifts Program.

2.2 The acquisition of objects into public collections is a process that must be carried out in a transparent manner as implemented through the Collections Management Guidelines and in accordance with internationally recognised art, heritage and cultural principles.

3. DE-SCCESSIONING AND DISPOSAL

3.1 Objects may from time to time be de-accessioned from the Collection. The proposed removal of an item from the Collection will be considered against pre-determined assessment criteria by designated staff and / or persons with expertise in relation to the item proposed.

3.2 De-accessioning and disposal are sensitive issues for public collections and the process must be carried out in a transparent manner as implemented through the Collections Management Guidelines and in accordance with internationally recognised art, heritage and cultural principles.

4. ASSESMENT AND EVALUATION

4.1 The City will commission or carry out regular assessments and evaluations that will inform this Policy. These may include asset audits, significance assessments and financial evaluations, additionally when and where appropriate, independent assessments are to be commissioned for the Collection.

5. ACTION PLANS

5.1 Where appropriate separate plans may also be developed by responsible Council Officers to guide or improve certain aspects of the Collection.

Implementation of this Policy

IMPLEMENTATION FRAMEWORK

This Policy shall be implemented by the Community Programs and Venues Department through the National Wool Museum and through the Collections Management Guidelines.

MONITORING AND REPORTING

The National Wool Museum is responsible for monitoring, implementing and reporting on this Policy.

Significant activities related to the Collection will be published periodically on:

- The Geelong Australia website www.geelongaustralia.com.au ; and
- Geelong Heritage Collections online collection www.geelongheritagecollections.com.au

ADVICE AND ASSISTANCE

The Community Programs and Venues Department and National Wool Museum are responsible for implementing and managing this Policy.

The Arts and Heritage Collections Officer provides advice related to this Policy and aligned Management Guidelines.

A person who is uncertain how to comply with this policy should seek advice from this person or from their Manager.

RECORDS

The City must retain records associated with this Policy and its implementation in accordance with its Records Information Management Policy

REVIEW

This Art and Heritage Collection Policy will be reviewed and, if necessary, amended every four years.

References

Other Documents

Records Information Management Policy

Arts and Cultural Strategy 2021 - 2031 and 4-Year Action Plan 2021-2025

National Wool Museum 30 Year Future Vision (2022)

Our Heritage, Our Collection: Strategic Report on the Use and Management of the City of Greater Geelong's Heritage Collection (2020)

UNESCO - ICOM (International Council of Museums) Code of Ethics for Museums

Gifts and Hospitality Management Policy

Attachment 2 - City of Greater Geelong Art and Heritage Collection Background Information

City of Greater Geelong Art and Heritage Collection Background

1. The City of Greater Geelong Art and Heritage Collection (the Collection) is of national, state and local significance.

2. The Collection is a public inheritance of materials managed on behalf of the community. It is comprised of over 20,000 items - municipal treasures (indoor and outdoor objects) including municipal and social history, cultural heritage and fine art valued at over $31 million.

3. The Collection is currently undergoing a significance and conservation needs assessment.

4. The City of Greater Geelong (*the City*) has been collecting art and artefacts since 1849 when a municipality was first established under the Geelong Incorporation Act (NSW). In 1993, the former City of Geelong was amalgamated with Cities of Geelong West and Newtown, the Rural City of Bellarine, the Shire of Corio and parts of the City of South Barwon and the Shires of Barrabool and Bannockburn. Art and heritage items held by all these former municipal organisations then became assets of the City of Greater Geelong. The historical assets of these municipalities are the foundation of the Council Art and Heritage Collection.

5. Since amalgamation, more assets have been acquired and sub-collections developed. These combined sub-collections are now the City of Greater Geelong Art and Heritage Collection.

6. The Collection is diverse in terms of material types, age and significance of items and themes represented. The major collecting areas are organisational history (municipalities of Greater Geelong and its predecessors), history of the Geelong region and creative works relating to the Geelong region. The Collection incorporates:

    6.1. **Geelong Indoor Collection** – incorporating three distinct sub-collections:

        6.1.1. **Council Art & Heritage sub-collection (CAC)** - (historically referred to as the "Council Art Collection").

            This sub-collection is co-managed in partnership with Geelong Regional Libraries – Geelong Heritage Centre.

            Approximate number of objects: 550 managed by Council staff and 1,000 managed by Geelong Heritage Centre staff.

            Approximate Value: $500,000 – portion managed by Council and $5.6 million - portion managed by Geelong Heritage Centre.

            This sub-collection encompasses hanging art and photography, historical artefacts, corporate and diplomatic gifts, event memorabilia and Council generated items of significance such as municipal memorabilia. It also includes heritage furniture that is connected to historic buildings, for example Customs House.

6.1.2. **Geelong Naval and Maritime sub-collection (GNM)**

This sub-collection encompasses objects housed at the Geelong Naval and Maritime Museum (closed at this time). Part of this sub-collection is managed in partnership with the Geelong Naval and Maritime Museum Association. The sub-collection includes documents, photographs, textiles, artefacts along with naval history and a unique collection of shipwreck objects. Much of this sub-collection is inherited from Corio Shire, many objects have been identified as having local, state and national significance.

An audit of this collection was completed in August 2022. The audit found that:

- 8,332 recorded objects identified as catalogued:
  - 1,056 objects - location is unknow or records are ‘ghost records’ or duplicates;
  - 7,276 objects – location verified and ownership confirmed;
    - 6,960 are accessioned into the Collection or archived;
    - 316 are provisional / on loan / returned to owner.
- Of the 7,276:
  - 3,791 or 52 per cent belong to Council;
  - Of that approx. 2,600 are of medium to high local state or national significance;
  - 3,468 or 47 per cent belong to the Geelong Maritime Museum Association;
  - Of that approximately 1,900 are of medium to high local state or national significance;
  - The remaining 1% are on loan.

Alongside the Osborne House redevelopment project, Council staff is exploring options for the future of this sub-collection. This includes discussion with external stakeholders such as Port of Geelong and Heritage Office of the Royal Australian Navy.

6.1.3. **Old Geelong Gaol sub-collection (GGC)**

Approximate number of objects: 218

Approximate Value: $10,000

Held at the Geelong Gaol Museum for interpretive purposes and managed under a Memorandum of Understanding (MOU). This is a long-term loan under agreement to the Geelong Gaol Museum, a private enterprise.

Objects include prisoner personal effects (including home-made contraband), uniforms, documents and gaol related objects.

6.2. **National Wool Museum Collection (NWM)**

Approximate number of objects: 8,500

Approximate Value: $8 million

This locally managed national collection focuses on the cultural life of Australians as told through the wool, fibre and textile story. It has strength in preserving the Geelong wool and textile story. The collection is Australia's most expansive wool focused heritage collection. The NWM collection is made up of items of state, national and international significance. These include samples from Victoria's first woollen mill, a fabric sample from MacArthur's first wool clip, Australia's largest publicly held collection of Wagga quilts, a substantial collection of spinning wheels from around the world and a significant photographic collection.

In 2008, an external Significance Assessment described the national importance of the collection. Most of the National Wool Museum collection can be accessed online. The Collection is governed by the *National Wool Museum Collection Policy* (2017) and the Museum is Accredited within the Victorian Museum Accreditation Program.

6.3. **Geelong Outdoor Collection** – incorporating three distinct sub-collections:

6.3.1. **Plaques and Memorials sub-collection** – Items in this Collection are installed in public outdoor places across the City to commemorate significant persons and key turning points in national and local history. The Collection represents over 100 years of support for monuments and works in Geelong's public realm, with many being funded through public subscriptions. It includes plaques, statues and other sculptures, seats, streetlamps, entrance gates, fountains, and large industrial objects. Acquisitions have been guided by the *Plaques and Memorials Policy*, 2013.

6.3.2. **Public Art sub-collection (GOC)**

Approximate number of objects: 320 (inclusive of Outdoor Artefact sub-Collection).

Approximate Value: $13.5 million.

This is recognised as one of the largest Public Places Art Works collections in Victoria. The Collection is varied including artwork from contemporary sculpture to murals and the Baywalk Bollards sub-collection. This Collection is evidence of over 100 years of support for monuments and artworks in Geelong's public realm.

The Greater Geelong Public Art Strategy was updated January 2021. The Greater Geelong Public Art Policy is undergoing a review in 2023.

6.3.3. **Outdoor Artefacts sub-Collection (OAC)** – includes significant historical and architectural objects on public display in the outdoor realm thought-out the municipality. Examples include anchors, large industrial machinery, water troughs and military apparatus not incorporated into memorials.

7. Since 2015 Council has undertaken a series of projects to better understand the breadth and significance of the Collection and implement policies and management procedures in line with internationally recognised art and heritage collections care standards. These projects include auditing and cataloguing, conservation and proper storage, increasing display and community access and implementing staged, strategic policies for management and care. In April 2020 Council adopted the *'Our Heritage, Our Collection'*

Strategic Report on the Use and Management of the City of Greater Geelong's Heritage Collection. In June 2022 Council endorsed the National Wool Museum 30 Year Vision and Business Plan, this formalised the Museum's role as custodian of the Collection, consolidating care and management under one area.

8. The Art and Heritage Collections Policy (the Policy) is the foundation and guiding principles document for the acquisition, care, management, access and deaccession of objects (tangible and intangible) that are, or might become, part of Council's many and varied cultural and heritage collections.

Relevant Laws and Standards

1. The Collections are managed in accordance with all relevant laws, industry standards and ethical frameworks. The key relevant legal, ethical and industry frameworks include:

   1.1. *Aboriginal Heritage Act 2006* (Vic);

   1.2. *Copyright Act 1968* (Commonwealth);

   1.3. *Copyright Amendment (Moral Rights) Act 2000* (Commonwealth);

   1.4. *Dangerous Goods Act 1985* (Vic) and *Dangerous Goods (Storage and Handling) Regulations* 2012 (Vic);

   1.5. *Drugs, Poisons and Controlled Substances Act 1981* (Vic) and *Regulations 2006* (Vic);

   1.6. *Firearms Act 1996* (Victoria) and *Firearms (Amendment) Act 2003* (Victoria);

   1.7. *Heritage (Underwater Cultural Heritage) Regulations 2017* (Vic);

   1.8. *Heritage Act 2017* (Vic) and *Heritage Regulations 2017*;

   1.9. *Occupational Health and Safety Act 2004* (Victoria) and *Regulations 2007;*

   1.10. *Protection of Movable Cultural Heritage Act 1986* (Commonwealth);

   1.11. *Privacy Act 1988* (Commonwealth);

   1.12. *Public Records Act 1973* (Vic);

   1.13. *Underwater Cultural Heritage Act 2018* (Commonwealth);

   1.14. *Insurance Act 1973* (Commonwealth); and

   1.15. *Income Tax Assessment Act 1997* (Commonwealth) (for Cultural Gifts Program).

2.7. Councillor Appointments to Portfolios and Committees

Source:	**Strategy, Governance and Corporate**
Chief Legal Counsel, Governance & Risk Officer:	**Vesna Allan**

Purpose

1. To appoint Councillors to the position of Chair and Deputy Chair for each portfolio **(Attachment 1)**.

2. To appoint Councillors to various committees **(Attachment 2).**

Background

3. Council resolved at the 27 June 2023 Council Meeting to appoint Councillors to various committees and portfolios in alignment with the City's strategic directions of Our Community Plan 2021-25.

4. The extraordinary vacancy in the Windermere Ward resulted in vacancies in some Committee and Portfolio appointments that are now required to be filled.

Key Matters

5. The Mayor retains overall responsibility as spokesperson for the Council as required by the *Local Government Act 2020* (the Act).

6. In accordance with section 63 of the Act, Council must appoint at least two Councillors as committee members to a Delegated Committee, one of which must be appointed by the Mayor or Council as Chair.

7. Portfolio and Committee appointments have been updated to address the vacancies created by Cr Kylie Grzybek's resignation, and to formally appoint Cr Hathway to the nominated portfolios and committees.

8. Councillor appointments to the Portfolios are set out in **Attachment 1.**

9. Councillor appointments to the various committees are set out in **Attachment 2.**

RESOLUTION - Item 2.7

Cr Sullivan moved, Cr Aitken seconded -

That Council:

1. **Revoke the previous portfolio and committee appointments made by Council resolution on the 27 June 2023;**

2. **Adopt the portfolios and appoints Councillor Chair and Deputy Chair for each portfolio as set out in Attachment 1 until Council resolves otherwise; and**

3. **Appoint Councillors and chairs to the various Committees as set out in Attachment 2 until Council resolves otherwise.**

Carried

Financial Sustainability

10. There are no environmental implications associated with this report.

Community Engagement

11. The assignment of a portfolio to Councillors is considered to provide an effective means for Council to be made aware of the community needs. Portfolio Chairs and Deputy Chairs will provide an important link between the community and the Council for matters of strategic focus for their portfolio.
12. Outcomes of Councillor appointments will be communicated to all relevant stakeholders.

Social Equity and Sustainability

13. Assigning Councillors to portfolios provides an opportunity to identify and respond to the social needs of the community.

Relevant Law/Policy/Legal Implications

14. Sections 63 and 65 of the Act allow for the appointment of Councillors to Delegated Committees and Community Asset Committees.
15. Council portfolios will be administered in accordance with Council's Portfolio Protocol.

Alignment to Community Plan and Vision

16. This report aligns with Our Community Plan 2021-2025 strategic priority:
    Healthy, caring and inclusive community.
    High-performing council and organisation.
    Strong local economy.
    Sustainable growth and environment.

Conflict of Interest

17. No officer involved in the preparation of this report declared a general or material conflict of interest.

Risk Assessment

18. Councillors are required to consider the risks and regulatory requirements of any appointment to a Council Committee, including conflicts of interest, confidentiality of information and adherence to the Governance Rules.

Environmental Sustainability

19. There are no environmental implications associated with this report.

Attachments

1. Councillor Appointments to Portfolios - July 2023 [**2.7.1** - 1 page]
2. Councillor Appointments to Committee - July 2023 [**2.7.2** - 1 page]

Portfolios Aligned to Our Community Plan's Strategic Directions

HEALTHY, CARING AND INCLUSIVE COMMUNITY		
PORTFOLIO	**COUNCILLOR CHAIR**	**COUNCILLOR DEPUTY CHAIR/S**
ACTIVE SPACES	Cr Kontelj	Cr Asher
CREATIVITY AND CULTURE	Cr Cadwell	Cr Murrihy
INCLUSION AND CARE	Cr Hathway	Cr Moloney
MULTICULTURAL GEELONG	Cr Moloney	Cr Hathway
VETERAN AFFAIRS	Cr Asher	Cr Nelson
SUSTAINABLE GROWTH AND ENVIRONMENT		
PORTFOLIO	**COUNCILLOR CHAIR**	**COUNCILLOR DEPUTY CHAIR/S**
ENVIRONMENT AND CIRCULAR ECONOMY	Cr Murrihy	Cr Harwood
CITY TRANSPORT	Cr Nelson	Cr Kontelj
CITY PLANNING & HERITAGE	Cr Mason	Cr Cadwell
STRONG LOCAL ECONOMY		
PORTFOLIO	**COUNCILLOR CHAIR**	**COUNCILLOR DEPUTY CHAIR/S**
STRONG LOCAL ECONOMY	Cr Aitken	Cr Mason
HIGH PERFORMING COUNCIL		
PORTFOLIO	**COUNCILLOR CHAIR**	**COUNCILLOR DEPUTY CHAIR/S**
HIGH PERFORMING COUNCIL	Cr Harwood	Cr Aitken
MAYORAL DUTIES		
PORTFOLIO	**COUNCILLOR CHAIR**	**COUNCILLOR DEPUTY CHAIR/S**
ABORIGINAL & TORRES STRAIT ISLANDER (ATSI) PARTNERSHIPS	Mayor	Deputy Mayor
COMMONWEALTH GAMES	Mayor	Deputy Mayor

COMMITTEE	TYPE	REPRESENTATIVE(S)	PORTFOLIO
Geelong Major Events Delegated Committee	Delegated Committee (Section 63)	Cr Nelson Cr Cadwell Cr Mason Cr Aitken	Strong Local Economy
Planning Committee	Delegated Committee (Section 63)	Cr Mason (Chair) Cr Cadwell (Alt) All Councillors	City Planning & Heritage
Bellarine Multi Arts Facility (Potato Shed) Community Asset Committee	Community Asset Committee (Section 65)	Cr Mason (Chair)	Creativity & Culture
Access and Inclusion Advisory Committee	Advisory Committee of Council	Cr Aitken	Inclusion and Care
Ageing-Well Advisory Committee	Advisory Committee of Council	Cr Moloney (Chair)	Inclusion and Care
Audit and Risk Committee	Advisory Committee of Council	Mayor Cr Nelson	High Performing Council
CEO Employment and Remuneration Committee	Advisory Committee of Council	Mayor Deputy Mayor Cr Cadwell Cr Asher Cr Mason Cr Murrihy	High Performing Council
Geelong Heritage Advisory Committee	Advisory Committee of Council	Cr Mason (Chair) Cr Cadwell	City Planning & Heritage
Kilangiti (formerly Karreenga) Aboriginal Advisory Committee	Advisory Committee of Council	Mayor (Portfolio holder as Chair)	Aboriginal & Torres Strait Islander (ATSI) Partnerships
LGBTQIA+ Advisory Committee (new)	Advisory Committee of Council	Cr Hathway (Chair) Cr Mason (Alt Chair)	Inclusion and Care
Multicultural Action Plan Committee	Advisory Committee of Council	Cr Moloney	Multicultural Geelong
Rural and Peri-Urban Advisory Committee	Advisory Committee of Council	Cr Mason Chair Cr Aitken (Alt)	City Planning & Heritage
Submissions Review Panel	Advisory Committee of Council	Cr Harwood (Chair) Cr Aitken (Alt) All Councillors	High Performing Council
Sustainability Advisory Committee	Advisory Committee of Council	Cr Murrihy (Chair) Cr Harwood	Environment and Circular Economy
Women in Community Life Advisory Committee	Advisory Committee of Council	Cr Cadwell (Chair)	Inclusion and Care
Association of Bayside Municipalities	External	Cr Mason (executive) Cr Moloney (Alt)	Environment and Circular Economy
Geelong Art Gallery	External	Cr Cadwell	Creativity & Culture
Geelong Regional Library Corporation	External	Mayor Deputy Mayor Cr Cadwell Cr Moloney	Creativity & Culture
Geelong Heritage Collection Advisory Committee	External	Cr Mason	City Planning & Heritage
G21 Geelong Region Alliance	External	No board representative	High Performing Council
G21 Pillar – Health and Wellbeing	External	Cr Murrihy	Inclusion and Care
G21 Pillar – Cultural and Economic Development	External	Cr Cadwell	Two pillars: Creativity and Culture Strong Local Economy
G21 Pillar – Sustainability	External	Cr Murrihy Cr Harwood (agreed delegate)	Environment and Circular Economy
G21 Managing Growth Advisory Group	External	Cr Mason Cr Cadwell (agreed delegate)	City Planning & Heritage
Municipal Association of Victoria	External	Cr Moloney	High Performing Council
Regional Capitals Australia	External	Mayor	Mayoral duties
Regional Cities Victoria	External	Mayor Deputy Mayor (Alt)	Mayoral duties
Tourism Greater Geelong and The Bellarine Inc	External	Cr Sullivan	Strong Local Economy

2.8. Planning Authorisation - Council to Staff

Source:	**Strategy, Governance and Corporate**
Chief Legal Counsel, Governance & Risk Officer:	**Vesna Allan**

Purpose

1. To appoint City officers as authorised officers 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. **Attachment 1** sets out the Instrument of Appointment and Authorisation under the P&EA and lists the staff member to whom this authorisation applies.

RESOLUTION - Item 2.8

Cr Mason moved, Cr Cadwell seconded -

In the exercise of the powers conferred by s 147(4) of the *Planning and Environment Act 1987*, Council resolves that:

1. **City staff referred to in the Instrument (Attachment 1) be appointed and authorised as set out in the Instrument;**

2. **The Instrument comes into force immediately upon the resolution of Council; and**

3. **The Instrument be signed by the Chief Executive Officer on behalf of Council.**

Carried

Financial Sustainability

6. There are no financial sustainability implications arising from the subject of this report.

Community Engagement

7. Relevant City managers have been consulted regarding this recommended appointment and authorisation.

Social Equity and Sustainability

8. There are no social equity sustainability implications arising from the subject of this report.

Relevant Law/Policy/Legal Implications

9. The recommended appointment and authorisation of staff members complies with the relevant provisions of the P&EA and the *Local Government Act* 2020.

Alignment to Community Plan and Vision

10. This report aligns with Our Community Plan 2021-2025 strategic priority: High-performing council and organisation.

Conflict of Interest

11. No officer involved in the preparation of this report declared a general or material conflict of interest.

Risk Assessment

12. There are no significant or high risks associated with the subject of this report.

Environmental Sustainability

13. There are no environmental sustainability implications arising from the subject of this report.

Attachments

1. Planning Authorisations Council to Staff [**2.8.1** - 2 pages]

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 –

Tracey McCooke

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 officers 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 313 of the *Local Government Act* 2020 authorises the officers generally to institute proceedings for offences against the Acts and regulations described in this instrument.

It is declared that this instrument comes into force immediately upon the resolution of Council.

This instrument is authorised by a resolution of the Greater Geelong City Council on 25 July 2023.

Signed for GREATER GEELONG CITY COUNCIL by
KAARINA PHYLAND, Acting Chief Executive Officer

_____
A/Chief Executive Officer

Date:

2.9. Review of Council to Members of Council Staff Delegations

Source:	**Strategy, Governance and Corporate**
Chief Legal Counsel, Governance & Risk Officer:	**Vesna Allan**

Purpose

1. To review and update the Greater Geelong City Council (Council) Instrument of Delegation for Council to members of Council staff.

Background

2. The *Local Government Act 2020* (the Act) provides for the delegation of Council's powers, duties and functions under that Act or any other Act.

3. Council last reviewed the delegation to members of Council staff on 28 March 2023.

Key Matters

4. It is important to ensure that Council has properly delegated powers, duties and functions, in order to avoid any issues arising regarding the legality of a decision or an action purportedly made or taken on behalf of the Council.

5. The powers conferred on the Council under some legislative instruments cannot be delegated through the CEO and must be delegated by resolution directly to members of Council staff.

6. The schedule to the instrument of delegation Council to members of Council staff (**Attachment 1**) has been updated to reflect organisational structure changes.

RESOLUTION - Item 2.9

Cr Moloney moved, Cr Kontelj seconded -

In the exercise of the powers conferred by the legislation referred to in the attached Instrument of Delegation, the Greater Geelong City Council (Council) resolves that:

1. **There be delegated to the members of Council staff holding, acting in or performing the duties of the offices or positions referred to in the attached Instrument of Delegation to members of Council staff, the powers, duties and functions set out in that instrument, subject to the conditions and limitations specified in that Instrument (Attachment 1);**

2. **The Instrument comes into force immediately upon the resolution of Council;**

3. **The Instrument be signed by the Chief Executive Officer on behalf of Council;**

4. **On the coming into force of the instrument all previous delegations from Council to members of Council staff (other than the Chief Executive Officer) are revoked; and**

5. **The duties and functions set out in the Instrument must be performed, and the powers set out in the instruments must be executed, in accordance with any guidelines or policies of Council that it may from time to time adopt.**

Carried

Financial Sustainability

7. There are no financial sustainability implications associated with this report.

Community Engagement

8. The attached Instrument has been prepared in consultation with relevant Council officers.

Social Equity and Sustainability

9. There are no social equity or sustainability issues arising from the subject of this report.

Relevant Law/Policy/Legal Implications

10. The powers conferred on the Council under some legislative instruments cannot be delegated through the CEO and must be delegated by resolution directly to Council officers.

11. The Acts and Regulations referred to in Attachment 1 are among those which require direct delegation.

Alignment to Community Plan and Vision

12. This report aligns with Our Community Plan 2021-2025 strategic priority: High-performing council and organisation.

Conflict of Interest

13. No officer involved in the preparation of this report declared a general or material conflict of interest.

Risk Assessment

14. There are no high or extreme risks associated with the subject of this report.

Environmental Sustainability

15. There are no environmental sustainability implications identified for the subject of this report.

Attachments

1. Instrument of Delegation Council to Members of Council Staff [**2.9.1** - 156 pages]

Greater Geelong City Council

Instrument of Delegation

to

Members of Council Staff

Instrument of Delegation

In exercise of the power conferred by the legislation referred to in the attached Schedule, the Greater Geelong City Council:

1. delegates each duty and/or function and/or power described in column 1 of the Schedule (and summarised in column 2 of the Schedule) to the member of Council staff holding, acting in or performing the duties of the office or position described opposite each such duty and/or function and/or power in column 3 of the Schedule;

2. declares that:

2.1 this Instrument of Delegation is authorised by a resolution of Council passed on 25 July 2023; and

2.2 the delegation:

2.2.1 comes into force immediately upon the resolution of Council;

2.2.2 remains in force until varied or revoked;

2.2.3 is subject to any conditions and limitations set out in sub-paragraph 2.3, and the Schedule; and

2.2.4 must be exercised in accordance with any guidelines or policies which Council from time to time adopts; and

2.3 the delegate must not determine the issue, take the action or do the act or thing:

2.3.1 if the issue, action, act or thing is an issue, action or thing which Council has previously designated as an issue, action, act or thing which must be the subject of a Resolution of Council; or

2.3.2 if the determining of the issue, taking of the action or doing of the act or thing would or would be likely to involve a decision which is inconsistent with a

(a) policy; or

(b) strategy;

adopted by Council; or

2.3.3 if the determining of the issue, the taking of the action or the doing of the act or thing cannot be the subject of a lawful delegation; or

2.3.4 the determining of the issue, the taking of the action or the doing of the act or thing is already the subject of an exclusive delegation to another member of Council staff.

Signed for GREATER GEELONG CITY COUNCIL by
KAARINA PHYLAND, Acting Chief Executive Officer

_____
A/Chief Executive Officer

Date:

SCHEDULE

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DOMESTIC ANIMALS ACT 1994

Column 1		Column 2	Column 3	Column 4
Statute or Source	**Provision**	**Matter delegated**	**Delegate by Position**	**Conditions and Limitations**
DOMESTIC ANIMALS ACT 1994	s 41A(1)	Power to declare a dog to be a menacing dog	Chief Executive Officer Executive Director Community Service Delivery Manager Health & Local Laws Coordinator Parking & Animal Management Services Coordinator Amenity Protection, Permits & Review Services	Council may delegate this power to a Council authorised officer

ENVIRONMENT PROTECTION ACT 2017

	Column 1	Column 2	Column 3	Column 4
Statute or Source	**Provision**	**Matter delegated**	**Delegate by Position**	**Conditions and Limitations**
ENVIRONMENT PROTECTION ACT 2017	s 271	Power to issue improvement notice	Chief Executive Officer Executive Director Community Service Delivery Manager Health & Local Laws Coordinator Environmental Health Team Leader Environmental Health Environmental Health Officer Environmental Health Technical Officer Food Safety Assessment Officer Food Safety Officer	
ENVIRONMENT PROTECTION ACT 2017	s 272	Power to issue prohibition notice	Chief Executive Officer Executive Director Community Service Delivery Manager Health & Local Laws Coordinator Environmental Health Team Leader Environmental Health Environmental Health Officer Environmental Health Technical Officer Food Safety Assessment Officer Food Safety Officer	
ENVIRONMENT PROTECTION ACT 2017	s 279	Power to amend a notice	Chief Executive Officer Executive Director Community Service Delivery Manager Health & Local Laws Coordinator Environmental Health Team Leader Environmental Health Environmental Health Officer Environmental Health Technical Officer Food Safety Assessment Officer Food Safety Officer	
ENVIRONMENT PROTECTION ACT 2017	s 358	Functions of the Environment Protection Authority	Chief Executive Officer Executive Director Community Service Delivery Manager Health & Local Laws Coordinator Environmental Health Team Leader Environmental Health Environmental Health Officer Environmental Health Technical Officer Food Safety Assessment Officer Food Safety Officer	

Column 1		Column 2	Column 3	Column 4
Statute or Source	**Provision**	**Matter delegated**	**Delegate by Position**	**Conditions and Limitations**
ENVIRONMENT PROTECTION ACT 2017	s 359(1)(b)	Power to do all things that are necessary or convenient to be done for or in connection with the performance of the Environment Protection Authority's functions and duties and to enable the Authority to achieve its objective	Chief Executive Officer Executive Director Community Service Delivery Manager Health & Local Laws Coordinator Environmental Health Team Leader Environmental Health Environmental Health Officer Environmental Health Technical Officer Food Safety Assessment Officer Food Safety Officer	
ENVIRONMENT PROTECTION ACT 2017	s 359(2)	Power to give advice to persons with duties or obligations	Chief Executive Officer Executive Director Community Service Delivery Manager Health & Local Laws Coordinator Environmental Health Team Leader Environmental Health Environmental Health Officer Environmental Health Technical Officer Food Safety Assessment Officer Food Safety Officer	

FOOD ACT 1984

Column 1		Column 2	Column 3	Column 4
Statute or Source	**Provision**	**Matter delegated**	**Delegate by Position**	**Conditions and Limitations**
FOOD ACT 1984	s 19(2)(a)	Power to direct by written order that the food premises be put into a clean and sanitary condition	Chief Executive Officer Executive Director Community Service Delivery Manager Health & Local Laws Coordinator Environmental Health Team Leader Environmental Health Environmental Health Officer Environmental Health Technical Officer Food Safety Assessment Officer Food Safety Officer	If s 19(1) applies
FOOD ACT 1984	s 19(2)(b)	Power to direct by written order that specified steps be taken to ensure that food prepared, sold or handled is safe and suitable	Chief Executive Officer Executive Director Community Service Delivery Manager Health & Local Laws Coordinator Environmental Health Team Leader Environmental Health Environmental Health Officer Environmental Health Technical Officer Food Safety Assessment Officer Food Safety Officer	If s 19(1) applies
FOOD ACT 1984	s 19(3)	Power to direct by written order that the food premises not be kept or used for the sale, or handling for sale, of any food, or for the preparation of any food, or for any other specified purpose, or for the use of any specified equipment or a specified process	Chief Executive Officer Executive Director Community Service Delivery Manager Health & Local Laws Coordinator Environmental Health Team Leader Environmental Health	If s 19(1) applies. Only in relation to temporary food premises or mobile food premises
FOOD ACT 1984	s 19(4)(a)	Power to direct that an order made under s 19(3)(a) or (b), (i) be affixed to a conspicuous part of the premises, and (ii) inform the public by notice in a published newspaper or otherwise	Chief Executive Officer Executive Director Community Service Delivery Manager Health & Local Laws Coordinator Environmental Health	If s 19(1) applies

Column 1		Column 2	Column 3	Column 4
Statute or Source	**Provision**	**Matter delegated**	**Delegate by Position**	**Conditions and Limitations**
FOOD ACT 1984	s 19(6)(a)	Duty to revoke any order under s 19 if satisfied that an order has been complied with	Chief Executive Officer Executive Director Community Service Delivery Manager Health & Local Laws Coordinator Environmental Health Team Leader Environmental Health Environmental Health Officer	If s 19(1) applies
FOOD ACT 1984	s 19(6)(b)	Duty to give written notice of revocation under s 19(6)(a) if satisfied that an order has been complied with	Chief Executive Officer Executive Director Community Service Delivery Manager Health & Local Laws Coordinator Environmental Health Team Leader Environmental Health Environmental Health Officer	If s 19(1) applies
FOOD ACT 1984	s 19AA(2)	Power to direct, by written order, that a person must take any of the actions described in (a)-(c)	Chief Executive Officer Executive Director Community Service Delivery Manager Health & Local Laws Coordinator Environmental Health Team Leader Environmental Health Environmental Health Officer Environmental Health Technical Officer Food Safety Assessment Officer Food Safety Officer	Where council is the registration authority
FOOD ACT 1984	s 19AA(4)(c)	Power to direct, in an order made under s 19AA(2) or a subsequent written order, that a person must ensure that any food or class of food is not removed from the premises	Chief Executive Officer Executive Director Community Service Delivery Manager Health & Local Laws Coordinator Environmental Health Team Leader Environmental Health Environmental Health Officer Environmental Health Technical Officer Food Safety Assessment Officer Food Safety Officer	Note: the power to direct the matters under s 19AA(4)(a) and (b) not capable of delegation and so such directions must be made by a Council resolution
FOOD ACT 1984	s 19AA(7)	Duty to revoke order issued under s 19AA and give written notice of revocation, if satisfied that that order has been complied with	Chief Executive Officer Executive Director Community Service Delivery Manager Health & Local Laws Coordinator Environmental Health Team Leader Environmental Health Environmental Health Officer Environmental Health Technical Officer Food Safety Assessment Officer Food Safety Officer	Where council is the registration authority

Column 1		Column 2	Column 3	Column 4
Statute or Source	**Provision**	**Matter delegated**	**Delegate by Position**	**Conditions and Limitations**
FOOD ACT 1984	s 19CB(4)(b)	Power to request copy of records	Chief Executive Officer Executive Director Community Service Delivery Manager Health & Local Laws Coordinator Environmental Health Team Leader Environmental Health Environmental Health Officer Environmental Health Technical Officer Food Safety Assessment Officer Food Safety Officer	Where council is the registration authority
FOOD ACT 1984	s 19E(1)(d)	Power to request a copy of the food safety program	Chief Executive Officer Executive Director Community Service Delivery Manager Health & Local Laws Coordinator Environmental Health Team Leader Environmental Health Environmental Health Officer Environmental Health Technical Officer Food Safety Assessment Officer Food Safety Officer	Where council is the registration authority
FOOD ACT 1984	s 19EA(3)	Function of receiving copy of revised food safety program	Chief Executive Officer Executive Director Community Service Delivery Manager Health & Local Laws Coordinator Environmental Health Team Leader Environmental Health Environmental Health Officer Environmental Health Technical Officer Food Safety Assessment Officer Food Safety Officer	Where council is the registration authority
FOOD ACT 1984	s 19GB	Power to request proprietor to provide written details of the name, qualification or experience of the current food safety supervisor	Chief Executive Officer Executive Director Community Service Delivery Manager Health & Local Laws Coordinator Environmental Health Team Leader Environmental Health Environmental Health Officer Environmental Health Technical Officer Food Safety Assessment Officer Food Safety Officer	Where council is the registration authority

Column 1		Column 2	Column 3	Column 4
Statute or Source	**Provision**	**Matter delegated**	**Delegate by Position**	**Conditions and Limitations**
FOOD ACT 1984	S 19IA(1)	Power to form opinion that the food safety requirements or program are non-compliant	Chief Executive Officer Executive Director Community Service Delivery Manager Health & Local Laws Coordinator Environmental Health Team Leader Environmental Health Environmental Health Officer Environmental Health Technical Officer Food Safety Assessment Officer Food Safety Officer	Where council is the registration authority
FOOD ACT 1984	s 19IA(2)	Duty to give written notice to the proprietor of the premises	Chief Executive Officer Executive Director Community Service Delivery Manager Health & Local Laws Coordinator Environmental Health Team Leader Environmental Health Environmental Health Officer Environmental Health Technical Officer Food Safety Assessment Officer Food Safety Officer	Where council is the registration authority Note: Not required if Council has taken other appropriate action in relation to deficiencies (see s 19IA(3))
FOOD ACT 1984	s 19M(4)(a) & (5)	Power to conduct a food safety audit and take actions where deficiencies are identified	Chief Executive Officer Executive Director Community Service Delivery Manager Health & Local Laws Coordinator Environmental Health Team Leader Environmental Health Environmental Health Officer	Where council is the registration authority
FOOD ACT 1984	s 19N(2)	Function of receiving notice from the auditor	Chief Executive Officer Executive Director Community Service Delivery Manager Health & Local Laws Coordinator Environmental Health Team Leader Environmental Health Environmental Health Officer Environmental Health Technical Officer Food Safety Assessment Officer Food Safety Officer	Where council is the registration authority

Column 1		Column 2	Column 3	Column 4
Statute or Source	**Provision**	**Matter delegated**	**Delegate by Position**	**Conditions and Limitations**
FOOD ACT 1984	s 19NA(1)	Power to request food safety audit reports	Chief Executive Officer Executive Director Community Service Delivery Manager Health & Local Laws Coordinator Environmental Health Team Leader Environmental Health Environmental Health Officer Environmental Health Technical Officer Food Safety Assessment Officer Food Safety Officer	Where council is the registration authority
FOOD ACT 1984	s 19U(3)	Power to waive and vary the costs of a food safety audit if there are special circumstances	Chief Executive Officer Executive Director Community Service Delivery Manager Health & Local Laws Coordinator Environmental Health	
FOOD ACT 1984	s 19UA	Power to charge fees for conducting a food safety assessment or inspection	Chief Executive Officer Executive Director Community Service Delivery Manager Health & Local Laws Coordinator Environmental Health	Except for an assessment required by a declaration under s 19C or an inspection under s 38B(1)(c) or 39
FOOD ACT 1984	s 19W	Power to direct a proprietor of a food premises to comply with any requirement under Part IIIB	Chief Executive Officer Executive Director Community Service Delivery Manager Health & Local Laws Coordinator Environmental Health Team Leader Environmental Health Environmental Health Officer Environmental Health Technical Officer Food Safety Assessment Officer Food Safety Officer	Where council is the registration authority
FOOD ACT 1984	s 19W(3)(a)	Power to direct a proprietor of a food premises to have staff at the premises undertake training or instruction	Chief Executive Officer Executive Director Community Service Delivery Manager Health & Local Laws Coordinator Environmental Health Team Leader Environmental Health Environmental Health Officer Environmental Health Technical Officer Food Safety Assessment Officer Food Safety Officer	Where council is the registration authority

Column 1		Column 2	Column 3	Column 4
Statute or Source	**Provision**	**Matter delegated**	**Delegate by Position**	**Conditions and Limitations**
FOOD ACT 1984	s 19W(3)(b)	Power to direct a proprietor of a food premises to have details of any staff training incorporated into the minimum records required to be kept or food safety program of the premises	Chief Executive Officer Executive Director Community Service Delivery Manager Health & Local Laws Coordinator Environmental Health Team Leader Environmental Health Environmental Health Officer Environmental Health Technical Officer Food Safety Assessment Officer Food Safety Officer	Where council is the registration authority
FOOD ACT 1984	---	Power to register or renew the registration of a food premises	Chief Executive Officer Executive Director Community Service Delivery Manager Health & Local Laws Coordinator Environmental Health Team Leader Environmental Health Environmental Health Officer	Where council is the registration authority refusal to grantor renew the registration of a food premises must be ratified by Council or the CEO (see s 58A(2))
FOOD ACT 1984	s 36A	Power to accept an application for registration or notification using online portal	Chief Executive Officer Executive Director Community Service Delivery Manager Health & Local Laws Coordinator Environmental Health Team Leader Environmental Health Environmental Health Officer Environmental Health Technical Officer Food Safety Assessment Officer Food Safety Officer	Where council is the registration authority
FOOD ACT 1984	s 36B	Duty to pay the charge for use of online portal	Chief Executive Officer Executive Director Community Service Delivery Manager Health & Local Laws Coordinator Environmental Health Team Leader Environmental Health Environmental Health Officer	Where council is the registration authority
FOOD ACT 1984	s 38AA(5)	Power to (a) request further information; or (b) advise the proprietor that the premises must be registered if the premises are not exempt	Chief Executive Officer Executive Director Community Service Delivery Manager Health & Local Laws Coordinator Environmental Health Team Leader Environmental Health Environmental Health Officer	Where council is the registration authority

Column 1		Column 2	Column 3	Column 4
Statute or Source	**Provision**	**Matter delegated**	**Delegate by Position**	**Conditions and Limitations**
FOOD ACT 1984	s 38AB(4)	Power to fix a fee for the receipt of a notification under s 38AA in accordance with a declaration under ss (1)	Chief Executive Officer Executive Director Community Service Delivery Manager Health & Local Laws Coordinator Environmental Health	Where council is the registration authority
FOOD ACT 1984	s 38A(4)	Power to request a copy of a completed food safety program template	Chief Executive Officer Executive Director Community Service Delivery Manager Health & Local Laws Coordinator Environmental Health Team Leader Environmental Health Environmental Health Officer Environmental Health Technical Officer Food Safety Assessment Officer Food Safety Officer	Where council is the registration authority
FOOD ACT 1984	s 38B(1)(a)	Duty to assess the application and determine which class of food premises under s 19C the food premises belongs	Chief Executive Officer Executive Director Community Service Delivery Manager Health & Local Laws Coordinator Environmental Health Team Leader Environmental Health Environmental Health Officer	Where council is the registration authority
FOOD ACT 1984	s 38B(1)(b)	Duty to ensure proprietor has complied with requirements of s 38A	Chief Executive Officer Executive Director Community Service Delivery Manager Health & Local Laws Coordinator Environmental Health Team Leader Environmental Health Environmental Health Officer Environmental Health Technical Officer Food Safety Assessment Officer Food Safety Officer	Where council is the registration authority
FOOD ACT 1984	s 38B(2)	Duty to be satisfied of the matters in s 38B(2)(a)-(b)	Chief Executive Officer Executive Director Community Service Delivery Manager Health & Local Laws Coordinator Environmental Health Team Leader Environmental Health Environmental Health Officer Environmental Health Technical Officer Food Safety Assessment Officer Food Safety Officer	Where council is the registration authority

	Column 1	Column 2	Column 3	Column 4
Statute or Source	**Provision**	**Matter delegated**	**Delegate by Position**	**Conditions and Limitations**
FOOD ACT 1984	s 38D(1)	Duty to ensure compliance with the applicable provisions of s 38C and inspect the premises if required by s 39	Chief Executive Officer Executive Director Community Service Delivery Manager Health & Local Laws Coordinator Environmental Health Team Leader Environmental Health Environmental Health Officer	Where council is the registration authority
FOOD ACT 1984	s 38D(2)	Duty to be satisfied of the matters in s 38D(2)(a)-(d)	Chief Executive Officer Executive Director Community Service Delivery Manager Health & Local Laws Coordinator Environmental Health Team Leader Environmental Health Environmental Health Officer	Where council is the registration authority
FOOD ACT 1984	s 38D(3)	Power to request copies of any audit reports	Chief Executive Officer Executive Director Community Service Delivery Manager Health & Local Laws Coordinator Environmental Health Team Leader Environmental Health Environmental Health Officer	Where council is the registration authority
FOOD ACT 1984	s 38E(2)	Power to register the food premises on a conditional basis	Chief Executive Officer Executive Director Community Service Delivery Manager Health & Local Laws Coordinator Environmental Health Team Leader Environmental Health Environmental Health Officer	Where council is the registration authority not exceeding the prescribed time limit defined under subsection (5)
FOOD ACT 1984	s 38E(4)	Duty to register the food premises when conditions are satisfied	Chief Executive Officer Executive Director Community Service Delivery Manager Health & Local Laws Coordinator Environmental Health Team Leader Environmental Health Environmental Health Officer	Where council is the registration authority

Column 1		Column 2	Column 3	Column 4
Statute or Source	**Provision**	**Matter delegated**	**Delegate by Position**	**Conditions and Limitations**
FOOD ACT 1984	s 38F(3)(b)	Power to require proprietor to comply with requirements of this Act	Chief Executive Officer Executive Director Community Service Delivery Manager Health & Local Laws Coordinator Environmental Health Team Leader Environmental Health Environmental Health Officer Environmental Health Technical Officer Food Safety Assessment Officer Food Safety Officer	Where council is the registration authority
FOOD ACT 1984	s 38G(1)	Power to require notification of change of the food safety program type used for the food premises	Chief Executive Officer Executive Director Community Service Delivery Manager Health & Local Laws Coordinator Environmental Health Team Leader Environmental Health Environmental Health Officer Environmental Health Technical Officer Food Safety Assessment Officer Food Safety Officer	Where council is the registration authority
FOOD ACT 1984	s 38G(2)	Function of receiving notice from proprietor if there is a change of the food safety program type used for the food premises	Chief Executive Officer Executive Director Community Service Delivery Manager Health & Local Laws Coordinator Environmental Health Team Leader Environmental Health Environmental Health Officer Environmental Health Technical Officer Food Safety Assessment Officer Food Safety Officer	Where council is the registration authority
FOOD ACT 1984	s 38G(4)	Power to require the proprietor of the food premises to comply with any requirement of the Act	Chief Executive Officer Executive Director Community Service Delivery Manager Health & Local Laws Coordinator Environmental Health Team Leader Environmental Health Environmental Health Officer Environmental Health Technical Officer Food Safety Assessment Officer Food Safety Officer	Where council is the registration authority

Column 1		Column 2	Column 3	Column 4
Statute or Source	**Provision**	**Matter delegated**	**Delegate by Position**	**Conditions and Limitations**
FOOD ACT 1984	s 39(2)	Duty to carry out an inspection of the premises during the period of registration before the registration of the food premises is renewed	Chief Executive Officer Executive Director Community Service Delivery Manager Health & Local Laws Coordinator Environmental Health Team Leader Environmental Health Environmental Health Officer Environmental Health Technical Officer Food Safety Assessment Officer Food Safety Officer	Where council is the registration authority
FOOD ACT 1984	s 39A	Power to register, or renew the registration of a food premises despite minor defects	Chief Executive Officer Executive Director Community Service Delivery Manager Health & Local Laws Coordinator Environmental Health Team Leader Environmental Health	Where council is the registration authority only if satisfied of matters in subsections (2)(a)-(c)
FOOD ACT 1984	s 39A (6)	Duty to comply with a direction of the Secretary	Chief Executive Officer Executive Director Community Service Delivery Manager Health & Local Laws Coordinator Environmental Health Team Leader Environmental Health Environmental Health Officer Environmental Health Technical Officer Food Safety Assessment Officer Food Safety Officer	
FOOD ACT 1984	s 40(1)	Duty to give the person in whose name the premises is to be registered a certificate of registration	Chief Executive Officer Executive Director Community Service Delivery Manager Health & Local Laws Coordinator Environmental Health Team Leader Environmental Health Environmental Health Officer Environmental Health Technical Officer Food Safety Assessment Officer Food Safety Officer	Where council is the registration authority
FOOD ACT 1984	s 40(2)	Power to incorporate the certificate of registration in one document with any certificate of registration under Part 6 of the Public Health and Wellbeing Act 2008	Chief Executive Officer Executive Director Community Service Delivery Manager Health & Local Laws Coordinator Environmental Health Team Leader Environmental Health Environmental Health Officer	

Column 1		Column 2	Column 3	Column 4
Statute or Source	**Provision**	**Matter delegated**	**Delegate by Position**	**Conditions and Limitations**
FOOD ACT 1984	s 40C(2)	Power to grant or renew the registration of food premises for a period of less than 1 year	Chief Executive Officer Executive Director Community Service Delivery Manager Health & Local Laws Coordinator Environmental Health Team Leader Environmental Health Environmental Health Officer Environmental Health Technical Officer Food Safety Assessment Officer Food Safety Officer	Where council is the registration authority
FOOD ACT 1984	s 40D(1)	Power to suspend or revoke the registration of food premises	Chief Executive Officer Executive Director Community Service Delivery Manager Health & Local Laws Coordinator Environmental Health Team Leader Environmental Health Environmental Health Officer	Where council is the registration authority
FOOD ACT 1984	s 40E	Duty to comply with direction of the Secretary	Chief Executive Officer Executive Director Community Service Delivery Manager Health & Local Laws Coordinator Environmental Health Team Leader Environmental Health Environmental Health Officer Environmental Health Technical Officer Food Safety Assessment Officer Food Safety Officer	
FOOD ACT 1984	s 40F	Power to cancel registration of food premises	Chief Executive Officer Executive Director Community Service Delivery Manager Health & Local Laws Coordinator Environmental Health Team Leader Environmental Health Environmental Health Officer Environmental Health Technical Officer Food Safety Assessment Officer Food Safety Officer	Where council is the registration authority

	Column 1	Column 2	Column 3	Column 4
Statute or Source	**Provision**	**Matter delegated**	**Delegate by Position**	**Conditions and Limitations**
FOOD ACT 1984	s 43	Duty to maintain records of registration	Chief Executive Officer Executive Director Community Service Delivery Manager Health & Local Laws Coordinator Environmental Health Team Leader Environmental Health Environmental Health Officer Environmental Health Technical Officer Food Safety Assessment Officer Food Safety Officer	Where council is the registration authority
FOOD ACT 1984	s 43F(6)	Duty to be satisfied that registration requirements under Division 3 have been met prior to registering, transferring or renewing registration of a component of a food business	Chief Executive Officer Executive Director Community Service Delivery Manager Health & Local Laws Coordinator Environmental Health Team Leader Environmental Health Environmental Health Technical Officer	Where council is the registration authority
FOOD ACT 1984	s 43F(7)	Power to register the components of the food business that meet requirements in Division 3 and power to refuse to register the components that do not meet the requirements	Chief Executive Officer Executive Director Community Service Delivery Manager Health & Local Laws Coordinator Environmental Health Team Leader Environmental Health Environmental Health Technical Officer	Where council is the registration authority
FOOD ACT 1984	s 45AC	Power to bring proceedings	Chief Executive Officer Executive Director Community Service Delivery Manager Health & Local Laws Coordinator Environmental Health Team Leader Environmental Health Environmental Health Officer	

Column 1		Column 2	Column 3	Column 4
Statute or Source	**Provision**	**Matter delegated**	**Delegate by Position**	**Conditions and Limitations**
FOOD ACT 1984	s 46(5)	Power to institute proceedings against another person where the offence was due to an act or default by that other person and where the first person charged could successfully defend a prosecution, without proceedings first being instituted against the person first charged	Chief Executive Officer Executive Director Community Service Delivery Manager Health & Local Laws Coordinator Environmental Health Team Leader Environmental Health	Where council is the registration authority

HERITAGE ACT 2017

	Column 1	Column 2	Column 3	Column 4
Statute or Source	**Provision**	**Matter delegated**	**Delegate by Position**	**Conditions and Limitations**
HERITAGE ACT 2017	s 116	Power to sub-delegate Executive Director's functions, duties or powers	Chief Executive Officer	Must first obtain Executive Director's written consent Council can only sub-delegate if the instrument of delegation from the Executive Director authorises sub-delegation

LOCAL GOVERNMENT ACT 1989

Column 1		Column 2	Column 3	Column 4
Statute or Source	**Provision**	**Matter delegated**	**Delegate by Position**	**Conditions and Limitations**
LOCAL GOVERNMENT ACT 1989	s 185L(4)	Power to declare and levy a cladding rectification charge	Chief Executive Officer[1]	

[1] The only member of staff who can be a delegate in Column 3 is the CEO.

PLANNING AND ENVIRONMENT ACT 1987

Column 1		Column 2	Column 3	Column 4
Statute or Source	**Provision**	**Matter delegated**	**Delegate by Position**	**Conditions and Limitations**
PLANNING AND ENVIRONMENT ACT 1987	s 4B	Power to prepare an amendment to the Victoria Planning Provisions	Chief Executive Officer Executive Director Planning & Design Manager City Development Manager Planning & Growth Coordinator Strategic Implementation	If authorised by the Minister
PLANNING AND ENVIRONMENT ACT 1987	s 4G	Function of receiving prescribed documents and a copy of the Victoria Planning Provisions from the Minister	Chief Executive Officer Executive Director Planning & Design Manager City Development Manager Planning & Growth Coordinator Statutory Planning Statutory Planning Project Coordinator Coordinator Strategic Implementation Team Leader Statutory Planning Principal Planner- Business Facilitation Principal Planner Senior Strategic Planner Senior Planning Subdivision Officer Senior Statutory Planner Subdivision Officer Town Planner Student Planner	
PLANNING AND ENVIRONMENT ACT 1987	s 4H	Duty to make amendment to Victoria Planning Provisions available in accordance with public availability requirements	Chief Executive Officer Executive Director Planning & Design Manager City Development Manager Planning & Growth Coordinator Statutory Planning Statutory Planning Project Coordinator Coordinator Strategic Implementation Senior Strategic Planner Student Planner	

Column 1	Column 2	Column 3	Column 4
Statute or Source	**Provision**	**Matter delegated**	**Delegate by Position**	**Conditions and Limitations**
PLANNING AND ENVIRONMENT ACT 1987	s 4I(2)	Duty to make a copy of the Victorian Planning Provisions and other documents available in accordance with public availability requirements	Chief Executive Officer Executive Director Planning & Design Manager City Development Manager Planning & Growth Coordinator Strategic Planning Coordinator Statutory Planning Statutory Planning Project Coordinator Coordinator Strategic Implementation Coordinator Planning Delivery Senior Strategic Planner	
PLANNING AND ENVIRONMENT ACT 1987	s 8A(2)	Power to prepare amendment to the planning scheme where the Minister has given consent under s 8A	Chief Executive Officer Executive Director Planning & Design Manager City Development Coordinator Strategic Implementation Senior Strategic Planner Strategic Planner	
PLANNING AND ENVIRONMENT ACT 1987	s 8A(3)	Power to apply to Minister to prepare an amendment to the planning scheme	Chief Executive Officer Executive Director Planning & Design Manager City Development Manager Planning & Growth Coordinator Strategic Planning Coordinator Strategic Implementation Coordinator Planning Delivery	
PLANNING AND ENVIRONMENT ACT 1987	s 8A(5)	Function of receiving notice of the Minister's decision	Chief Executive Officer Executive Director Planning & Design Manager City Development Manager Planning & Growth Manager Urban Design and Heritage Coordinator Strategic Planning Coordinator Statutory Planning Statutory Planning Project Coordinator Coordinator Strategic Implementation Coordinator Planning Delivery	
PLANNING AND ENVIRONMENT ACT 1987	s 8A(7)	Power to prepare the amendment specified in the application without the Minister's authorisation if no response received after 10 business days	Chief Executive Officer Executive Director Planning & Design Manager City Development Coordinator Strategic Implementation Senior Strategic Planner Strategic Planner	

Column 1		Column 2	Column 3	Column 4
Statute or Source	**Provision**	**Matter delegated**	**Delegate by Position**	**Conditions and Limitations**
PLANNING AND ENVIRONMENT ACT 1987	s 8B(2)	Power to apply to the Minister for authorisation to prepare an amendment to the planning scheme of an adjoining municipal district	Chief Executive Officer Executive Director Planning & Design Manager City Development Coordinator Strategic Implementation Senior Strategic Planner Strategic Planner	
PLANNING AND ENVIRONMENT ACT 1987	s 12(3)	Power to carry out studies and do things to ensure proper use of land in which Council is the planning authority and consult with other persons to ensure co-ordination of planning scheme with these persons	Chief Executive Officer Executive Director Planning & Design Manager City Development Manager Planning & Growth Coordinator Strategic Planning Coordinator Strategic Implementation Coordinator Planning Delivery Project Manager Northern and Western Geelong Growth Areas Senior Strategic Planner Strategic Planner	
PLANNING AND ENVIRONMENT ACT 1987	s 12B(1)	Duty to review planning scheme	Chief Executive Officer Executive Director Planning & Design Manager City Development Manager Planning & Growth Coordinator Strategic Planning Coordinator Statutory Planning Statutory Planning Project Coordinator Coordinator Strategic Implementation Coordinator Planning Delivery Senior Strategic Planner	
PLANNING AND ENVIRONMENT ACT 1987	s 12B(2)	Duty to review planning scheme at direction of Minister	Chief Executive Officer Executive Director Planning & Design Manager City Development Manager Planning & Growth Coordinator Strategic Planning Coordinator Statutory Planning Statutory Planning Project Coordinator Coordinator Strategic Implementation Coordinator Planning Delivery Senior Strategic Planner	

	Column 1	Column 2	Column 3	Column 4
Statute or Source	**Provision**	**Matter delegated**	**Delegate by Position**	**Conditions and Limitations**
PLANNING AND ENVIRONMENT ACT 1987	s 12B(5)	Duty to report findings of review of planning scheme to Minister without delay	Chief Executive Officer Executive Director Planning & Design Manager City Development Manager Planning & Growth Coordinator Strategic Planning Coordinator Statutory Planning Statutory Planning Project Coordinator Coordinator Strategic Implementation Coordinator Planning Delivery Senior Strategic Planner	
PLANNING AND ENVIRONMENT ACT 1987	s 14	Duties of a Responsible Authority as set out in subsections (a) to (d)	Chief Executive Officer Executive Director Planning & Design Manager City Development Manager Planning & Growth Coordinator Statutory Planning Statutory Planning Project Coordinator Coordinator Strategic Implementation Team Leader Statutory Planning Principal Planner Principal Planner - Business Facilitation Senior Statutory Planner Town Planner Student Planner Principal Planning Investigations Officer Senior Planning Investigations Officer Planning Investigations Officer	
PLANNING AND ENVIRONMENT ACT 1987	s 17(1)	Duty of giving copy amendment to the planning scheme	Chief Executive Officer Executive Director Planning & Design Manager City Development Manager Planning & Growth Coordinator Strategic Planning Coordinator Statutory Planning Statutory Planning Project Coordinator Coordinator Strategic Implementation Coordinator Planning Delivery Senior Strategic Planner	

Column 1		Column 2	Column 3	Column 4
Statute or Source	**Provision**	**Matter delegated**	**Delegate by Position**	**Conditions and Limitations**
PLANNING AND ENVIRONMENT ACT 1987	s 17(2)	Duty of giving copy s 173 agreement	Chief Executive Officer Executive Director Planning & Design Manager City Development Manager Planning & Growth Coordinator Strategic Planning Coordinator Statutory Planning Statutory Planning Project Coordinator Coordinator Strategic Implementation Coordinator Planning Delivery Senior Strategic Planner	
PLANNING AND ENVIRONMENT ACT 1987	s 17(3)	Duty of giving copy amendment, explanatory report and relevant documents to the Minister within 10 business days	Chief Executive Officer Executive Director Planning & Design Manager City Development Coordinator Strategic Implementation Senior Strategic Planner Snr Strategic Planner/Project Officer Strategic Planner	
PLANNING AND ENVIRONMENT ACT 1987	s 18	Duty to make amendment etc. available in accordance with public availability requirements	Chief Executive Officer Executive Director Planning & Design Manager City Development Manager Planning & Growth Coordinator Strategic Planning Coordinator Statutory Planning Statutory Planning Project Coordinator Coordinator Strategic Implementation Coordinator Planning Delivery Senior Strategic Planner	Until the proposed amendment is approved or lapsed
PLANNING AND ENVIRONMENT ACT 1987	s 19	Power to give notice, to decide not to give notice, to publish notice of amendment to a planning scheme and to exercise any other power under s 19 to a planning scheme	Chief Executive Officer Executive Director Planning & Design Manager Planning & Growth Manager City Development Coordinator Strategic Implementation Coordinator Statutory Planning Statutory Planning Project Coordinator Coordinator Strategic Planning Coordinator Planning Delivery	

Column 1		Column 2	Column 3	Column 4
Statute or Source	**Provision**	**Matter delegated**	**Delegate by Position**	**Conditions and Limitations**
PLANNING AND ENVIRONMENT ACT 1987	s 19	Function of receiving notice of preparation of an amendment to a planning scheme	Chief Executive Officer Executive Director Planning & Design Manager City Development Manager Planning & Growth Coordinator Strategic Planning Coordinator Strategic Implementation Coordinator Planning Delivery	Where Council is not the planning authority and the amendment affects land within Council's municipal district; or where the amendment will amend the planning scheme to designate Council as an acquiring authority
PLANNING AND ENVIRONMENT ACT 1987	s 20(1)	Power to apply to Minister for exemption from the requirements of s 19	Chief Executive Officer Executive Director Planning & Design Manager Planning & Growth Manager City Development Coordinator Strategic Implementation Coordinator Statutory Planning Statutory Planning Project Coordinator Coordinator Strategic Planning Coordinator Planning Delivery	Where Council is a planning authority
PLANNING AND ENVIRONMENT ACT 1987	s 21(2)	Duty to make submissions available in accordance with public availability requirements	Chief Executive Officer Executive Director Planning & Design Manager City Development Coordinator Strategic Planning Coordinator Statutory Planning Statutory Planning Project Coordinator Coordinator Strategic Implementation Coordinator Planning Delivery	Until the end of 2 months after the amendment comes into operation or lapses
PLANNING AND ENVIRONMENT ACT 1987	s 21A(4)	Duty to publish notice in accordance with section	Chief Executive Officer Executive Director Planning & Design Manager City Development Manager Planning & Growth Coordinator Statutory Planning Statutory Planning Project Coordinator Coordinator Strategic Implementation Coordinator Planning Delivery Coordinator Strategic Planning	

Column 1		Column 2	Column 3	Column 4
Statute or Source	**Provision**	**Matter delegated**	**Delegate by Position**	**Conditions and Limitations**
PLANNING AND ENVIRONMENT ACT 1987	s 22(1)	Duty to consider all submissions received before the date specified in the notice	Chief Executive Officer Executive Director Planning & Design Manager City Development Coordinator Strategic Planning Coordinator Statutory Planning Statutory Planning Project Coordinator Coordinator Strategic Implementation Coordinator Planning Delivery Senior Strategic Planner Strategic Planner Team Leader Statutory Planning Principal Planner Principal Planner - Business Facilitation Senior Statutory Planner Town Planner Student Planner	Except submissions which request a change to the items in s 22(5)(a) & (b)
PLANNING AND ENVIRONMENT ACT 1987	s 22(2)	Power to consider a late submission Duty to consider a late submission, if directed by the Minister	Chief Executive Officer Executive Director Planning & Design Manager City Development Coordinator Strategic Planning Coordinator Statutory Planning Statutory Planning Project Coordinator Coordinator Strategic Implementation Coordinator Planning Delivery Senior Strategic Planner Strategic Planner Team Leader Statutory Planning Principal Planner Principal Planner - Business Facilitation Senior Statutory Planner Town Planner Student Planner	
PLANNING AND ENVIRONMENT ACT 1987	s 23(1)(b)	Duty to refer submissions which request a change to the amendment to a panel	Chief Executive Officer Executive Director Planning & Design Manager City Development Manager Planning & Growth Coordinator Strategic Planning Coordinator Strategic Implementation Coordinator Planning Delivery	

Column 1		Column 2	Column 3	Column 4
Statute or Source	**Provision**	**Matter delegated**	**Delegate by Position**	**Conditions and Limitations**
PLANNING AND ENVIRONMENT ACT 1987	s 23(2)	Power to refer to a panel submission which do not require a change to the amendment	Chief Executive Officer Executive Director Planning & Design Manager City Development Manager Planning & Growth Coordinator Strategic Implementation Coordinator Statutory Planning Statutory Planning Project Coordinator Coordinator Strategic Planning Coordinator Planning Delivery	
PLANNING AND ENVIRONMENT ACT 1987	s 24	Function to represent council and present a submission at a panel hearing (including a hearing referred to in s 96D)	Chief Executive Officer Executive Director Planning & Design Manager City Development Manager Planning & Growth Coordinator Strategic Implementation Coordinator Statutory Planning Statutory Planning Project Coordinator Coordinator Strategic Planning Coordinator Planning Delivery Team Leader Statutory Planning Principal Planner Principal Planner - Business Facilitation Senior Statutory Planner Town Planner Senior Strategic Planner Strategic Planner	
PLANNING AND ENVIRONMENT ACT 1987	s 26(1)	Power to make report available for inspection in accordance with public availability requirements	Chief Executive Officer Executive Director Planning & Design Manager City Development Manager Planning & Growth Coordinator Strategic Implementation Coordinator Statutory Planning Statutory Planning Project Coordinator Coordinator Strategic Planning Coordinator Planning Delivery	

	Column 1	Column 2	Column 3	Column 4
Statute or Source	**Provision**	**Matter delegated**	**Delegate by Position**	**Conditions and Limitations**
PLANNING AND ENVIRONMENT ACT 1987	s 26(2)	Duty to keep report of panel available for inspection in accordance with public availability requirements	Chief Executive Officer Executive Director Planning & Design Manager City Development Manager Planning & Growth Coordinator Strategic Implementation Coordinator Statutory Planning Statutory Planning Project Coordinator Coordinator Strategic Planning Coordinator Planning Delivery	During the inspection period
PLANNING AND ENVIRONMENT ACT 1987	s 27(2)	Power to apply for exemption if panel's report not received	Chief Executive Officer Executive Director Planning & Design Manager City Development Manager Planning & Growth Coordinator Strategic Implementation Coordinator Statutory Planning Statutory Planning Project Coordinator Coordinator Strategic Planning Coordinator Planning Delivery	
PLANNING AND ENVIRONMENT ACT 1987	s 28(1)	Duty to notify the Minister if abandoning an amendment	Chief Executive Officer Executive Director Planning & Design Manager City Development Manager Planning & Growth Coordinator Strategic Implementation Coordinator Statutory Planning Statutory Planning Project Coordinator Coordinator Strategic Planning Coordinator Planning Delivery	
PLANNING AND ENVIRONMENT ACT 1987	s 28(2)	Duty to publish notice of the decision on Internet site	Chief Executive Officer Executive Director Planning & Design Manager City Development Manager Planning & Growth Coordinator Strategic Implementation Coordinator Statutory Planning Statutory Planning Project Coordinator Coordinator Strategic Planning Coordinator Planning Delivery	

Column 1		Column 2	Column 3	Column 4
Statute or Source	**Provision**	**Matter delegated**	**Delegate by Position**	**Conditions and Limitations**
PLANNING AND ENVIRONMENT ACT 1987	s 28(4)	Duty to make notice of the decision available on Council's Internet site for a period of at least 2 months	Chief Executive Officer Executive Director Planning & Design Manager City Development Manager Planning & Growth Coordinator Strategic Implementation Coordinator Statutory Planning Statutory Planning Project Coordinator Coordinator Strategic Planning Coordinator Planning Delivery	
PLANNING AND ENVIRONMENT ACT 1987	s 30(4)(a)	Duty to say if amendment has lapsed	Chief Executive Officer Executive Director Planning & Design Manager City Development Manager Planning & Growth Coordinator Strategic Implementation Coordinator Statutory Planning Statutory Planning Project Coordinator Coordinator Strategic Planning Coordinator Planning Delivery	
PLANNING AND ENVIRONMENT ACT 1987	s 30(4)(b)	Duty to provide information in writing upon request	Chief Executive Officer Executive Director Planning & Design Manager City Development Manager Planning & Growth Coordinator Strategic Implementation Coordinator Statutory Planning Statutory Planning Project Coordinator Coordinator Strategic Planning Coordinator Planning Delivery	
PLANNING AND ENVIRONMENT ACT 1987	s 32(2)	Duty to give more notice if required	Chief Executive Officer Executive Director Planning & Design Manager City Development Manager Planning & Growth Coordinator Strategic Implementation Coordinator Statutory Planning Statutory Planning Project Coordinator Coordinator Strategic Planning Coordinator Planning Delivery	

	Column 1	Column 2	Column 3	Column 4
Statute or Source	**Provision**	**Matter delegated**	**Delegate by Position**	**Conditions and Limitations**
PLANNING AND ENVIRONMENT ACT 1987	s 33(1)	Duty to give more notice of changes to an amendment	Chief Executive Officer Executive Director Planning & Design Manager City Development Manager Planning & Growth Coordinator Strategic Implementation Coordinator Statutory Planning Statutory Planning Project Coordinator Coordinator Strategic Planning Coordinator Planning Delivery	
PLANNING AND ENVIRONMENT ACT 1987	s 36(2)	Duty to give notice of approval of amendment	Chief Executive Officer Executive Director Planning & Design Manager City Development Manager Planning & Growth Coordinator Strategic Implementation Coordinator Statutory Planning Statutory Planning Project Coordinator Coordinator Strategic Planning Coordinator Planning Delivery	
PLANNING AND ENVIRONMENT ACT 1987	s 38(5)	Duty to give notice of revocation of an amendment	Chief Executive Officer Executive Director Planning & Design Manager City Development Manager Planning & Growth Coordinator Strategic Implementation Coordinator Statutory Planning Statutory Planning Project Coordinator Coordinator Strategic Planning Coordinator Planning Delivery	
PLANNING AND ENVIRONMENT ACT 1987	s 39	Function of being a party to a proceeding commenced under s 39 and duty to comply with determination by VCAT	Chief Executive Officer Executive Director Planning & Design Manager City Development Manager Planning & Growth Coordinator Strategic Implementation Coordinator Statutory Planning Statutory Planning Project Coordinator Coordinator Strategic Planning Coordinator Planning Delivery	

Column 1		Column 2	Column 3	Column 4
Statute or Source	**Provision**	**Matter delegated**	**Delegate by Position**	**Conditions and Limitations**
PLANNING AND ENVIRONMENT ACT 1987	s 40(1)	Function of lodging copy of approved amendment	Chief Executive Officer Executive Director Planning & Design Manager City Development Manager Planning & Growth Coordinator Strategic Implementation Coordinator Statutory Planning Statutory Planning Project Coordinator Coordinator Strategic Planning Coordinator Planning Delivery	
PLANNING AND ENVIRONMENT ACT 1987	s 41(1)	Duty to make a copy of an approved amendment available in accordance with the public availability requirements during inspection period	Chief Executive Officer Executive Director Planning & Design Manager City Development Manager Planning & Growth Coordinator Strategic Implementation Coordinator Statutory Planning Statutory Planning Project Coordinator Coordinator Strategic Planning Coordinator Planning Delivery	
PLANNING AND ENVIRONMENT ACT 1987	s 41(2)	Duty to make a copy of an approved amendment and any documents lodged with it available in person in accordance with the requirements set out in s 197B of the Act after the inspection period ends	Chief Executive Officer Executive Director Planning & Design Manager City Development Manager Planning & Growth Coordinator Strategic Implementation Coordinator Statutory Planning Statutory Planning Project Coordinator Coordinator Strategic Planning Coordinator Planning Delivery	
PLANNING AND ENVIRONMENT ACT 1987	s 42(2)	Duty to make copy of planning scheme available in accordance with the public availability requirements	Chief Executive Officer Executive Director Planning & Design Manager City Development Manager Planning & Growth Coordinator Strategic Planning Coordinator Statutory Planning Statutory Planning Project Coordinator Coordinator Strategic Implementation Coordinator Planning Delivery	

	Column 1	Column 2	Column 3	Column 4
Statute or Source	**Provision**	**Matter delegated**	**Delegate by Position**	**Conditions and Limitations**
PLANNING AND ENVIRONMENT ACT 1987	s 46AAA	Duty to prepare an amendment to a planning scheme that relates to Yarra River land that is not inconsistent with anything in a Yarra Strategic Plan which is expressed to be binding on the responsible public entity	Not applicable	Where Council is a responsible public entity and is a planning authority Note: this provision is not yet in force and will commence on the day on which the initial Yarra Strategic Plan comes into operation. It will affect a limited number of councils
PLANNING AND ENVIRONMENT ACT 1987	s 46AW	Function of being consulted by the Minister	Chief Executive Officer Executive Director Planning & Design Manager City Development Manager Planning & Growth	Where Council is a responsible public entity
PLANNING AND ENVIRONMENT ACT 1987	s 46AX	Function of receiving a draft Statement of Planning Policy and written direction in relation to the endorsement of the draft Statement of Planning Policy power to endorse the draft Statement of Planning Policy	Chief Executive Officer Executive Director Planning & Design	Where Council is a responsible public entity
PLANNING AND ENVIRONMENT ACT 1987	s 46AZC(2)	Duty not to prepare an amendment to a declared area planning scheme that is inconsistent with a Statement of Planning Policy for the declared area that is expressed to be binding on the responsible public entity	Chief Executive Officer Executive Director Planning & Design Manager City Development Manager Planning & Growth Coordinator Strategic Planning Coordinator Statutory Planning Statutory Planning Project Coordinator Coordinator Planning Delivery Coordinator Strategic Implementation Senior Strategic Planner Snr Strategic Planner/Project Officer Strategic Planner	Where Council is a responsible public entity

Column 1		Column 2	Column 3	Column 4
Statute or Source	**Provision**	**Matter delegated**	**Delegate by Position**	**Conditions and Limitations**
PLANNING AND ENVIRONMENT ACT 1987	s 46AZK	Duty not to act inconsistently with any provision of the Statement of Planning Policy that is expressed to be binding on the public entity when performing a function or duty or exercising a power in relation to the declared area	Chief Executive Officer Executive Director Planning & Design Manager City Development Manager Planning & Growth Coordinator Strategic Planning Coordinator Statutory Planning. Statutory Planning Project Coordinator Coordinator Planning Delivery Coordinator Strategic Implementation Senior Strategic Planner Snr Strategic Planner/Project Officer Strategic Planner Team Leader Statutory Planning Principal Planner Principal Planner - Business Facilitation Senior Statutory Planner Town Planner Student Planner	Where Council is a responsible public entity
PLANNING AND ENVIRONMENT ACT 1987	s 46GI(2)(b)(i)	Power to agree to a lower rate of standard levy for a class of development of a particular type of land than the rate specified in a Minister's direction	Chief Executive Officer Executive Director Planning & Design Manager City Development Manager Planning & Growth	Where Council is the planning authority, the municipal Council of the municipal district in which the land is located and/or the development agency
PLANNING AND ENVIRONMENT ACT 1987	s 46GJ(1)	Function of receiving written directions from the Minister in relation to the preparation and content of infrastructure contributions plans	Chief Executive Officer Executive Director Planning & Design Manager City Development Manager Planning & Growth Coordinator Strategic Planning Coordinator Planning Delivery Coordinator Strategic Implementation Development Contributions Accountant	

	Column 1	Column 2	Column 3	Column 4
Statute or Source	**Provision**	**Matter delegated**	**Delegate by Position**	**Conditions and Limitations**
PLANNING AND ENVIRONMENT ACT 1987	s 46GK	Duty to comply with a Minister's direction that applies to Council as the planning authority	Chief Executive Officer Executive Director Planning & Design Manager City Development Manager Planning & Growth Coordinator Strategic Planning Coordinator Statutory Planning. Statutory Planning Project Coordinator Coordinator Planning Delivery Coordinator Strategic Implementation Senior Strategic Planner Snr Strategic Planner/Project Officer Strategic Planner Development Contributions Accountant Senior Strategic Planner – Planning Delivery Growth Area Officer	
PLANNING AND ENVIRONMENT ACT 1987	s 46GN(1)	Duty to arrange for estimates of values of inner public purpose land	Chief Executive Officer Executive Director Planning & Design Manager City Development Manager Planning & Growth Coordinator Strategic Planning Coordinator Statutory Planning Statutory Planning Project Coordinator Coordinator Planning Delivery Coordinator Strategic Implementation Development Contributions Accountant	
PLANNING AND ENVIRONMENT ACT 1987	s 46GO(1)	Duty to give notice to owners of certain inner public purpose land	Chief Executive Officer Executive Director Planning & Design Manager City Development Manager Planning & Growth Coordinator Strategic Planning Coordinator Statutory Planning Statutory Planning Project Coordinator Coordinator Planning Delivery Coordinator Strategic Implementation Senior Strategic Planner Snr Strategic Planner/Project Officer Strategic Planner Development Contributions Accountant Senior Strategic Planner – Planning Delivery Growth Area Officer	

	Column 1	Column 2	Column 3	Column 4
Statute or Source	**Provision**	**Matter delegated**	**Delegate by Position**	**Conditions and Limitations**
PLANNING AND ENVIRONMENT ACT 1987	s 46GP	Function of receiving a notice under s 46GO	Chief Executive Officer Executive Director Planning & Design Manager City Development Manager Planning & Growth Coordinator Strategic Planning Coordinator Statutory Planning Statutory Planning Project Coordinator Coordinator Planning Delivery Coordinator Strategic Implementation Senior Strategic Planner Snr Strategic Planner/Project Officer Strategic Planner Development Contributions Accountant Senior Strategic Planner – Planning Delivery Growth Area Officer	Where Council is the collecting agency
PLANNING AND ENVIRONMENT ACT 1987	s 46GQ	Function of receiving a submission from an affected owner who objects to the estimated value per hectare (or other appropriate unit of measurement) of the inner public purpose land	Chief Executive Officer Executive Director Planning & Design Manager City Development Manager Planning & Growth Coordinator Strategic Planning Coordinator Statutory Planning Statutory Planning Project Coordinator Coordinator Planning Delivery Coordinator Strategic Implementation Senior Strategic Planner Snr Strategic Planner/Project Officer Strategic Planner Development Contributions Accountant Senior Strategic Planner – Planning Delivery Growth Area Officer	

	Column 1	Column 2	Column 3	Column 4
Statute or Source	**Provision**	**Matter delegated**	**Delegate by Position**	**Conditions and Limitations**
PLANNING AND ENVIRONMENT ACT 1987	s 46GR(1)	Duty to consider every submission that is made by the closing date for submissions included in the notice under s 46GO	Chief Executive Officer Executive Director Planning & Design Manager City Development Manager Planning & Growth Coordinator Strategic Planning Coordinator Statutory Planning Statutory Planning Project Coordinator Coordinator Planning Delivery Coordinator Strategic Implementation Senior Strategic Planner Snr Strategic Planner/Project Officer Strategic Planner Development Contributions Accountant Senior Strategic Planner – Planning Delivery Growth Area Officer	
PLANNING AND ENVIRONMENT ACT 1987	s 46GR(2)	Power to consider a late submission duty to consider a late submission if directed to do so by the Minister	Chief Executive Officer Executive Director Planning & Design Manager City Development Manager Planning & Growth Coordinator Strategic Planning Coordinator Statutory Planning. Statutory Planning Project Coordinator Coordinator Planning Delivery Coordinator Strategic Implementation Senior Strategic Planner Snr Strategic Planner/Project Officer Strategic Planner Development Contributions Accountant Senior Strategic Planner – Planning Delivery Growth Area Officer	
PLANNING AND ENVIRONMENT ACT 1987	s 46GS(1)	Power to accept or reject the estimate of the value of the inner public purpose land in a submission made under s 46GQ	Chief Executive Officer Executive Director Planning & Design Manager City Development Manager Planning & Growth Coordinator Strategic Planning Coordinator Planning Delivery Coordinator Strategic Implementation Senior Strategic Planner Development Contributions Accountant	

	Column 1	Column 2	Column 3	Column 4
Statute or Source	**Provision**	**Matter delegated**	**Delegate by Position**	**Conditions and Limitations**
PLANNING AND ENVIRONMENT ACT 1987	s 46GS(2)	Duty, if Council rejects the estimate of the value of the inner public purpose land in the submission, to refer the matter to the valuer-general, and notify the affected owner of the rejection and that the matter has been referred to the valuer-general	Chief Executive Officer Executive Director Planning & Design Manager City Development Manager Planning & Growth Coordinator Strategic Planning Coordinator Planning Delivery Coordinator Strategic Implementation Development Contributions Accountant	
PLANNING AND ENVIRONMENT ACT 1987	s 46GT(2)	Duty to pay half of the fee fixed by the valuer-general for arranging and attending the conference	Chief Executive Officer Executive Director Planning & Design Manager City Development Manager Planning & Growth Coordinator Strategic Planning Coordinator Planning Delivery Coordinator Strategic Implementation Development Contributions Accountant	
PLANNING AND ENVIRONMENT ACT 1987	s 46GT(4)	Function of receiving, from the valuer-general, written confirmation of the agreement between the planning authority's valuer and the affected owner's valuer as to the estimated value of the inner public purpose land	Chief Executive Officer Executive Director Planning & Design Manager City Development Manager Planning & Growth Coordinator Strategic Planning Coordinator Planning Delivery Coordinator Strategic Implementation Development Contributions Accountant	
PLANNING AND ENVIRONMENT ACT 1987	s 46GT(6)	Function of receiving, from the valuer-general, written notice of a determination under s 46GT(5)	Chief Executive Officer Executive Director Planning & Design Manager City Development Manager Planning & Growth Coordinator Strategic Planning Coordinator Planning Delivery Coordinator Strategic Implementation Development Contributions Accountant	

Column 1		Column 2	Column 3	Column 4
Statute or Source	**Provision**	**Matter delegated**	**Delegate by Position**	**Conditions and Limitations**
PLANNING AND ENVIRONMENT ACT 1987	s 46GU	Duty not to adopt an amendment under s 29 to an infrastructure contributions plan that specifies a land credit amount or a land equalisation amount that relates to a parcel of land in the ICP plan area of the plan unless the criteria in s 46GU(1)(a) & (b) are met	Chief Executive Officer Executive Director Planning & Design Manager City Development Manager Planning & Growth Coordinator Strategic Planning Coordinator Planning Delivery Coordinator Strategic Implementation Development Contributions Accountant	
PLANNING AND ENVIRONMENT ACT 1987	s 46GV(3)	Function of receiving the monetary component and any land equalisation amount of the infrastructure contribution power to specify the manner in which the payment is to be made	Chief Executive Officer Executive Director Planning & Design Manager City Development Manager Planning & Growth Coordinator Strategic Planning Coordinator Planning Delivery Coordinator Strategic Implementation Development Contributions Accountant	Where Council is the collecting agency
PLANNING AND ENVIRONMENT ACT 1987	s 46GV(3)(b)	Power to enter into an agreement with the applicant	Chief Executive Officer Executive Director Planning & Design Manager Planning & Growth Manager City Development Coordinator Statutory Planning Statutory Planning Projects Coordinator Coordinator Strategic Implementation Coordinator Strategic Planning Coordinator Planning Delivery	Where Council is the collecting agency
PLANNING AND ENVIRONMENT ACT 1987	s 46GV(4)(a)	Function of receiving the inner public purpose land in accordance with s 46GV(5) & (6)	Chief Executive Officer Executive Director Planning & Design Manager Planning & Growth Manager City Development Coordinator Statutory Planning Statutory Planning Projects Coordinator Coordinator Strategic Implementation Coordinator Strategic Planning Coordinator Planning Delivery	Where Council is the development agency

Column 1		Column 2	Column 3	Column 4
Statute or Source	**Provision**	**Matter delegated**	**Delegate by Position**	**Conditions and Limitations**
PLANNING AND ENVIRONMENT ACT 1987	s 46GV(4)(b)	Function of receiving the inner public purpose land in accordance with s 46GV(5) & (6)	Chief Executive Officer Executive Director Planning & Design Manager Planning & Growth Manager City Development Coordinator Statutory Planning Statutory Planning Project Coordinator Coordinator Strategic Implementation Coordinator Strategic Planning Coordinator Planning Delivery	Where Council is the collecting agency
PLANNING AND ENVIRONMENT ACT 1987	s 46GV(7)	Duty to impose the requirements set out in s 46GV(3) & (4) as conditions on the permit applied for by the applicant to develop the land in the ICP plan area	Chief Executive Officer Executive Director Planning & Design Manager City Development Manager Planning & Growth Coordinator Strategic Planning Coordinator Statutory Planning Statutory Planning Project Coordinator Coordinator Planning Delivery Coordinator Strategic Implementation Senior Strategic Planner Snr Strategic Planner/Project Officer Strategic Planner Development Contributions Accountant Senior Strategic Planner – Planning Delivery Growth Area Officer Team Leader Statutory Planning Principal Planner Principal Planner - Business Facilitation Senior Statutory Planner Town Planner Student Planner	
PLANNING AND ENVIRONMENT ACT 1987	s 46GV(9)	Power to require the payment of a monetary component or the provision of the land component of an infrastructure contribution to be secured to Council's satisfaction	Chief Executive Officer Executive Director Planning & Design Manager City Development Manager Planning & Growth Coordinator Strategic Planning Coordinator Planning Delivery Coordinator Strategic Implementation Development Contributions Accountant	Where Council is the collecting agency

Column 1		Column 2	Column 3	Column 4
Statute or Source	**Provision**	**Matter delegated**	**Delegate by Position**	**Conditions and Limitations**
PLANNING AND ENVIRONMENT ACT 1987	s 46GX(1)	Power to accept works, services or facilities in part or full satisfaction of the monetary component of an infrastructure contribution payable	Chief Executive Officer Executive Director Planning & Design	Where Council is the collecting agency
PLANNING AND ENVIRONMENT ACT 1987	s 46GX(1)	Power to accept works, services or facilities in part or full satisfaction of the monetary component of an infrastructure contribution payable	Chief Executive Officer Executive Director Planning & Design Manager Planning & Growth	Where Council is the collecting agency Limited to instances where the value of works, services, land or facilities do not exceed value of levy payable
PLANNING AND ENVIRONMENT ACT 1987	s 46GX(2)	Duty, before accepting the provision of works, services or facilities by an applicant under s 46GX(1), to obtain the agreement of the development agency or agencies specified in the approved infrastructure contributions plan	Chief Executive Officer Executive Director Planning & Design Manager City Development Manager Planning & Growth Coordinator Strategic Planning Coordinator Planning Delivery Coordinator Strategic Implementation Development Contributions Accountant	Where Council is the collecting agency
PLANNING AND ENVIRONMENT ACT 1987	s 46GY(1)	Duty to keep proper and separate accounts and records	Chief Executive Officer Executive Director Planning & Design Manager City Development Manager Planning & Growth Chief Financial Officer Coordinator Strategic Planning Coordinator Planning Delivery Coordinator Strategic Implementation Development Contributions Accountant	Where Council is the collecting agency
PLANNING AND ENVIRONMENT ACT 1987	s 46GY(2)	Duty to keep the accounts and records in accordance with the Local Government Act 2020	Chief Executive Officer Executive Director Planning & Design Manager City Development Manager Planning & Growth Chief Financial Officer Coordinator Strategic Planning Coordinator Planning Delivery Coordinator Strategic Implementation Development Contributions Accountant	Where Council is the collecting agency

Column 1		Column 2	Column 3	Column 4
Statute or Source	**Provision**	**Matter delegated**	**Delegate by Position**	**Conditions and Limitations**
PLANNING AND ENVIRONMENT ACT 1987	s 46GZ(2)(a)	Duty to forward any part of the monetary component that is imposed for plan preparation costs to the planning authority that incurred those costs	Chief Executive Officer Executive Director Planning & Design Manager City Development Manager Planning & Growth Coordinator Strategic Planning Coordinator Planning Delivery Coordinator Strategic Implementation Development Contributions Accountant	Where Council is the collecting agency under an approved infrastructure contributions plan this duty does not apply where Council is that planning authority
PLANNING AND ENVIRONMENT ACT 1987	s 46GZ(2)(a)	Function of receiving the monetary component	Chief Executive Officer Executive Director Planning & Design Manager City Development Manager Planning & Growth Coordinator Strategic Planning Coordinator Planning Delivery Coordinator Strategic Implementation Development Contributions Accountant	Where the Council is the planning authority this duty does not apply where Council is also the collecting agency
PLANNING AND ENVIRONMENT ACT 1987	s 46GZ(2)(b)	Duty to forward any part of the monetary component that is imposed for the provision of works, services or facilities to the development agency that is specified in the plan as responsible for those works, services or facilities	Chief Executive Officer Executive Director Planning & Design Manager City Development Manager Planning & Growth Coordinator Strategic Planning Coordinator Planning Delivery Coordinator Strategic Implementation Development Contributions Accountant	Where Council is the collecting agency under an approved infrastructure contributions plan this provision does not apply where Council is also the relevant development agency
PLANNING AND ENVIRONMENT ACT 1987	s 46GZ(2)(b)	Function of receiving the monetary component	Chief Executive Officer Executive Director Planning & Design Manager City Development Manager Planning & Growth Coordinator Strategic Planning Coordinator Planning Delivery Coordinator Strategic Implementation Development Contributions Accountant	Where Council is the development agency under an approved infrastructure contributions plan this provision does not apply where Council is also the collecting agency

Column 1		Column 2	Column 3	Column 4
Statute or Source	**Provision**	**Matter delegated**	**Delegate by Position**	**Conditions and Limitations**
PLANNING AND ENVIRONMENT ACT 1987	s 46GZ(4)	Duty to use any land equalisation amounts to pay land credit amounts under s 46GZ(7), except any part of those amounts that are to be forwarded to a development agency under s 46GZ(5)	Chief Executive Officer Executive Director Planning & Design Manager City Development Manager Planning & Growth Coordinator Strategic Planning Coordinator Planning Delivery Coordinator Strategic Implementation Development Contributions Accountant	Where Council is the collecting agency under an approved infrastructure contributions plan
PLANNING AND ENVIRONMENT ACT 1987	s 46GZ(5)	Duty to forward any part of a land equalisation amount required for the acquisition of outer public purpose land by a development agency specified in the approved infrastructure contributions plan to that development agency	Chief Executive Officer Executive Director Planning & Design Manager City Development Manager Planning & Growth Coordinator Strategic Planning Coordinator Planning Delivery Coordinator Strategic Implementation Development Contributions Accountant	Where Council is the collecting agency under an approved infrastructure contributions plan This provision does not apply where Council is also the relevant development agency
PLANNING AND ENVIRONMENT ACT 1987	s 46GZ(5)	Function of receiving any part of a land equalisation amount required for the acquisition of outer public purpose land	Chief Executive Officer Executive Director Planning & Design Manager City Development Manager Planning & Growth Coordinator Strategic Planning Coordinator Planning Delivery Coordinator Strategic Implementation Development Contributions Accountant	Where Council is the development agency specified in the approved infrastructure contributions plan This provision does not apply where Council is also the collecting agency
PLANNING AND ENVIRONMENT ACT 1987	s 46GZ(7)	Duty to pay to each person who must provide an infrastructure contribution under the approved infrastructure contributions plan any land credit amount to which the person is entitled under s 46GW	Chief Executive Officer Executive Director Planning & Design Manager City Development Manager Planning & Growth Coordinator Strategic Planning Coordinator Planning Delivery Coordinator Strategic Implementation Development Contributions Accountant	Where Council is the collecting agency under an approved infrastructure contributions plan

Column 1		Column 2	Column 3	Column 4
Statute or Source	**Provision**	**Matter delegated**	**Delegate by Position**	**Conditions and Limitations**
PLANNING AND ENVIRONMENT ACT 1987	s 46GZ(9)	Duty to transfer the estate in fee simple in the land to the development agency specified in the approved infrastructure contributions plan as responsible for the use and development of that land	Chief Executive Officer Executive Director Planning & Design Manager City Development Manager Planning & Growth Coordinator Strategic Planning Coordinator Planning Delivery Coordinator Strategic Implementation Development Contributions Accountant	If any inner public purpose land is vested in Council under the Subdivision Act 1988 or acquired by Council before the time it is required to be provided to Council under s 46GV(4) Where Council is the collecting agency under an approved infrastructure contributions plan This duty does not apply where Council is also the development agency
PLANNING AND ENVIRONMENT ACT 1987	s 46GZ(9)	Function of receiving the fee simple in the land	Chief Executive Officer Executive Director Planning & Design Manager City Development Manager Planning & Growth Coordinator Strategic Planning Coordinator Planning Delivery Coordinator Strategic Implementation Development Contributions Accountant	Where Council is the development agency under an approved infrastructure contributions plan This duty does not apply where Council is also the collecting agency
PLANNING AND ENVIRONMENT ACT 1987	s 46GZA(1)	Duty to keep proper and separate accounts and records	Chief Executive Officer Executive Director Planning & Design Manager City Development Manager Planning & Growth Chief Financial Officer Coordinator Strategic Planning Coordinator Planning Delivery Coordinator Strategic Implementation Development Contributions Accountant	Where Council is a development agency under an approved infrastructure contributions plan
PLANNING AND ENVIRONMENT ACT 1987	s 46GZA(2)	Duty to keep the accounts and records in accordance with the Local Government Act 2020	Chief Executive Officer Executive Director Planning & Design Manager City Development Manager Planning & Growth Chief Financial Officer Coordinator Strategic Planning Coordinator Planning Delivery Coordinator Strategic Implementation Development Contributions Accountant	Where Council is a development agency under an approved infrastructure contributions plan

Column 1		Column 2	Column 3	Column 4
Statute or Source	**Provision**	**Matter delegated**	**Delegate by Position**	**Conditions and Limitations**
PLANNING AND ENVIRONMENT ACT 1987	s 46GZB(3)	Duty to follow the steps set out in s 46GZB(3)(a) - (c)	Chief Executive Officer Executive Director Planning & Design Manager City Development Manager Planning & Growth Coordinator Strategic Planning Coordinator Planning Delivery Coordinator Strategic Implementation Development Contributions Accountant	Where Council is a development agency under an approved infrastructure contributions plan
PLANNING AND ENVIRONMENT ACT 1987	s 46GZB(4)	Duty, in accordance with requirements of the VPA, to report on the use of the infrastructure contribution in the development agency's annual report and provide reports on the use of the infrastructure contribution to the VPA	Chief Executive Officer Executive Director Planning & Design Manager City Development Manager Planning & Growth Coordinator Strategic Planning Coordinator Planning Delivery Coordinator Strategic Implementation Development Contributions Accountant	If the VPA is the collecting agency under an approved infrastructure contributions plan where Council is a development agency under an approved infrastructure contributions plan
PLANNING AND ENVIRONMENT ACT 1987	s 46GZD(2)	Duty, within 6 months after the date on which the approved infrastructure contributions plan expires, to follow the steps set out in s 46GZD(2)(a) & (b)	Chief Executive Officer Executive Director Planning & Design Manager City Development Manager Planning & Growth Coordinator Strategic Planning Coordinator Planning Delivery Coordinator Strategic Implementation Development Contributions Accountant	Where Council is the development agency under an approved infrastructure contributions plan
PLANNING AND ENVIRONMENT ACT 1987	s 46GZD(3)	Duty to follow the steps set out in s 46GZD(3)(a) & (b)	Chief Executive Officer Executive Director Planning & Design Manager City Development Manager Planning & Growth Coordinator Strategic Planning Coordinator Planning Delivery Coordinator Strategic Implementation Development Contributions Accountant	Where Council is the collecting agency under an approved infrastructure contributions plan

Column 1		Column 2	Column 3	Column 4
Statute or Source	**Provision**	**Matter delegated**	**Delegate by Position**	**Conditions and Limitations**
PLANNING AND ENVIRONMENT ACT 1987	s 46GZD(5)	Duty to make payments under s 46GZD(3) in accordance with ss 46GZD(5)(a) and 46GZD(5)(b)	Chief Executive Officer Executive Director Planning & Design Manager City Development Manager Planning & Growth Coordinator Strategic Planning Coordinator Planning Delivery Coordinator Strategic Implementation Development Contributions Accountant	Where Council is the collecting agency under an approved infrastructure contributions plan
PLANNING AND ENVIRONMENT ACT 1987	s 46GZE(2)	Duty to forward the land equalisation amount back to the collecting agency within 6 months after the expiry date if any part of a land equalisation amount paid or forwarded to a development agency for acquiring outer public purpose land has not been expended by the development agency to acquire that land at the date on which the approved infrastructure contributions plan expires	Chief Executive Officer Executive Director Planning & Design Manager City Development Manager Planning & Growth Coordinator Strategic Planning Coordinator Planning Delivery Coordinator Strategic Implementation Development Contributions Accountant	Where Council is the development agency under an approved infrastructure contributions plan this duty does not apply where Council is also the collecting agency
PLANNING AND ENVIRONMENT ACT 1987	s 46GZE(2)	Function of receiving the unexpended land equalisation amount	Chief Executive Officer Executive Director Planning & Design Manager City Development Manager Planning & Growth Coordinator Strategic Planning Coordinator Planning Delivery Coordinator Strategic Implementation Development Contributions Accountant	Where Council is the collecting agency under an approved infrastructure contributions plan this duty does not apply where Council is also the development agency
PLANNING AND ENVIRONMENT ACT 1987	s 46GZE(3)	Duty, within 12 months after the date on which the approved infrastructure contributions plan expires, to follow the steps set out in s 46GZE(3)(a) & (b)	Chief Executive Officer Executive Director Planning & Design Manager City Development Manager Planning & Growth Coordinator Strategic Planning Coordinator Planning Delivery Coordinator Strategic Implementation Development Contributions Accountant	Where Council is the collecting agency under an approved infrastructure contributions plan

Column 1		Column 2	Column 3	Column 4
Statute or Source	**Provision**	**Matter delegated**	**Delegate by Position**	**Conditions and Limitations**
PLANNING AND ENVIRONMENT ACT 1987	s 46GZF(2)	Duty, within 12 months after the date on which the approved infrastructure contributions plan expires, to use the public purpose land for a public purpose approved by the Minister or sell the public purpose land	Chief Executive Officer Executive Director Planning & Design Manager City Development Manager Planning & Growth Coordinator Strategic Planning Coordinator Planning Delivery Coordinator Strategic Implementation Development Contributions Accountant	Where Council is the development agency under an approved infrastructure contributions plan
PLANNING AND ENVIRONMENT ACT 1987	s 46GZF(3)	Duty, if land is sold under s 46GZF(2)(b), to follow the steps in s 46GZF(3)(a) & (b)	Chief Executive Officer Executive Director Planning & Design Manager City Development Manager Planning & Growth Coordinator Strategic Planning Coordinator Planning Delivery Coordinator Strategic Implementation Development Contributions Accountant	Where Council is the development agency under an approved infrastructure contributions plan
PLANNING AND ENVIRONMENT ACT 1987	s 46GZF(3)	Function of receiving proceeds of sale	Chief Executive Officer Executive Director Planning & Design Manager City Development Manager Planning & Growth Coordinator Strategic Planning Coordinator Planning Delivery Coordinator Strategic Implementation Development Contributions Accountant	Where Council is the collection agency under an approved infrastructure contributions plan this provision does not apply where Council is also the development agency
PLANNING AND ENVIRONMENT ACT 1987	s 46GZF(4)	Duty to divide the proceeds of the public purpose land among the current owners of each parcel of land in the ICP plan area and pay each current owner a portion of the proceeds in accordance with s 46GZF(5)	Chief Executive Officer Executive Director Planning & Design Manager City Development Manager Planning & Growth Coordinator Strategic Planning Coordinator Planning Delivery Coordinator Strategic Implementation Development Contributions Accountant	Where Council is the collecting agency under an approved infrastructure contributions plan

Column 1		Column 2	Column 3	Column 4
Statute or Source	**Provision**	**Matter delegated**	**Delegate by Position**	**Conditions and Limitations**
PLANNING AND ENVIRONMENT ACT 1987	s 46GZF(6)	Duty to make the payments under s 46GZF(4) in accordance with s 46GZF(6)(a) & (b)	Chief Executive Officer Executive Director Planning & Design Manager City Development Manager Planning & Growth Coordinator Strategic Planning Coordinator Planning Delivery Coordinator Strategic Implementation Development Contributions Accountant	Where Council is the collecting agency under an approved infrastructure contributions plan
PLANNING AND ENVIRONMENT ACT 1987	s 46GZH	Power to recover the monetary component, or any land equalisation amount of the land component, payable under Part 3AB as a debt in any court of competent jurisdiction	Chief Executive Officer Executive Director Planning & Design Manager City Development Manager Planning & Growth Coordinator Planning Delivery Coordinator Statutory Planning Statutory Planning Project Coordinator Development Contributions Accountant	Where Council is the collecting agency under an approved infrastructure contributions plan
PLANNING AND ENVIRONMENT ACT 1987	s 46GZI	Duty to prepare and give a report to the Minister at the times required by the Minister	Chief Executive Officer Executive Director Planning & Design Manager City Development Manager Planning & Growth Coordinator Strategic Planning Coordinator Planning Delivery Coordinator Strategic Implementation Development Contributions Accountant	Where Council is a collecting agency or development agency
PLANNING AND ENVIRONMENT ACT 1987	s 46GZK	Power to deal with public purpose land which has vested in, been acquired by, or transferred to, Council	Chief Executive Officer Executive Director Planning & Design Manager City Development Manager Planning & Growth Coordinator Strategic Planning Coordinator Statutory Planning Statutory Planning Project Coordinator Coordinator Planning Delivery Coordinator Strategic Implementation Development Contributions Accountant	Where Council is a collecting agency or development agency

	Column 1	Column 2	Column 3	Column 4
Statute or Source	**Provision**	**Matter delegated**	**Delegate by Position**	**Conditions and Limitations**
PLANNING AND ENVIRONMENT ACT 1987	s 46LB(3)	Duty to publish, on Council's Internet site, the payable dwelling amount for a financial year on or before 1 July of each financial year for which the amount is adjusted under s 46LB (2)	Chief Executive Officer Executive Director Planning & Design Manager Planning & Growth Coordinator Planning Delivery Development Contributions Accountant	
PLANNING AND ENVIRONMENT ACT 1987	s 46N(1)	Duty to include condition in permit regarding payment of development infrastructure levy	Chief Executive Officer Executive Director Planning & Design Manager City Development Manager Planning & Growth Coordinator Statutory Planning Statutory Planning Project Coordinator Coordinator Planning Delivery Development Contributions Accountant Team Leader Statutory Planning Principal Planner Principal Planner - Business Facilitation Senior Statutory Planner Town Planner Student Planner	
PLANNING AND ENVIRONMENT ACT 1987	s 46N(2)(c)	Function of determining time and manner for receipt of development contributions levy	Chief Executive Officer Executive Director Planning & Design Manager City Development Manager Planning & Growth Coordinator Strategic Planning Coordinator Planning Delivery Coordinator Strategic Implementation Development Contributions Accountant	
PLANNING AND ENVIRONMENT ACT 1987	s 46N(2)(d)	Power to enter into an agreement with the applicant regarding payment of development infrastructure levy	Chief Executive Officer Executive Director Planning & Design Manager City Development Manager Planning & Growth	

Column 1		Column 2	Column 3	Column 4
Statute or Source	**Provision**	**Matter delegated**	**Delegate by Position**	**Conditions and Limitations**
PLANNING AND ENVIRONMENT ACT 1987	s 46O(1)(a) & (2)(a)	Power to ensure that community infrastructure levy is paid, or agreement is in place, prior to issuing building permits	Chief Executive Officer Executive Director Planning & Design Manager City Development Manager Planning & Growth Coordinator Strategic Planning Coordinator Planning Delivery Coordinator Strategic Implementation Development Contributions	
PLANNING AND ENVIRONMENT ACT 1987	s 46O(1)(d) & (2)(d)	Power to enter into agreement with the applicant regarding payment of community infrastructure levy	Chief Executive Officer Executive Director Planning & Design Manager City Development Manager Planning & Growth	
PLANNING AND ENVIRONMENT ACT 1987	s 46P(1)	Power to require payment of amount of levy under s 46N or s 46O to be satisfactorily secured	Chief Executive Officer Executive Director Planning & Design Manager City Development Manager Planning & Growth Coordinator Statutory Planning Statutory Planning Project Coordinator Coordinator Planning Delivery Development Contributions Accountant	
PLANNING AND ENVIRONMENT ACT 1987	s 46P(2)	Power to accept provision of land, works, services or facilities in part or full payment of levy payable	Chief Executive Officer Executive Director Planning & Design Manager Planning & Growth	Limited to instances where the value of works, services, land or facilities do not exceed value of levy payable
PLANNING AND ENVIRONMENT ACT 1987	s 46P(2)	Power to accept provision of land, works, services or facilities in part or full payment of levy payable	Chief Executive Officer Executive Director Planning & Design	
PLANNING AND ENVIRONMENT ACT 1987	s 46Q(1)	Duty to keep proper accounts of levies paid	Chief Executive Officer Chief Financial Officer Executive Director Planning & Design Manager City Development Manager Planning & Growth Coordinator Strategic Planning Coordinator Planning Delivery Coordinator Strategic Implementation Development Contributions Accountant	

Column 1		Column 2	Column 3	Column 4
Statute or Source	**Provision**	**Matter delegated**	**Delegate by Position**	**Conditions and Limitations**
PLANNING AND ENVIRONMENT ACT 1987	s 46Q(1A)	Duty to forward to development agency part of levy imposed for carrying out works, services, or facilities on behalf of development agency or plan preparation costs incurred by a development agency or plan preparation costs incurred by a development agency	Chief Executive Officer Chief Financial Officer Executive Director Planning & Design Manager City Development Manager Planning & Growth Coordinator Strategic Planning Coordinator Planning Delivery Coordinator Strategic Implementation Development Contributions Accountant	
PLANNING AND ENVIRONMENT ACT 1987	s 46Q(2)	Duty to apply levy only for a purpose relating to the provision of plan preparation costs or the works, services and facilities in respect of which the levy was paid etc.	Chief Executive Officer Chief Financial Officer Executive Director Planning & Design Manager City Development Manager Planning & Growth Manager Civil Infrastructure Manager Enterprise Program Management Office Coordinator Strategic Planning Coordinator Planning Delivery Coordinator Strategic Implementation Development Contributions Accountant	
PLANNING AND ENVIRONMENT ACT 1987	s 46Q(3)	Power to refund any amount of levy paid if it is satisfied the development is not to proceed	Chief Executive Officer Executive Director Planning & Design Manager Planning & Growth	Only applies when levy is paid to Council as a 'development agency'
PLANNING AND ENVIRONMENT ACT 1987	s 46Q(4)(c)	Duty to pay amount to current owners of land in the area if an amount of levy has been paid to a municipal council as a development agency for plan preparation costs incurred by the council or for the provision by the council of works, services or facilities in an area under s 46Q(4)(a)	Chief Executive Officer Executive Director Planning & Design Manager City Development Manager Planning & Growth Coordinator Statutory Planning Statutory Planning Project Coordinator Coordinator Planning Delivery Coordinator Strategic Planning Development Contributions Accountant	Must be done within six months of the end of the period required by the development contributions plan and with the consent of, and in the manner approved by, the Minister

Column 1		Column 2	Column 3	Column 4
Statute or Source	**Provision**	**Matter delegated**	**Delegate by Position**	**Conditions and Limitations**
PLANNING AND ENVIRONMENT ACT 1987	s 46Q(4)(d)	Duty to submit to the Minister an amendment to the approved development contributions plan	Chief Executive Officer Executive Director Planning & Design Manager City Development Manager Planning & Growth Coordinator Strategic Planning Coordinator Strategic Implementation Coordinator Planning Delivery Development Contributions Accountant	Must be done in accordance with Part 3
PLANNING AND ENVIRONMENT ACT 1987	s 46Q(4)(e)	Duty to expend that amount on other works etc.	Chief Executive Officer Executive Director Planning & Design Manager City Development Manager Planning & Growth Coordinator Strategic Planning Coordinator Strategic Implementation Coordinator Planning Delivery Development Contributions Accountant	With the consent of, and in the manner approved by, the Minister
PLANNING AND ENVIRONMENT ACT 1987	s 46QC	Power to recover any amount of levy payable under Part 3B	Chief Executive Officer Executive Director Planning & Design Manager City Development Manager Planning & Growth Coordinator Planning Delivery Development Contributions Accountant	
PLANNING AND ENVIRONMENT ACT 1987	s 46QD	Duty to prepare report and give a report to the Minister	Chief Executive Officer Executive Director Planning & Design Manager City Development Manager Planning & Growth Coordinator Planning Delivery Development Contributions Accountant	Where council is a collecting agency or development agency
PLANNING AND ENVIRONMENT ACT 1987	s 46V(3)	Duty to make a copy of the approved strategy plan (being the Melbourne Airport Environs Strategy Plan) and any documents lodged with it available in accordance with the public availability requirements, during the inspection period	Chief Executive Officer Executive Director Planning & Design Manager City Development Manager Planning & Growth Coordinator Strategic Planning Coordinator Statutory Planning Statutory Planning Project Coordinator Coordinator Strategic Implementation Coordinator Planning Delivery	

Column 1		Column 2	Column 3	Column 4
Statute or Source	**Provision**	**Matter delegated**	**Delegate by Position**	**Conditions and Limitations**
PLANNING AND ENVIRONMENT ACT 1987	s 46V(4)	Duty to make a copy of the approved strategy plan (being the Melbourne Airport Environs Strategy Plan) and any documents lodged with it available in accordance with s 197B of the Act and on payment of the prescribe fee, after the inspection period	Chief Executive Officer Executive Director Planning & Design Manager City Development Manager Planning & Growth Coordinator Strategic Planning Coordinator Statutory Planning Statutory Planning Project Coordinator Coordinator Strategic Implementation Coordinator Planning Delivery	
PLANNING AND ENVIRONMENT ACT 1987	s 46V(5)	Duty to keep a copy of the approved strategy plan incorporating all amendments to it	Chief Executive Officer Executive Director Planning & Design Manager City Development Manager Planning & Growth Coordinator Strategic Planning Coordinator Statutory Planning Statutory Planning Project Coordinator Coordinator Strategic Implementation Coordinator Planning Delivery	
PLANNING AND ENVIRONMENT ACT 1987	s 46V(6)	Duty to make a copy of the approved strategy plan incorporating all amendments to it available in accordance with the public available requirements	Chief Executive Officer Executive Director Planning & Design Manager City Development Manager Planning & Growth Coordinator Strategic Planning Coordinator Statutory Planning Statutory Planning Project Coordinator Coordinator Strategic Implementation Coordinator Planning Delivery	
PLANNING AND ENVIRONMENT ACT 1987	s 46Y	Duty to carry out works in conformity with the approved strategy plan	Chief Executive Officer Executive Director Planning & Design Manager Planning & Growth	

Column 1		Column 2	Column 3	Column 4
Statute or Source	**Provision**	**Matter delegated**	**Delegate by Position**	**Conditions and Limitations**
PLANNING AND ENVIRONMENT ACT 1987	s 47	Power to decide that an application for a planning permit does not comply with that Act	Chief Executive Officer Executive Director Planning & Design Manager City Development Coordinator Statutory Planning Statutory Planning Project Coordinator Coordinator Strategic Implementation Principal Planner Principal Planner - Business Facilitation Senior Statutory Planner Team Leader Statutory Planning Senior Planning Subdivision Officer Subdivision Officer Town Planner Student Planner	
PLANNING AND ENVIRONMENT ACT 1987	s 49(1)	Duty to keep a register of all applications for permits and determinations relating to permits	Chief Executive Officer Executive Director Planning & Design Manager City Development Coordinator Statutory Planning Statutory Planning Project Coordinator Team Leader Statutory Planning Principal Planner Principal Planner - Business Facilitation Senior Statutory Planner Town Planner Student Planner Senior Planning Subdivision Officer Subdivision Officer Team Leader Statutory Planning Administration Administration/Technical Officer	

Column 1		Column 2	Column 3	Column 4
Statute or Source	**Provision**	**Matter delegated**	**Delegate by Position**	**Conditions and Limitations**
PLANNING AND ENVIRONMENT ACT 1987	s 49(2)	Duty to make register available for inspection in accordance with the public availability requirements	Chief Executive Officer Executive Director Planning & Design Manager City Development Coordinator Statutory Planning Statutory Planning Project Coordinator Team Leader Statutory Planning Principal Planner Principal Planner - Business Facilitation Senior Statutory Planner Town Planner Student Planner Senior Planning Subdivision Officer Subdivision Officer Team Leader Statutory Planning Administration Administration/Technical Officer	
PLANNING AND ENVIRONMENT ACT 1987	s 50(4)	Duty to amend application	Chief Executive Officer Executive Director Planning & Design Manager City Development Coordinator Statutory Planning Statutory Planning Project Coordinator Team Leader Statutory Planning Principal Planner Principal Planner - Business Facilitation Senior Planning Subdivision Officer Senior Statutory Planner Town Planner Student Planner Team Leader Statutory Planning Administration Administration/Technical Officer	
PLANNING AND ENVIRONMENT ACT 1987	s 50(5)	Power to refuse to amend application	Chief Executive Officer Executive Director Planning & Design Manager City Development Coordinator Statutory Planning Statutory Planning Project Coordinator Team Leader Statutory Planning Principal Planner Principal Planner - Business Facilitation Senior Statutory Planner Town Planner Student Planner	

Column 1		Column 2	Column 3	Column 4
Statute or Source	**Provision**	**Matter delegated**	**Delegate by Position**	**Conditions and Limitations**
PLANNING AND ENVIRONMENT ACT 1987	s 50(6)	Duty to make note of amendment to application in register	Chief Executive Officer Executive Director Planning & Design Manager City Development Coordinator Statutory Planning Statutory Planning Project Coordinator Team Leader Statutory Planning Principal Planner Principal Planner - Business Facilitation Senior Statutory Planner Town Planner Student Planner Senior Planning Subdivision Officer Subdivision Officer Team Leader Statutory Planning Administration Administration/Technical Officer	
PLANNING AND ENVIRONMENT ACT 1987	s 50A(1)	Power to make amendment to application	Chief Executive Officer Executive Director Planning & Design Manager City Development Coordinator Statutory Planning Statutory Planning Project Coordinator Team Leader Statutory Planning Principal Planner Principal Planner - Business Facilitation Senior Statutory Planner Town Planner Student Planner	
PLANNING AND ENVIRONMENT ACT 1987	s 50A(3)	Power to require applicant to notify owner and make a declaration that notice has been given	Chief Executive Officer Executive Director Planning & Design Manager City Development Coordinator Statutory Planning Statutory Planning Project Coordinator Team Leader Statutory Planning Principal Planner Principal Planner - Business Facilitation Senior Statutory Planner Town Planner Student Planner	

Column 1		Column 2	Column 3	Column 4
Statute or Source	**Provision**	**Matter delegated**	**Delegate by Position**	**Conditions and Limitations**
PLANNING AND ENVIRONMENT ACT 1987	s 50A(4)	Duty to note amendment to application in register	Chief Executive Officer Executive Director Planning & Design Manager City Development Coordinator Statutory Planning Statutory Planning Project Coordinator Team Leader Statutory Planning Principal Planner Principal Planner - Business Facilitation Senior Statutory Planner Town Planner Student Planner Senior Planning Subdivision Officer Subdivision Officer Team Leader Statutory Planning Administration Administration/Technical Officer	
PLANNING AND ENVIRONMENT ACT 1987	s 51	Duty to make copy of application available for inspection in accordance with the public availability requirements	Chief Executive Officer Executive Director Planning & Design Manager City Development Coordinator Statutory Planning Statutory Planning Project Coordinator Team Leader Statutory Planning Principal Planner Principal Planner - Business Facilitation Senior Statutory Planner Town Planner Student Planner Senior Planning Subdivision Officer Subdivision Officer Team Leader Statutory Planning Administration Administration/Technical Officer	

Column 1		Column 2	Column 3	Column 4
Statute or Source	**Provision**	**Matter delegated**	**Delegate by Position**	**Conditions and Limitations**
PLANNING AND ENVIRONMENT ACT 1987	s 52(1)(a)	Duty to give notice of the application to owners/occupiers of adjoining allotments unless satisfied that the grant of permit would not cause material detriment to any person	Chief Executive Officer Executive Director Planning & Design Manager City Development Coordinator Statutory Planning Statutory Planning Project Coordinator Team Leader Statutory Planning Principal Planner Principal Planner - Business Facilitation Senior Statutory Planner Town Planner Student Planner	
PLANNING AND ENVIRONMENT ACT 1987	s 52(1)(b)	Duty to give notice of the application to other municipal councils where appropriate	Chief Executive Officer Executive Director Planning & Design Manager City Development Coordinator Statutory Planning Statutory Planning Project Coordinator Team Leader Statutory Planning Principal Planner Principal Planner - Business Facilitation Senior Statutory Planner Town Planner Student Planner	
PLANNING AND ENVIRONMENT ACT 1987	s 52(1)(c)	Duty to give notice of the application to all persons required by the planning scheme	Chief Executive Officer Executive Director Planning & Design Manager City Development Coordinator Statutory Planning Statutory Planning Project Coordinator Team Leader Statutory Planning Principal Planner Principal Planner - Business Facilitation Senior Statutory Planner Town Planner Student Planner	

Column 1		Column 2	Column 3	Column 4
Statute or Source	**Provision**	**Matter delegated**	**Delegate by Position**	**Conditions and Limitations**
PLANNING AND ENVIRONMENT ACT 1987	s 52(1)(ca)	Duty to give notice of the application to owners and occupiers of land benefited by a registered restrictive covenant if may result in breach of covenant	Chief Executive Officer Executive Director Planning & Design Manager City Development Coordinator Statutory Planning Statutory Planning Project Coordinator Team Leader Statutory Planning Principal Planner Principal Planner - Business Facilitation Senior Statutory Planner Town Planner Student Planner	
PLANNING AND ENVIRONMENT ACT 1987	s 52(1)(cb)	Duty to give notice of the application to owners and occupiers of land benefited by a registered restrictive covenant if application is to remove or vary the covenant	Chief Executive Officer Executive Director Planning & Design Manager City Development Coordinator Statutory Planning Statutory Planning Project Coordinator Team Leader Statutory Planning Principal Planner Principal Planner - Business Facilitation Senior Statutory Planner Town Planner Student Planner	
PLANNING AND ENVIRONMENT ACT 1987	s 52(1)(d)	Duty to give notice of the application to other persons who may be detrimentally effected	Chief Executive Officer Executive Director Planning & Design Manager City Development Coordinator Statutory Planning Statutory Planning Project Coordinator Team Leader Statutory Planning Principal Planner Principal Planner - Business Facilitation Senior Statutory Planner Town Planner Student Planner	

	Column 1	Column 2	Column 3	Column 4
Statute or Source	**Provision**	**Matter delegated**	**Delegate by Position**	**Conditions and Limitations**
PLANNING AND ENVIRONMENT ACT 1987	s 52(1AA)	Duty to give notice of an application to remove or vary a registered restrictive covenant	Chief Executive Officer Executive Director Planning & Design Manager City Development Coordinator Statutory Planning Statutory Planning Project Coordinator Team Leader Statutory Planning Principal Planner Principal Planner - Business Facilitation Senior Statutory Planner Town Planner Student Planner	
PLANNING AND ENVIRONMENT ACT 1987	s 52(3)	Power to give any further notice of an application where appropriate	Chief Executive Officer Executive Director Planning & Design Manager City Development Coordinator Statutory Planning Statutory Planning Project Coordinator Team Leader Statutory Planning Principal Planner Principal Planner - Business Facilitation Senior Statutory Planner Town Planner Student Planner	
PLANNING AND ENVIRONMENT ACT 1987	s 53(1)	Power to require the applicant to give notice under s 52(1) to persons specified by it	Chief Executive Officer Executive Director Planning & Design Manager City Development Coordinator Statutory Planning Statutory Planning Project Coordinator Team Leader Statutory Planning Principal Planner Principal Planner - Business Facilitation Senior Statutory Planner Town Planner Student Planner	

Column 1		Column 2	Column 3	Column 4
Statute or Source	**Provision**	**Matter delegated**	**Delegate by Position**	**Conditions and Limitations**
PLANNING AND ENVIRONMENT ACT 1987	s 53(1A)	Power to require the applicant to give the notice under s 52(1AA)	Chief Executive Officer Executive Director Planning & Design Manager City Development Coordinator Statutory Planning Statutory Planning Project Coordinator Team Leader Statutory Planning Principal Planner Principal Planner - Business Facilitation Senior Statutory Planner Town Planner Student Planner	
PLANNING AND ENVIRONMENT ACT 1987	s 54(1)	Power to require the applicant to provide more information	Chief Executive Officer Executive Director Planning & Design Manager City Development Coordinator Statutory Planning Statutory Planning Project Coordinator Team Leader Statutory Planning Principal Planner Principal Planner - Business Facilitation Senior Statutory Planner Town Planner Student Planner	
PLANNING AND ENVIRONMENT ACT 1987	s 54(1A)	Duty to give notice in writing of information required under s 54(1)	Chief Executive Officer Executive Director Planning & Design Manager City Development Coordinator Statutory Planning Statutory Planning Project Coordinator Team Leader Statutory Planning Principal Planner Principal Planner - Business Facilitation Senior Statutory Planner Town Planner Student Planner	

Column 1		Column 2	Column 3	Column 4
Statute or Source	**Provision**	**Matter delegated**	**Delegate by Position**	**Conditions and Limitations**
PLANNING AND ENVIRONMENT ACT 1987	s 54(1B)	Duty to specify the lapse date for an application	Chief Executive Officer Executive Director Planning & Design Manager City Development Coordinator Statutory Planning Statutory Planning Project Coordinator Team Leader Statutory Planning Principal Planner Principal Planner - Business Facilitation Senior Statutory Planner Town Planner Student Planner	
PLANNING AND ENVIRONMENT ACT 1987	s 54A(3)	Power to decide to extend time or refuse to extend time to give required information	Chief Executive Officer Executive Director Planning & Design Manager City Development Coordinator Statutory Planning Statutory Planning Project Coordinator Team Leader Statutory Planning Principal Planner Principal Planner - Business Facilitation Senior Statutory Planner Town Planner Student Planner	
PLANNING AND ENVIRONMENT ACT 1987	s 54A(4)	Duty to give written notice of decision to extend or refuse to extend time under s 54A(3)	Chief Executive Officer Executive Director Planning & Design Manager City Development Coordinator Statutory Planning Statutory Planning Project Coordinator Team Leader Statutory Planning Principal Planner Principal Planner - Business Facilitation Senior Statutory Planner Town Planner Student Planner	

	Column 1	Column 2	Column 3	Column 4
Statute or Source	**Provision**	**Matter delegated**	**Delegate by Position**	**Conditions and Limitations**
PLANNING AND ENVIRONMENT ACT 1987	s 55(1)	Duty to give copy application, together with the prescribed information, to every referral authority specified in the planning scheme	Chief Executive Officer Executive Director Planning & Design Manager City Development Coordinator Statutory Planning Statutory Planning Project Coordinator Team Leader Statutory Planning Principal Planner Principal Planner - Business Facilitation Senior Statutory Planner Town Planner Student Planner Senior Planning Subdivision Officer Subdivision Officer Team Leader Statutory Planning Administration Administration/Technical Officer	
PLANNING AND ENVIRONMENT ACT 1987	s 57(2A)	Power to reject objections considered made primarily for commercial advantage for the objector	Not Delegated	
PLANNING AND ENVIRONMENT ACT 1987	s 57(3)	Function of receiving name and address of persons to whom notice of decision is to go	Chief Executive Officer Executive Director Planning & Design Manager City Development Coordinator Statutory Planning Statutory Planning Project Coordinator Team Leader Statutory Planning Principal Planner Principal Planner - Business Facilitation Senior Statutory Planner Town Planner Student Planner Senior Planning Subdivision Officer Subdivision Officer Team Leader Statutory Planning Administration Administration/Technical Officer	

Column 1		Column 2	Column 3	Column 4
Statute or Source	**Provision**	**Matter delegated**	**Delegate by Position**	**Conditions and Limitations**
PLANNING AND ENVIRONMENT ACT 1987	s 57(5)	Duty to make a copy of all objections in accordance with the public availability requirements	Chief Executive Officer Executive Director Planning & Design Manager City Development Coordinator Statutory Planning Statutory Planning Project Coordinator Team Leader Statutory Planning Principal Planner Principal Planner - Business Facilitation Senior Statutory Planner Town Planner Student Planner Senior Planning Subdivision Officer Subdivision Officer Team Leader Statutory Planning Administration Administration/Technical Officer	
PLANNING AND ENVIRONMENT ACT 1987	S 57A(4)	Duty to amend application in accordance with applicant's request, subject to s 57A(5)	Chief Executive Officer Executive Director Planning & Design Manager City Development Coordinator Statutory Planning Statutory Planning Project Coordinator Team Leader Statutory Planning Principal Planner Principal Planner - Business Facilitation Senior Statutory Planner Town Planner Student Planner	
PLANNING AND ENVIRONMENT ACT 1987	s 57A(5)	Power to refuse to amend application	Chief Executive Officer Executive Director Planning & Design Manager City Development Coordinator Statutory Planning Statutory Planning Project Coordinator Team Leader Statutory Planning Principal Planner Principal Planner - Business Facilitation Senior Statutory Planner Town Planner Student Planner	

Column 1		Column 2	Column 3	Column 4
Statute or Source	**Provision**	**Matter delegated**	**Delegate by Position**	**Conditions and Limitations**
PLANNING AND ENVIRONMENT ACT 1987	s 57A(6)	Duty to note amendments to application in register	Chief Executive Officer Executive Director Planning & Design Manager City Development Coordinator Statutory Planning Statutory Planning Project Coordinator Team Leader Statutory Planning Principal Planner Principal Planner - Business Facilitation Senior Statutory Planner Town Planner Student Planner Team Leader Statutory Planning Administration Administration/Technical Officer	
PLANNING AND ENVIRONMENT ACT 1987	s 57B(1)	Duty to determine whether and to whom notice should be given	Chief Executive Officer Executive Director Planning & Design Manager City Development Coordinator Statutory Planning Statutory Planning Project Coordinator Team Leader Statutory Planning Principal Planner Principal Planner - Business Facilitation Senior Statutory Planner Town Planner Student Planner	
PLANNING AND ENVIRONMENT ACT 1987	s 57B(2)	Duty to consider certain matters in determining whether notice should be given	Chief Executive Officer Executive Director Planning & Design Manager City Development Coordinator Statutory Planning Statutory Planning Project Coordinator Team Leader Statutory Planning Principal Planner Principal Planner – Business Facilitation Senior Statutory Planner Town Planner Student Planner	

Column 1		Column 2	Column 3	Column 4
Statute or Source	**Provision**	**Matter delegated**	**Delegate by Position**	**Conditions and Limitations**
PLANNING AND ENVIRONMENT ACT 1987	s 57C(1)	Duty to give copy of amended application to referral authority	Chief Executive Officer Executive Director Planning & Design Manager City Development Coordinator Statutory Planning Statutory Planning Project Coordinator Team Leader Statutory Planning Principal Planner Principal Planner - Business Facilitation Senior Statutory Planner Town Planner Student Planner Senior Planning Subdivision Officer Subdivision Officer Team Leader Statutory Planning Administration Administration/Technical Officer	
PLANNING AND ENVIRONMENT ACT 1987	s 58	Duty to consider every application for a permit	Chief Executive Officer Executive Director Planning & Design Manager City Development Coordinator Statutory Planning Statutory Planning Project Coordinator Team Leader Statutory Planning Principal Planner Principal Planner – Business Facilitation Senior Statutory Planner Town Planner Student Planner	
PLANNING AND ENVIRONMENT ACT 1987	s 58A	Power to request advice from the Planning Application Committee	Chief Executive Officer Executive Director Planning & Design Manager City Development Coordinator Statutory Planning Statutory Planning Project Coordinator Team Leader Statutory Planning Principal Planner Principal Planner - Business Facilitation Senior Statutory Planner Town Planner Student Planner	

Column 1		Column 2	Column 3	Column 4
Statute or Source	**Provision**	**Matter delegated**	**Delegate by Position**	**Conditions and Limitations**
PLANNING AND ENVIRONMENT ACT 1987	s 60	Duty to consider certain matters	Chief Executive Officer Executive Director Planning & Design Manager City Development Coordinator Statutory Planning Statutory Planning Project Coordinator Team Leader Statutory Planning Principal Planner Principal Planner – Business Facilitation Senior Statutory Planner Town Planner Student Planner	
PLANNING AND ENVIRONMENT ACT 1987	s 60(1A)	Duty to consider certain matters	Chief Executive Officer Executive Director Planning & Design Manager City Development Coordinator Statutory Planning Statutory Planning Project Coordinator Team Leader Statutory Planning Principal Planner Principal Planner - Business Facilitation Senior Statutory Planner Town Planner Student Planner	
PLANNING AND ENVIRONMENT ACT 1987	s 60(1B)	Duty to consider number of objectors in considering whether use or development may have significant social effect	Chief Executive Officer Executive Director Planning & Design Manager City Development Coordinator Statutory Planning Statutory Planning Project Coordinator Team Leader Statutory Planning Principal Planner Principal Planner - Business Facilitation Senior Statutory Planner Town Planner Student Planner	

Column 1		Column 2	Column 3	Column 4
Statute or Source	**Provision**	**Matter delegated**	**Delegate by Position**	**Conditions and Limitations**
PLANNING AND ENVIRONMENT ACT 1987	s 61(1)	Power to determine permit application, either to decide to grant a permit, to decide to grant a permit with conditions or to refuse a permit application	Chief Executive Officer Executive Director Planning & Design Manager City Development Coordinator Statutory Planning Statutory Planning Project Coordinator Team Leader Statutory Planning Principal Planner Principal Planner - Business Facilitation Senior Statutory Planner Town Planner Student Planner	The permit must not be inconsistent with a cultural heritage management plan under the Aboriginal Heritage At 2006
PLANNING AND ENVIRONMENT ACT 1987	s 61(2)	Duty to decide to refuse to grant a permit if a relevant determining referral authority objects to grant of permit	Chief Executive Officer Executive Director Planning & Design Manager City Development Coordinator Statutory Planning Statutory Planning Project Coordinator Team Leader Statutory Planning Principal Planner Principal Planner - Business Facilitation Senior Statutory Planner Town Planner Student Planner	
PLANNING AND ENVIRONMENT ACT 1987	s 61(2A)	Power to decide to refuse to grant a permit if a relevant recommending referral authority objects to the grant of permit	Chief Executive Officer Executive Director Planning & Design Manager City Development Coordinator Statutory Planning Statutory Planning Project Coordinator Team Leader Statutory Planning Principal Planner Principal Planner - Business Facilitation Senior Statutory Planner Town Planner Student Planner	

Column 1		Column 2	Column 3	Column 4
Statute or Source	**Provision**	**Matter delegated**	**Delegate by Position**	**Conditions and Limitations**
PLANNING AND ENVIRONMENT ACT 1987	s 61(3)(a)	Duty not to decide to grant a permit to use coastal Crown land without Minister's consent	Chief Executive Officer Executive Director Planning & Design Manager City Development Coordinator Statutory Planning Statutory Planning Project Coordinator Team Leader Statutory Planning Principal Planner Principal Planner - Business Facilitation Senior Statutory Planner Town Planner Student Planner	
PLANNING AND ENVIRONMENT ACT 1987	s 61(3)(b)	Duty to refuse to grant the permit without the Minister's consent	Not Delegated	
PLANNING AND ENVIRONMENT ACT 1987	s 61(4)	Duty to refuse to grant the permit if grant would authorise a breach of a registered restrictive covenant	Chief Executive Officer Executive Director Planning & Design Manager City Development Coordinator Statutory Planning Statutory Planning Project Coordinator Team Leader Statutory Planning Principal Planner Principal Planner - Business Facilitation Senior Statutory Planner Town Planner Student Planner	
PLANNING AND ENVIRONMENT ACT 1987	s 62(1)	Duty to include certain conditions in deciding to grant a permit	Chief Executive Officer Executive Director Planning & Design Manager City Development Coordinator Statutory Planning Statutory Planning Project Coordinator Team Leader Statutory Planning Principal Planner Principal Planner - Business Facilitation Senior Statutory Planner Town Planner Student Planner	

	Column 1	Column 2	Column 3	Column 4
Statute or Source	**Provision**	**Matter delegated**	**Delegate by Position**	**Conditions and Limitations**
PLANNING AND ENVIRONMENT ACT 1987	s 62(2)	Power to include other conditions	Chief Executive Officer Executive Director Planning & Design Manager City Development Coordinator Statutory Planning Statutory Planning Project Coordinator Coordinator Strategic Implementation Team Leader Statutory Planning Principal Planner Principal Planner - Business Facilitation Senior Statutory Planner Town Planner Student Planner	
PLANNING AND ENVIRONMENT ACT 1987	s 62(4)	Duty to ensure conditions are consistent with paragraphs (a),(b) and (c)	Chief Executive Officer Executive Director Planning & Design Manager City Development Coordinator Statutory Planning Statutory Planning Project Coordinator Team Leader Statutory Planning Principal Planner Principal Planner - Business Facilitation Senior Statutory Planner Town Planner Student Planner	
PLANNING AND ENVIRONMENT ACT 1987	s 62(5)(a)	Power to include a permit condition to implement an approved development contributions plan or an approved infrastructure contributions plan	Chief Executive Officer Executive Director Planning & Design Manager City Development Coordinator Statutory Planning Statutory Planning Project Coordinator Coordinator Strategic Implementation Team Leader Statutory Planning Principal Planner Principal Planner - Business Facilitation Senior Statutory Planner Town Planner Student Planner	

	Column 1	Column 2	Column 3	Column 4
Statute or Source	**Provision**	**Matter delegated**	**Delegate by Position**	**Conditions and Limitations**
PLANNING AND ENVIRONMENT ACT 1987	s 62(5)(b)	Power to include a permit condition that specified works be provided on or to the land or paid for in accordance with s 173 agreement	Chief Executive Officer Executive Director Planning & Design Manager City Development Coordinator Statutory Planning Statutory Planning Project Coordinator Coordinator Strategic Implementation Team Leader Statutory Planning Principal Planner Principal Planner - Business Facilitation Senior Statutory Planner Town Planner Student Planner	
PLANNING AND ENVIRONMENT ACT 1987	s 62(5)(c)	Power to include a permit condition that specified works be provided or paid for by the applicant	Chief Executive Officer Executive Director Planning & Design Manager City Development Coordinator Statutory Planning Statutory Planning Project Coordinator Coordinator Strategic Implementation Team Leader Statutory Planning Principal Planner Principal Planner - Business Facilitation Senior Statutory Planner Town Planner Student Planner	
PLANNING AND ENVIRONMENT ACT 1987	s 62(6)(a)	Duty not to include a permit condition requiring a person to pay an amount for or provide works except in accordance with ss 46N(1), 46GV(7) or 62(5)	Chief Executive Officer Executive Director Planning & Design Manager City Development Coordinator Statutory Planning Statutory Planning Project Coordinator Team Leader Statutory Planning Principal Planner Principal Planner - Business Facilitation Senior Statutory Planner Town Planner Student Planner	

Column 1		Column 2	Column 3	Column 4
Statute or Source	**Provision**	**Matter delegated**	**Delegate by Position**	**Conditions and Limitations**
PLANNING AND ENVIRONMENT ACT 1987	s 62(6)(b)	Duty not to include a permit condition requiring a person to pay an amount for or provide works except a condition that a planning scheme requires to be included as referred to in s 62(1)(a)	Chief Executive Officer Executive Director Planning & Design Manager City Development Coordinator Statutory Planning Statutory Planning Project Coordinator Team Leader Statutory Planning Principal Planner Principal Planner - Business Facilitation Senior Statutory Planner Town Planner Student Planner	
PLANNING AND ENVIRONMENT ACT 1987	s 63	Duty to issue the permit where made a decision in favour of the application (if no one has objected)	Chief Executive Officer Executive Director Planning & Design Manager City Development Coordinator Statutory Planning Statutory Planning Project Coordinator Team Leader Statutory Planning Principal Planner Principal Planner - Business Facilitation Senior Statutory Planner Town Planner Student Planner	
PLANNING AND ENVIRONMENT ACT 1987	s 64(1)	Duty to give notice of decision to grant a permit to applicant and objectors	Chief Executive Officer Executive Director Planning & Design Manager City Development Coordinator Statutory Planning Statutory Planning Project Coordinator Team Leader Statutory Planning Principal Planner Principal Planner - Business Facilitation Senior Statutory Planner Town Planner Student Planner	Subject to advising all Councillors prior to any delegated decision being made in respect of applications with 6 or more objections with the right for any Councillor to refer an application to the Planning Committee in accordance with the Planning Committee terms of reference

Column 1		Column 2	Column 3	Column 4
Statute or Source	**Provision**	**Matter delegated**	**Delegate by Position**	**Conditions and Limitations**
PLANNING AND ENVIRONMENT ACT 1987	s 64(3)	Duty not to issue a permit until after the specified period	Chief Executive Officer Executive Director Planning & Design Manager City Development Coordinator Statutory Planning Statutory Planning Project Coordinator Team Leader Statutory Planning Principal Planner Principal Planner - Business Facilitation Senior Statutory Planner Town Planner Student Planner	This provision applies also to a decision to grant an amendment to a permit - see s 75
PLANNING AND ENVIRONMENT ACT 1987	s 64(5)	Duty to give each objector a copy of an exempt decision	Chief Executive Officer Executive Director Planning & Design Manager City Development Coordinator Statutory Planning Statutory Planning Project Coordinator Team Leader Statutory Planning Principal Planner Principal Planner - Business Facilitation Senior Statutory Planner Town Planner Student Planner	
PLANNING AND ENVIRONMENT ACT 1987	s 64A	Duty not to issue permit until the end of a period when an application for review may be lodged with VCAT or until VCAT has determined the application, if a relevant recommending referral authority has objected to the grant of a permit	Chief Executive Officer Executive Director Planning & Design Manager City Development Coordinator Statutory Planning Statutory Planning Project Coordinator Team Leader Statutory Planning Principal Planner Principal Planner - Business Facilitation Senior Statutory Planner Town Planner Student Planner	This provision applies also to a decision to grant an amendment to a permit - see s 75A

Column 1		Column 2	Column 3	Column 4
Statute or Source	**Provision**	**Matter delegated**	**Delegate by Position**	**Conditions and Limitations**
PLANNING AND ENVIRONMENT ACT 1987	s 65(1)	Duty to give notice of refusal to grant permit to applicant and person who objected under s 57	Chief Executive Officer Executive Director Planning & Design Manager City Development Coordinator Statutory Planning Statutory Planning Project Coordinator Team Leader Statutory Planning Principal Planner Principal Planner - Business Facilitation Senior Statutory Planner Town Planner Student Planner Team Leader Statutory Planning Administration Administration/Technical Officer	Subject to advising all Councillors prior to any delegated decision being made in respect of refusal of applications with the right for any Councillor to refer an application to the Planning Committee in accordance with the Planning Committee terms of reference
PLANNING AND ENVIRONMENT ACT 1987	s 66(1)	Duty to give notice under s 64 or s 65 and copy permit to relevant determining referral authorities	Chief Executive Officer Executive Director Planning & Design Manager City Development Coordinator Statutory Planning Statutory Planning Project Coordinator Team Leader Statutory Planning Principal Planner Principal Planner - Business Facilitation Senior Statutory Planner Town Planner Student Planner Senior Planning Subdivision Officer Subdivision Officer Team Leader Statutory Planning Administration Administration/Technical Officer	

Column 1		Column 2	Column 3	Column 4
Statute or Source	**Provision**	**Matter delegated**	**Delegate by Position**	**Conditions and Limitations**
PLANNING AND ENVIRONMENT ACT 1987	s 66(2)	Duty to give a recommending referral authority notice of its decision to grant a permit	Chief Executive Officer Executive Director Planning & Design Manager City Development Coordinator Statutory Planning Statutory Planning Project Coordinator Team Leader Statutory Planning Principal Planner Principal Planner - Business Facilitation Senior Statutory Planner Town Planner Student Planner Senior Planning Subdivision Officer Subdivision Officer Team Leader Statutory Planning Administration Administration/Technical Officer	If the recommending referral authority objected to the grant of the permit or the responsible authority decided not to include a condition on the permit recommended by the recommending referral authority
PLANNING AND ENVIRONMENT ACT 1987	s 66(4)	Duty to give a recommending referral authority notice of its decision to refuse a permit	Chief Executive Officer Executive Director Planning & Design Manager City Development Coordinator Statutory Planning Statutory Planning Project Coordinator Team Leader Statutory Planning Principal Planner Principal Planner - Business Facilitation Senior Statutory Planner Town Planner Student Planner Senior Planning Subdivision Officer Subdivision Officer Team Leader Statutory Planning Administration Administration/Technical Officer	If the recommending referral authority objected to the grant of the permit or the recommending referral authority recommended that a permit condition be included on the permit

	Column 1	Column 2	Column 3	Column 4
Statute or Source	**Provision**	**Matter delegated**	**Delegate by Position**	**Conditions and Limitations**
PLANNING AND ENVIRONMENT ACT 1987	s 66(6)	Duty to give a recommending referral authority a copy of any permit which Council decides to grant and a copy of any notice given under s 64 or 65	Chief Executive Officer Executive Director Planning & Design Manager City Development Coordinator Statutory Planning Statutory Planning Project Coordinator Team Leader Statutory Planning Principal Planner Principal Planner - Business Facilitation Senior Statutory Planner Town Planner Student Planner Senior Planning Subdivision Officer Subdivision Officer Team Leader Statutory Planning Administration Administration/Technical Officer	If the recommending referral authority did not object to the grant of the permit or the recommending referral authority did not recommend a condition be included on the permit
PLANNING AND ENVIRONMENT ACT 1987	s 69(1)	Function of receiving application for extension of time of permit	Chief Executive Officer Executive Director Planning & Design Manager City Development Coordinator Statutory Planning Statutory Planning Project Coordinator Team Leader Statutory Planning Principal Planner Principal Planner - Business Facilitation Senior Statutory Planner Town Planner Student Planner Senior Planning Subdivision Officer Subdivision Officer Team Leader Statutory Planning Administration Administration/Technical Officer	

Column 1		Column 2	Column 3	Column 4
Statute or Source	**Provision**	**Matter delegated**	**Delegate by Position**	**Conditions and Limitations**
PLANNING AND ENVIRONMENT ACT 1987	s 69(1A)	Function of receiving application for extension of time to complete development	Chief Executive Officer Executive Director Planning & Design Manager City Development Coordinator Statutory Planning Statutory Planning Project Coordinator Team Leader Statutory Planning Principal Planner Principal Planner - Business Facilitation Senior Statutory Planner Town Planner Student Planner Team Leader Statutory Planning Administration Administration/Technical Officer	
PLANNING AND ENVIRONMENT ACT 1987	s 69(2)	Power to extend time	Chief Executive Officer Executive Director Planning & Design Manager City Development Coordinator Statutory Planning Statutory Planning Project Coordinator Team Leader Statutory Planning Principal Planner Principal Planner - Business Facilitation Senior Statutory Planner Town Planner Student Planner	
PLANNING AND ENVIRONMENT ACT 1987	s 70	Duty to make copy permit available in accordance with the public availability requirements	Chief Executive Officer Executive Director Planning & Design Manager City Development Coordinator Statutory Planning Statutory Planning Project Coordinator Team Leader Statutory Planning Principal Planner Principal Planner - Business Facilitation Senior Statutory Planner Town Planner Student Planner Team Leader Statutory Planning Administration Administration/Technical Officer	

Column 1		Column 2	Column 3	Column 4
Statute or Source	**Provision**	**Matter delegated**	**Delegate by Position**	**Conditions and Limitations**
PLANNING AND ENVIRONMENT ACT 1987	s 71(1)	Power to correct certain mistakes	Chief Executive Officer Executive Director Planning & Design Manager City Development Coordinator Statutory Planning Statutory Planning Project Coordinator Team Leader Statutory Planning Principal Planner Principal Planner - Business Facilitation Senior Statutory Planner Town Planner Student Planner	
PLANNING AND ENVIRONMENT ACT 1987	s 71(2)	Duty to note corrections in register	Chief Executive Officer Executive Director Planning & Design Manager City Development Coordinator Statutory Planning Statutory Planning Project Coordinator Team Leader Statutory Planning Principal Planner Principal Planner - Business Facilitation Senior Statutory Planner Town Planner Student Planner Team Leader Statutory Planning Administration Administration/Technical Officer	
PLANNING AND ENVIRONMENT ACT 1987	s 73	Power to decide to grant amendment subject to conditions	Chief Executive Officer Executive Director Planning & Design Manager City Development Coordinator Statutory Planning Statutory Planning Project Coordinator Team Leader Statutory Planning Principal Planner Principal Planner - Business Facilitation Senior Statutory Planner Town Planner Student Planner	

Column 1		Column 2	Column 3	Column 4
Statute or Source	**Provision**	**Matter delegated**	**Delegate by Position**	**Conditions and Limitations**
PLANNING AND ENVIRONMENT ACT 1987	s 74	Duty to issue amended permit to applicant if no objectors	Chief Executive Officer Executive Director Planning & Design Manager City Development Coordinator Statutory Planning Statutory Planning Project Coordinator Team Leader Statutory Planning Principal Planner Principal Planner - Business Facilitation Senior Statutory Planner Town Planner Student Planner	
PLANNING AND ENVIRONMENT ACT 1987	s 76	Duty to give applicant and objectors notice of decision to refuse to grant amendment to permit	Chief Executive Officer Executive Director Planning & Design Manager City Development Coordinator Statutory Planning Statutory Planning Project Coordinator Team Leader Statutory Planning Principal Planner Principal Planner - Business Facilitation Senior Statutory Planner Town Planner Student Planner Senior Planning Subdivision Officer Subdivision Officer	
PLANNING AND ENVIRONMENT ACT 1987	s 76A(1)	Duty to give relevant determining referral authorities copy of amended permit and copy of notice	Chief Executive Officer Executive Director Planning & Design Manager City Development Coordinator Statutory Planning Statutory Planning Project Coordinator Team Leader Statutory Planning Principal Planner Principal Planner - Business Facilitation Senior Statutory Planner Town Planner Student Planner Senior Planning Subdivision Officer Subdivision Officer Team Leader Statutory Planning Administration Administration/Technical Officer	

	Column 1	Column 2	Column 3	Column 4
Statute or Source	**Provision**	**Matter delegated**	**Delegate by Position**	**Conditions and Limitations**
PLANNING AND ENVIRONMENT ACT 1987	s 76A(2)	Duty to give a recommending referral authority notice of its decision to grant an amendment to a permit	Chief Executive Officer Executive Director Planning & Design Manager City Development Coordinator Statutory Planning Statutory Planning Project Coordinator Team Leader Statutory Planning Principal Planner Principal Planner - Business Facilitation Senior Statutory Planner Town Planner Student Planner Senior Planning Subdivision Officer Subdivision Officer Team Leader Statutory Planning Administration Administration/Technical Officer	If the recommending referral authority objected to the amendment of the permit or the responsible authority decided not to include a condition on the amended permit recommended by the recommending referral authority
PLANNING AND ENVIRONMENT ACT 1987	s 76A(4)	Duty to give a recommending referral authority notice of its decision to refuse a permit	Chief Executive Officer Executive Director Planning & Design Manager City Development Coordinator Statutory Planning Statutory Planning Project Coordinator Team Leader Statutory Planning Principal Planner Principal Planner - Business Facilitation Senior Statutory Planner Town Planner Student Planner Senior Planning Subdivision Officer Subdivision Officer Team Leader Statutory Planning Administration Administration/Technical Officer	If the recommending referral authority objected to the amendment of the permit or the recommending referral authority recommended that a permit condition be included on the amended permit

Column 1		Column 2	Column 3	Column 4
Statute or Source	**Provision**	**Matter delegated**	**Delegate by Position**	**Conditions and Limitations**
PLANNING AND ENVIRONMENT ACT 1987	s 76A(6)	Duty to give a recommending referral authority a copy of any amended permit which Council decides to grant and a copy of any notice given under s 64 or 76	Chief Executive Officer Executive Director Planning & Design Manager City Development Coordinator Statutory Planning Statutory Planning Project Coordinator Team Leader Statutory Planning Principal Planner Principal Planner - Business Facilitation Senior Statutory Planner Town Planner Student Planner Senior Planning Subdivision Officer Subdivision Officer Team Leader Statutory Planning Administration Administration/Technical Officer	If the recommending referral authority did not object to the amendment of the permit or the recommending referral authority did not recommend a condition be included on the amended permit
PLANNING AND ENVIRONMENT ACT 1987	s 76D	Duty to comply with direction of Minister to issue amended permit	Chief Executive Officer Executive Director Planning & Design Manager City Development Coordinator Statutory Planning Statutory Planning Project Coordinator Team Leader Statutory Planning Principal Planner Principal Planner - Business Facilitation Senior Statutory Planner Town Planner Student Planner	
PLANNING AND ENVIRONMENT ACT 1987	s 83	Function of being respondent to an appeal	Chief Executive Officer Executive Director Planning & Design Manager City Development Coordinator Statutory Planning Statutory Planning Project Coordinator Team Leader Statutory Planning Principal Planner Principal Planner - Business Facilitation Senior Statutory Planner Town Planner Student Planner	

Column 1		Column 2	Column 3	Column 4
Statute or Source	**Provision**	**Matter delegated**	**Delegate by Position**	**Conditions and Limitations**
PLANNING AND ENVIRONMENT ACT 1987	s 83B	Duty to give or publish notice of application for review	Chief Executive Officer Executive Director Planning & Design Manager City Development Coordinator Statutory Planning Statutory Planning Project Coordinator Team Leader Statutory Planning Principal Planner Principal Planner - Business Facilitation Senior Statutory Planner Town Planner Student Planner Team Leader Statutory Planning Administration Administration/Technical Officer	
PLANNING AND ENVIRONMENT ACT 1987	s 84(1)	Power to decide on an application at any time after an appeal is lodged against failure to grant a permit	Chief Executive Officer Executive Director Planning & Design Manager City Development Coordinator Statutory Planning Statutory Planning Project Coordinator Team Leader Statutory Planning Principal Planner Principal Planner - Business Facilitation Senior Statutory Planner Town Planner Student Planner	
PLANNING AND ENVIRONMENT ACT 1987	s 84(2)	Duty not to issue a permit or notice of decision or refusal after an application is made for review of a failure to grant a permit	Chief Executive Officer Executive Director Planning & Design Manager City Development Coordinator Statutory Planning Statutory Planning Project Coordinator Team Leader Statutory Planning Principal Planner Principal Planner - Business Facilitation Senior Statutory Planner Town Planner Student Planner	

Column 1		Column 2	Column 3	Column 4
Statute or Source	**Provision**	**Matter delegated**	**Delegate by Position**	**Conditions and Limitations**
PLANNING AND ENVIRONMENT ACT 1987	s 84(3)	Duty to tell principal registrar if decide to grant a permit after an application is made for review of its failure to grant a permit	Chief Executive Officer Executive Director Planning & Design Manager City Development Coordinator Statutory Planning Statutory Planning Project Coordinator Team Leader Statutory Planning Principal Planner Principal Planner - Business Facilitation Senior Statutory Planner Town Planner Student Planner	
PLANNING AND ENVIRONMENT ACT 1987	s 84(6)	Duty to issue permit on receipt of advice within 3 business days	Chief Executive Officer Executive Director Planning & Design Manager City Development Coordinator Statutory Planning Statutory Planning Project Coordinator Team Leader Statutory Planning Principal Planner Principal Planner - Business Facilitation Senior Statutory Planner Town Planner Student Planner	
PLANNING AND ENVIRONMENT ACT 1987	s 84AB	Power to agree to confining a review by the Tribunal	Chief Executive Officer Executive Director Planning & Design Manager City Development Manager Planning & Growth Coordinator Planning Delivery Coordinator Statutory Planning Statutory Planning Project Coordinator Team Leader Statutory Planning Principal Planner Principal Planner - Business Facilitation Senior Statutory Planner Town Planner Student Planner	

Column 1		Column 2	Column 3	Column 4
Statute or Source	**Provision**	**Matter delegated**	**Delegate by Position**	**Conditions and Limitations**
PLANNING AND ENVIRONMENT ACT 1987	s 86	Duty to issue a permit at order of Tribunal within 3 business days	Chief Executive Officer Executive Director Planning & Design Manager City Development Coordinator Statutory Planning Statutory Planning Project Coordinator Team Leader Statutory Planning Principal Planner Principal Planner - Business Facilitation Senior Statutory Planner Town Planner Student Planner	
PLANNING AND ENVIRONMENT ACT 1987	s 87(3)	Power to apply to VCAT for the cancellation or amendment of a permit	Chief Executive Officer Executive Director Planning & Design Manager City Development Coordinator Statutory Planning Statutory Planning Project Coordinator Team Leader Statutory Planning Principal Planning Investigations Officer Senior Planning Investigations Officer Planning Investigations Officer Principal Planner Principal Planner - Business Facilitation Senior Statutory Planner Town Planner Student Planner	
PLANNING AND ENVIRONMENT ACT 1987	s 90(1)	Function of being heard at hearing of request for cancellation or amendment of a permit	Chief Executive Officer Executive Director Planning & Design Manager City Development Coordinator Statutory Planning Statutory Planning Project Coordinator Team Leader Statutory Planning Principal Planner Principal Planner - Business Facilitation Senior Statutory Planner Town Planner Student Planner Principal Planning Investigations Officer Senior Planning Investigations Officer Planning Investigations Officer	

Column 1		Column 2	Column 3	Column 4
Statute or Source	**Provision**	**Matter delegated**	**Delegate by Position**	**Conditions and Limitations**
PLANNING AND ENVIRONMENT ACT 1987	s 91(2)	Duty to comply with the directions of the VCAT	Chief Executive Officer Executive Director Planning & Design Manager City Development Coordinator Statutory Planning Statutory Planning Project Coordinator Team Leader Statutory Planning Principal Planner Principal Planner - Business Facilitation Senior Statutory Planner Town Planner Student Planner Senior Planning Subdivision Officer Subdivision Officer Principal Planning Investigations Officer Senior Planning Investigations Officer Planning Investigations Officer	
PLANNING AND ENVIRONMENT ACT 1987	s 91(2A)	Duty to issue amended permit to owner if Tribunal so directs	Chief Executive Officer Executive Director Planning & Design Manager City Development Coordinator Statutory Planning Statutory Planning Project Coordinator Team Leader Statutory Planning Principal Planner Principal Planner - Business Facilitation Senior Statutory Planner Town Planner Student Planner	
PLANNING AND ENVIRONMENT ACT 1987	s 92	Duty to give notice of cancellation/amendment of permit by VCAT to persons entitled to be heard under s 90	Chief Executive Officer Executive Director Planning & Design Manager City Development Coordinator Statutory Planning Statutory Planning Project Coordinator Team Leader Statutory Planning Principal Planner Principal Planner - Business Facilitation Senior Statutory Planner Town Planner Student Planner	

Column 1		Column 2	Column 3	Column 4
Statute or Source	**Provision**	**Matter delegated**	**Delegate by Position**	**Conditions and Limitations**
PLANNING AND ENVIRONMENT ACT 1987	s 93(2)	Duty to give notice of VCAT order to stop development	Chief Executive Officer Executive Director Planning & Design Manager City Development Coordinator Statutory Planning Statutory Planning Project Coordinator Team Leader Statutory Planning Principal Planner Principal Planner - Business Facilitation Senior Statutory Planner Town Planner Student Planner Principal Planning Investigations Officer Senior Planning Investigations Officer Planning Investigations Officer	
PLANNING AND ENVIRONMENT ACT 1987	s 95(3)	Function of referring certain applications to the Minister	Chief Executive Officer Executive Director Planning & Design Manager City Development Coordinator Statutory Planning Statutory Planning Project Coordinator Team Leader Statutory Planning Principal Planner Principal Planner - Business Facilitation Senior Statutory Planner Town Planner Student Planner	
PLANNING AND ENVIRONMENT ACT 1987	s 95(4)	Duty to comply with an order or direction	Chief Executive Officer Executive Director Planning & Design Manager City Development Coordinator Statutory Planning Statutory Planning Project Coordinator Team Leader Statutory Planning Principal Planner Principal Planner - Business Facilitation Senior Statutory Planner Town Planner Student Planner	
PLANNING AND ENVIRONMENT ACT 1987	s 96(1)	Duty to obtain a permit from the Minister to use and develop its land	Chief Executive Officer Executive Directors Manager Planning & Growth Manager Enterprise Program Management Office	

	Column 1	Column 2	Column 3	Column 4
Statute or Source	**Provision**	**Matter delegated**	**Delegate by Position**	**Conditions and Limitations**
PLANNING AND ENVIRONMENT ACT 1987	s 96(2)	Function of giving consent to other persons to apply to the Minister for a permit to use and develop Council land	Chief Executive Officer Executive Directors Manager Planning & Growth Manager Enterprise Program Management Office	
PLANNING AND ENVIRONMENT ACT 1987	s 96A(2)	Power to agree to consider an application for permit concurrently with preparation of proposed amendment	Chief Executive Officer Executive Director Planning & Design Manager City Development Coordinator Statutory Planning Statutory Planning Project Coordinator Coordinator Strategic Implementation	
PLANNING AND ENVIRONMENT ACT 1987	s 96C	Power to give notice, to decide not to give notice, to publish notice and to exercise any other power under s 96C	Chief Executive Officer Executive Director Planning & Design Manager City Development Coordinator Statutory Planning Statutory Planning Project Coordinator Coordinator Strategic Implementation	
PLANNING AND ENVIRONMENT ACT 1987	s 96F	Duty to consider the panel's report under s 96E	Chief Executive Officer Executive Director Planning & Design Manager City Development Coordinator Statutory Planning Statutory Planning Project Coordinator Coordinator Strategic Implementation Team Leader Statutory Planning Principal Planner Principal Planner - Business Facilitation Senior Statutory Planner Town Planner Student Planner	
PLANNING AND ENVIRONMENT ACT 1987	s 96G(1)	Power to determine to recommend that a permit be granted or to refuse to recommend that a permit be granted and power to notify applicant of the determination (including power to give notice under s 23 of the Planning and Environment (Planning Schemes) Act 1996)	Chief Executive Officer Executive Director Planning & Design Manager City Development Coordinator Statutory Planning Statutory Planning Project Coordinator Coordinator Strategic Implementation	

Column 1		Column 2	Column 3	Column 4
Statute or Source	**Provision**	**Matter delegated**	**Delegate by Position**	**Conditions and Limitations**
PLANNING AND ENVIRONMENT ACT 1987	s 96H(3)	Power to give notice in compliance with Minister's direction	Chief Executive Officer Executive Director Planning & Design Manager City Development Coordinator Statutory Planning Statutory Planning Project Coordinator Coordinator Strategic Implementation	
PLANNING AND ENVIRONMENT ACT 1987	s 96J	Duty to issue permit as directed by the Minister	Chief Executive Officer Executive Director Planning & Design Manager City Development Coordinator Statutory Planning Statutory Planning Project Coordinator Coordinator Strategic Implementation Team Leader Statutory Planning Principal Planner Principal Planner - Business Facilitation Senior Statutory Planner Town Planner Student Planner	
PLANNING AND ENVIRONMENT ACT 1987	s 96K	Duty to comply with direction of the Minister to give notice of refusal	Chief Executive Officer Executive Director Planning & Design Manager City Development Coordinator Statutory Planning Statutory Planning Project Coordinator Coordinator Strategic Implementation Team Leader Statutory Planning Principal Planner Principal Planner - Business Facilitation Senior Statutory Planner Town Planner Student Planner	
PLANNING AND ENVIRONMENT ACT 1987	s 96Z	Duty to keep levy certificates given to it under ss 47 or 96A for no less than 5 years from receipt of the certificate		N/A Metropolitan Planning Levy

Column 1		Column 2	Column 3	Column 4
Statute or Source	**Provision**	**Matter delegated**	**Delegate by Position**	**Conditions and Limitations**
PLANNING AND ENVIRONMENT ACT 1987	s 97C	Power to request Minister to decide the application	Chief Executive Officer Executive Director Planning & Design Manager City Development Coordinator Statutory Planning Statutory Planning Project Coordinator Coordinator Strategic Implementation	
PLANNING AND ENVIRONMENT ACT 1987	s 97D(1)	Duty to comply with directions of Minister to supply any document or assistance relating to application	Chief Executive Officer Executive Director Planning & Design Manager City Development Coordinator Statutory Planning Statutory Planning Project Coordinator Team Leader Statutory Planning Principal Planner Principal Planner - Business Facilitation Senior Statutory Planner Town Planner Student Planner	
PLANNING AND ENVIRONMENT ACT 1987	s 97G(3)	Function of receiving from Minister copy of notice of refusal to grant permit or copy of any permit granted by the Minister	Chief Executive Officer Executive Director Planning & Design Manager City Development Coordinator Statutory Planning Statutory Planning Project Coordinator Team Leader Statutory Planning Principal Planner Principal Planner - Business Facilitation Senior Statutory Planner Town Planner Student Planner	

Column 1		Column 2	Column 3	Column 4
Statute or Source	**Provision**	**Matter delegated**	**Delegate by Position**	**Conditions and Limitations**
PLANNING AND ENVIRONMENT ACT 1987	s 97G(6)	Duty to make a copy of permits issued under s 97F available in accordance with the public availability requirements	Chief Executive Officer Executive Director Planning & Design Manager City Development Coordinator Statutory Planning Statutory Planning Project Coordinator Team Leader Statutory Planning Principal Planner Principal Planner - Business Facilitation Senior Statutory Planner Town Planner Student Planner Team Leader Statutory Planning Administration Administration/Technical Officer	
PLANNING AND ENVIRONMENT ACT 1987	s 97L	Duty to include Ministerial decisions in a register kept under s 49	Chief Executive Officer Executive Director Planning & Design Manager City Development Coordinator Statutory Planning Statutory Planning Project Coordinator Team Leader Statutory Planning Principal Planner Principal Planner - Business Facilitation Senior Statutory Planner Town Planner Student Planner Team Leader Statutory Planning Administration Administration/Technical Officer	
PLANNING AND ENVIRONMENT ACT 1987	s 97MH	Duty to provide information or assistance to the Planning Application Committee	Chief Executive Officer Executive Director Planning & Design Manager City Development Coordinator Statutory Planning Statutory Planning Project Coordinator Team Leader Statutory Planning Principal Planner Principal Planner - Business Facilitation Senior Statutory Planner Town Planner Student Planner	

	Column 1	Column 2	Column 3	Column 4
Statute or Source	**Provision**	**Matter delegated**	**Delegate by Position**	**Conditions and Limitations**
PLANNING AND ENVIRONMENT ACT 1987	s 97MI	Duty to contribute to the costs of the Planning Application Committee or subcommittee	Chief Executive Officer Executive Director Planning & Design Manager City Development Coordinator Statutory Planning Statutory Planning Project Coordinator	
PLANNING AND ENVIRONMENT ACT 1987	s 97O	Duty to consider application and issue or refuse to issue certificate of compliance	Chief Executive Officer Executive Director Planning & Design Manager City Development Coordinator Statutory Planning Statutory Planning Project Coordinator Team Leader Statutory Planning Principal Planner Principal Planner - Business Facilitation Senior Statutory Planner Town Planner Student Planner Principal Planning Investigations Officer Senior Planning Investigations Officer Planning Investigations Officer	
PLANNING AND ENVIRONMENT ACT 1987	s 97P(3)	Duty to comply with directions of VCAT following an application for review of a failure or refusal to issue a certificate	Chief Executive Officer Executive Director Planning & Design Manager City Development Coordinator Statutory Planning Statutory Planning Project Coordinator Team Leader Statutory Planning Principal Planner Principal Planner - Business Facilitation Senior Statutory Planner Town Planner Student Planner Principal Planning Investigations Officer Senior Planning Investigations Officer Planning Investigations Officer	

	Column 1	Column 2	Column 3	Column 4
Statute or Source	**Provision**	**Matter delegated**	**Delegate by Position**	**Conditions and Limitations**
PLANNING AND ENVIRONMENT ACT 1987	s 97Q(2)	Function of being heard by VCAT at hearing of request for amendment or cancellation of certificate	Chief Executive Officer Executive Director Planning & Design Manager City Development Coordinator Statutory Planning Statutory Planning Project Coordinator Principal Planning Investigations Officer Senior Planning Investigations Officer Planning Investigations Officer Team Leader Statutory Planning Principal Planner Principal Planner - Business Facilitation Senior Statutory Planner Town Planner Student Planner	
PLANNING AND ENVIRONMENT ACT 1987	s 97Q(4)	Duty to comply with directions of VCAT	Chief Executive Officer Executive Director Planning & Design Manager City Development Coordinator Statutory Planning Statutory Planning Project Coordinator Principal Planning Investigations Officer Senior Planning Investigations Officer Planning Investigations Officer Team Leader Statutory Planning Principal Planner Principal Planner - Business Facilitation Senior Statutory Planner Town Planner Student Planner	

Column 1		Column 2	Column 3	Column 4
Statute or Source	**Provision**	**Matter delegated**	**Delegate by Position**	**Conditions and Limitations**
PLANNING AND ENVIRONMENT ACT 1987	s 97R	Duty to keep register of all applications for certificate of compliance and related decisions	Chief Executive Officer Executive Director Planning & Design Manager City Development Coordinator Statutory Planning Statutory Planning Project Coordinator Principal Planning Investigations Officer Senior Planning Investigations Officer Planning Investigations Officer Team Leader Statutory Planning Principal Planner Principal Planner - Business Facilitation Senior Statutory Planner Town Planner Student Planner Team Leader Statutory Planning Administration Administration/Technical Officer	
PLANNING AND ENVIRONMENT ACT 1987	s 98(1) & (2)	Function of receiving claim for compensation in certain circumstances	Chief Executive Officer Executive Director Planning & Design Manager City Development Manager Planning & Growth Coordinator Strategic Implementation Coordinator Strategic Planning Coordinator Planning Delivery	
PLANNING AND ENVIRONMENT ACT 1987	s 98(4)	Duty to inform any person of the name of the person from whom compensation can be claimed	Chief Executive Officer Executive Director Planning & Design Manager City Development Manager Planning & Growth Coordinator Strategic Implementation Coordinator Strategic Planning Coordinator Planning Delivery	
PLANNING AND ENVIRONMENT ACT 1987	s 101	Function of receiving claim for expenses in conjunction with claim	Chief Executive Officer Executive Director Planning & Design Manager City Development Manager Planning & Growth Coordinator Strategic Implementation Coordinator Strategic Planning Coordinator Planning Delivery	

Column 1		Column 2	Column 3	Column 4
Statute or Source	**Provision**	**Matter delegated**	**Delegate by Position**	**Conditions and Limitations**
PLANNING AND ENVIRONMENT ACT 1987	s 103	Power to reject a claim for compensation in certain circumstances	Chief Executive Officer Executive Director Planning & Design Manager City Development Manager Planning & Growth	
PLANNING AND ENVIRONMENT ACT 1987	s 107(1)	Function of receiving claim for compensation	Chief Executive Officer Executive Director Planning & Design Manager City Development Manager Planning & Growth Coordinator Strategic Implementation Coordinator Strategic Planning Coordinator Planning Delivery	
PLANNING AND ENVIRONMENT ACT 1987	s 107(3)	Power to agree to extend time for making claim	Chief Executive Officer Executive Director Planning & Design Manager City Development Manager Planning & Growth Coordinator Strategic Implementation Coordinator Strategic Planning Coordinator Planning Delivery	
PLANNING AND ENVIRONMENT ACT 1987	s 113(2)	Power to request a declaration for land to be proposed to be reserved for public purposes	Chief Executive Officer Executive Director Planning & Design Manager City Development Manager Planning & Growth Coordinator Strategic Implementation Coordinator Strategic Planning Coordinator Planning Delivery	
PLANNING AND ENVIRONMENT ACT 1987	s 114(1)	Power to apply to the VCAT for an enforcement order	Chief Executive Officer Executive Director Planning & Design Manager City Development Coordinator Statutory Planning Statutory Planning Project Coordinator Principal Planning Investigations Officer Senior Planning Investigations Officer Planning Investigations Officer Team Leader Statutory Planning Principal Planner Principal Planner - Business Facilitation Senior Statutory Planner Town Planner Student Planner	

	Column 1	Column 2	Column 3	Column 4
Statute or Source	**Provision**	**Matter delegated**	**Delegate by Position**	**Conditions and Limitations**
PLANNING AND ENVIRONMENT ACT 1987	s 117(1)(a)	Function of making a submission to the VCAT where objections are received	Chief Executive Officer Executive Director Planning & Design Manager City Development Coordinator Statutory Planning Statutory Planning Project Coordinator Principal Planning Investigations Officer Senior Planning Investigations Officer Planning Investigations Officer Team Leader Statutory Planning Principal Planner Principal Planner - Business Facilitation Senior Statutory Planner Town Planner Student Planner	
PLANNING AND ENVIRONMENT ACT 1987	s 120(1)	Power to apply for an interim enforcement order where s 114 application has been made	Chief Executive Officer Executive Director Planning & Design Manager City Development Coordinator Statutory Planning Statutory Planning Project Coordinator Principal Planning Investigations Officer Senior Planning Investigations Officer Planning Investigations Officer Team Leader Statutory Planning Principal Planner Principal Planner - Business Facilitation Senior Statutory Planner Town Planner Student Planner	

Column 1		Column 2	Column 3	Column 4
Statute or Source	**Provision**	**Matter delegated**	**Delegate by Position**	**Conditions and Limitations**
PLANNING AND ENVIRONMENT ACT 1987	s 123(1)	Power to carry out work required by enforcement order and recover costs	Chief Executive Officer Executive Director Planning & Design Manager City Development Coordinator Statutory Planning Statutory Planning Project Coordinator Principal Planning Investigations Officer Senior Planning Investigations Officer Planning Investigations Officer Team Leader Statutory Planning Principal Planner Principal Planner - Business Facilitation Senior Statutory Planner Town Planner Student Planner	
PLANNING AND ENVIRONMENT ACT 1987	s 123(2)	Power to sell buildings, materials, etc salvaged in carrying out work under s 123(1)	Chief Executive Officer Chief Financial Officer Executive Director Planning & Design Manager City Development	Except Crown Land
PLANNING AND ENVIRONMENT ACT 1987	s 129	Function of recovering penalties	Chief Executive Officer Executive Director Planning & Design Manager City Development Chief Financial Officer Coordinator Statutory Planning Statutory Planning Project Coordinator Team Leader Statutory Planning Principal Planning Investigations Officer	
PLANNING AND ENVIRONMENT ACT 1987	s 130(5)	Power to allow person served with an infringement notice further time	Chief Executive Officer Executive Director Planning & Design Manager City Development Coordinator Statutory Planning Statutory Planning Project Coordinator Principal Planning Investigations Officer Senior Planning Investigations Officer Planning Investigations Officer Team Leader Statutory Planning Principal Planner Principal Planner - Business Facilitation Town Planner Student Planner Senior Statutory Planner	

Column 1		Column 2	Column 3	Column 4
Statute or Source	**Provision**	**Matter delegated**	**Delegate by Position**	**Conditions and Limitations**
PLANNING AND ENVIRONMENT ACT 1987	s 149A(1)	Power to refer a matter to the VCAT for determination	Chief Executive Officer Executive Director Planning & Design Manager City Development Coordinator Statutory Planning Statutory Planning Project Coordinator Principal Planning Investigations Officer Senior Planning Investigations Officer Planning Investigations Officer Team Leader Statutory Planning Principal Planner Principal Planner - Business Facilitation Senior Statutory Planner Town Planner Student Planner	
PLANNING AND ENVIRONMENT ACT 1987	s 149A(1A)	Power to apply to VCAT for the determination of a matter relating to the interpretation of a s 173 agreement	Chief Executive Officer Executive Director Planning & Design Manager City Development Coordinator Statutory Planning Statutory Planning Project Coordinator Coordinator Planning Delivery Principal Planner Principal Planner - Business Facilitation Senior Statutory Planner Team Leader Statutory Planning Town Planner Student Planner Principal Planning Investigations Officer Senior Planning Investigations Officer Planning Investigations Officer	

Column 1		Column 2	Column 3	Column 4
Statute or Source	**Provision**	**Matter delegated**	**Delegate by Position**	**Conditions and Limitations**
PLANNING AND ENVIRONMENT ACT 1987	s 156	Duty to pay fees and allowances (including a payment to the Crown under s 156(2A)), and payment or reimbursement for reasonable costs and expenses incurred by the panel in carrying out its functions unless the Minister directs otherwise under s 156(2B) power to ask for contribution under s 156(3) power to abandon amendment or part of it under s 156(4)	Chief Executive Officer Executive Director Planning & Design Manager City Development Manager Planning & Growth Coordinator Strategic Planning Coordinator Planning Delivery Coordinator Strategic Implementation Senior Strategic Planner Strategic Planner	
PLANNING AND ENVIRONMENT ACT 1987	s 171(2)(f)	Power to carry out studies and commission reports	Chief Executive Officer Executive Director Planning & Design Manager City Development Coordinator Statutory Planning Statutory Planning Project Coordinator Coordinator Strategic Implementation Coordinator Planning Delivery Team Leader Statutory Planning Principal Planner - Business Facilitation Principal Planner Senior Statutory Planner Senior Planning Subdivision Officer Subdivision Officer Town Planner Student Planner	

Column 1	Column 2	Column 3	Column 4
Statute or Source	**Provision**	**Matter delegated**	**Delegate by Position**	**Conditions and Limitations**
PLANNING AND ENVIRONMENT ACT 1987	s 171(2)(g)	Power to grant and reserve easements	Chief Executive Officer Executive Director Planning & Design Manager City Development Coordinator Statutory Planning Statutory Planning Project Coordinator Coordinator Strategic Implementation Coordinator Planning Delivery Team Leader Statutory Planning Principal Planner - Business Facilitation Principal Planner Senior Statutory Planner Senior Planning Subdivision Officer Subdivision Officer Town Planner Student Planner Manager Civil Infrastructure Coordinator Development Planning Principal Development Engineer	
PLANNING AND ENVIRONMENT ACT 1987	s 172C	Power to compulsorily acquire any outer public purpose land that is specified in the approved infrastructure contributions plan	Chief Executive Officer Executive Director Planning & Design Manager City Development Manager Planning & Growth Coordinator Planning Delivery	Where Council is a development agency specified in an approved infrastructure contributions plan
PLANNING AND ENVIRONMENT ACT 1987	s 172D(1)	Power to compulsorily acquire any inner public purpose land that is specified in the plan before the time that the land is required to be provided to Council under s 46GV(4)	Chief Executive Officer Executive Director Planning & Design Manager City Development Manager Planning & Growth Coordinator Strategic Planning Coordinator Strategic Implementation Coordinator Planning Delivery	Where Council is a collecting agency specified in an approved infrastructure contributions plan
PLANNING AND ENVIRONMENT ACT 1987	s 172D(2)	Power to compulsorily acquire any inner public purpose land, the use and development of which is to be the responsibility of Council under the plan, before the time that the land is required to be provided under s 46GV(4)	Chief Executive Officer Executive Director Planning & Design Manager City Development Manager Planning & Growth Coordinator Planning Delivery	Where Council is the development agency specified in an approved infrastructure contributions plan

Column 1		Column 2	Column 3	Column 4
Statute or Source	**Provision**	**Matter delegated**	**Delegate by Position**	**Conditions and Limitations**
PLANNING AND ENVIRONMENT ACT 1987	s 173(1)	Power to enter into agreement covering matters set out in s 174	Chief Executive Officer Executive Director Planning & Design Manager City Development Manager Planning & Growth	
PLANNING AND ENVIRONMENT ACT 1987	S 173(1A)	Power to enter into an agreement with an owner of land for the development or provision of land in relation to affordable housing	Chief Executive Officer Executive Director Planning & Design Manager City Development Manager Planning & Growth	Where council is the relevant responsible authority
PLANNING AND ENVIRONMENT ACT 1987		Power to decide whether something is to the satisfaction of Council, where an agreement made under s 173 of the Planning and Environment Act 1987 requires something to be to the satisfaction of Council or Responsible Authority	Chief Executive Officer Executive Director Planning & Design Manager City Development Manager Planning & Growth Manager Civil Infrastructure Coordinator Statutory Planning Statutory Planning Project Coordinator Coordinator Strategic Planning Coordinator Planning Delivery Coordinator Strategic Implementation Principal Planner Principal Planner - Business Facilitation Senior Statutory Planner Team Leader Statutory Planning Senior Planning Subdivision Officer Subdivision Officer Principal Planning Investigations Officer Senior Planning Investigations Officer Planning Investigations Officer Town Planner Student Planner Coordinator Development Planning Principle Development Engineer Senior Development Engineer Development Engineer	

Column 1		Column 2	Column 3	Column 4
Statute or Source	**Provision**	**Matter delegated**	**Delegate by Position**	**Conditions and Limitations**
PLANNING AND ENVIRONMENT ACT 1987		Power to give consent on behalf of Council, where an agreement made under s 173 of the Planning and Environment Act 1987 requires that something may not be done without the consent of Council or Responsible Authority	Chief Executive Officer Executive Director Planning & Design Manager City Development Manager Planning & Growth Manager Urban Design and Heritage Manager Civil Infrastructure Coordinator Statutory Planning Statutory Planning Project Coordinator Coordinator Strategic Planning Coordinator Planning Delivery Coordinator Strategic Implementation Principal Planner Principal Planner - Business Facilitation Senior Statutory Planner Team Leader Statutory Planning Senior Planning Subdivision Officer Subdivision Officer Principal Planning Investigations Officer Senior Planning Investigations Officer Planning Investigations Officer Town Planner Student Planner Coordinator Development Planning Principal Development Engineer Senior Development Engineer Development Engineer	
PLANNING AND ENVIRONMENT ACT 1987	s 177(2)	Power to end a s 173 agreement with the agreement of all those bound by any covenant in the agreement or otherwise in accordance with Division 2 of Part 9	Chief Executive Officer Executive Director Planning & Design Manager City Development Manager Planning & Growth Coordinator Statutory Planning Statutory Planning Project Coordinator Coordinator Planning Delivery	
PLANNING AND ENVIRONMENT ACT 1987	s 178	Power to amend a s 173 agreement with the agreement of all those bound by any covenant in the agreement or otherwise in accordance with Division 2 of Part 9	Chief Executive Officer Executive Director Planning & Design Manager City Development Manager Planning & Growth	

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Statute or Source	**Provision**	**Matter delegated**	**Delegate by Position**	**Conditions and Limitations**
PLANNING AND ENVIRONMENT ACT 1987	s 178A(1)	Function of receiving application to amend or end an agreement	Chief Executive Officer Executive Director Planning & Design Manager City Development Manager Planning & Growth Coordinator Strategic Implementation Coordinator Statutory Planning Statutory Planning Project Coordinator Team Leader Statutory Planning Principal Planner Principal Planner - Business Facilitation Senior Statutory Planner Town Planner Student Planner Team Leader Statutory Planning Administration Administration/Technical Officer	
PLANNING AND ENVIRONMENT ACT 1987	s 178A(3)	Function of notifying the owner as to whether it agrees in principle to the proposal under s 178A(1)	Chief Executive Officer Executive Director Planning & Design Manager City Development Coordinator Strategic Implementation Coordinator Statutory Planning Statutory Planning Project Coordinator Team Leader Statutory Planning Principal Planner Principal Planner - Business Facilitation	
PLANNING AND ENVIRONMENT ACT 1987	s 178A(4)	Function of notifying the applicant and the owner as to whether it agrees in principle to the proposal	Chief Executive Officer Executive Director Planning & Design Manager City Development Coordinator Strategic Implementation Coordinator Statutory Planning Statutory Planning Project Coordinator Team Leader Statutory Planning Principal Planner Principal Planner - Business Facilitation	

Column 1		Column 2	Column 3	Column 4
Statute or Source	**Provision**	**Matter delegated**	**Delegate by Position**	**Conditions and Limitations**
PLANNING AND ENVIRONMENT ACT 1987	s 178A(5)	Power to propose to amend or end an agreement	Chief Executive Officer Executive Director Planning & Design Manager City Development Manager Planning & Growth Coordinator Strategic Implementation Coordinator Statutory Planning Statutory Planning Project Coordinator Team Leader Statutory Planning	
PLANNING AND ENVIRONMENT ACT 1987	s 178B(1)	Duty to consider certain matters when considering proposal to amend an agreement	Chief Executive Officer Executive Director Planning & Design Manager City Development Manager Planning & Growth Coordinator Strategic Implementation Coordinator Statutory Planning Statutory Planning Project Coordinator Team Leader Statutory Planning Principal Planner Principal Planner - Business Facilitation Senior Statutory Planner Town Planner Student Planner	
PLANNING AND ENVIRONMENT ACT 1987	s 178B(2)	Duty to consider certain matters when considering proposal to end an agreement	Chief Executive Officer Executive Director Planning & Design Manager City Development Manager Planning & Growth Coordinator Strategic Implementation Coordinator Statutory Planning Statutory Planning Project Coordinator Team Leader Statutory Planning Principal Planner Principal Planner - Business Facilitation Senior Statutory Planner Town Planner Student Planner	

	Column 1	Column 2	Column 3	Column 4
Statute or Source	**Provision**	**Matter delegated**	**Delegate by Position**	**Conditions and Limitations**
PLANNING AND ENVIRONMENT ACT 1987	s 178C(2)	Duty to give notice of the proposal to all parties to the agreement and other persons who may be detrimentally affected by decision to amend or end	Chief Executive Officer Executive Director Planning & Design Manager City Development Manager Planning & Growth Coordinator Strategic Implementation Coordinator Statutory Planning Statutory Planning Project Coordinator Team Leader Statutory Planning Principal Planner Principal Planner - Business Facilitation Senior Statutory Planner Town Planner Student Planner	
PLANNING AND ENVIRONMENT ACT 1987	s 178C(4)	Function of determining how to give notice under s 178C(2)	Chief Executive Officer Executive Director Planning & Design Manager City Development Manager Planning & Growth Coordinator Strategic Implementation Coordinator Statutory Planning Statutory Planning Project Coordinator Team Leader Statutory Planning Principal Planner Principal Planner - Business Facilitation Senior Statutory Planner Town Planner Student Planner	
PLANNING AND ENVIRONMENT ACT 1987	s 178E(1)	Duty not to make decision until after 14 days after notice has been given	Chief Executive Officer Executive Director Planning & Design Manager City Development Manager Planning & Growth Coordinator Strategic Implementation Coordinator Statutory Planning Statutory Planning Project Coordinator Team Leader Statutory Planning Principal Planner Principal Planner - Business Facilitation Senior Statutory Planner Town Planner Student Planner	

Column 1		Column 2	Column 3	Column 4
Statute or Source	**Provision**	**Matter delegated**	**Delegate by Position**	**Conditions and Limitations**
PLANNING AND ENVIRONMENT ACT 1987	s 178E(2)(a)	Power to amend or end the agreement in accordance with the proposal	Chief Executive Officer Executive Director Planning & Design Manager City Development Manager Planning & Growth	If no objections are made under s 178D Must consider matters in s 178B
PLANNING AND ENVIRONMENT ACT 1987	s 178E(2)(b)	Power to amend or end the agreement in a manner that is not substantively different from the proposal	Chief Executive Officer Executive Director Planning & Design Manager City Development Manager Planning & Growth	If no objections are made under s 178D Must consider matters in s 178B
PLANNING AND ENVIRONMENT ACT 1987	s 178E(2)(c)	Power to refuse to amend or end the agreement	Chief Executive Officer Executive Director Planning & Design Manager City Development Manager Planning & Growth	If no objections are made under s 178D Must consider matters in s 178B
PLANNING AND ENVIRONMENT ACT 1987	s 178E(3)(a)	Power to amend or end the agreement in accordance with the proposal	Chief Executive Officer Executive Director Planning & Design Manager City Development Manager Planning & Growth	After considering objections, submissions and matters in s 178B
PLANNING AND ENVIRONMENT ACT 1987	s 178E(3)(b)	Power to amend or end the agreement in a manner that is not substantively different from the proposal	Chief Executive Officer Executive Director Planning & Design Manager City Development Manager Planning & Growth	After considering objections, submissions and matters in s 178B
PLANNING AND ENVIRONMENT ACT 1987	s 178E(3)(c)	Power to amend or end the agreement in a manner that is substantively different from the proposal	Chief Executive Officer Executive Director Planning & Design Manager City Development Manager Planning & Growth	After considering objections, submissions and matters in s 178B
PLANNING AND ENVIRONMENT ACT 1987	s 178E(3)(d)	Power to refuse to amend or end the agreement	Chief Executive Officer Executive Director Planning & Design Manager City Development Manager Planning & Growth	After considering objections, submissions and matters in s 178B

Column 1		Column 2	Column 3	Column 4
Statute or Source	**Provision**	**Matter delegated**	**Delegate by Position**	**Conditions and Limitations**
PLANNING AND ENVIRONMENT ACT 1987	s 178F(1)	Duty to give notice of its decision under s 178E(3)(a) or (b)	Chief Executive Officer Executive Director Planning & Design Manager City Development Coordinator Strategic Implementation Coordinator Statutory Planning Statutory Planning Project Coordinator Team Leader Statutory Planning Principal Planner Principal Planner - Business Facilitation Senior Statutory Planner Town Planner Student Planner	
PLANNING AND ENVIRONMENT ACT 1987	s 178F(2)	Duty to give notice of its decision under s1 78E(2)(c) or (3)(d)	Chief Executive Officer Executive Director Planning & Design Manager City Development Coordinator Strategic Implementation Coordinator Statutory Planning Statutory Planning Project Coordinator Team Leader Statutory Planning Principal Planner Principal Planner - Business Facilitation Senior Statutory Planner Town Planner Student Planner	
PLANNING AND ENVIRONMENT ACT 1987	s 178F(4)	Duty not to proceed to amend or end an agreement under s 178E until at least 21 days after notice has been given or until an application for review to the Tribunal has been determined or withdrawn	Chief Executive Officer Executive Director Planning & Design Manager City Development Coordinator Strategic Implementation Coordinator Statutory Planning Statutory Planning Project Coordinator Team Leader Statutory Planning Principal Planner- Business Facilitation Principal Planner Senior Statutory Planner Town Planner Student Planner	
PLANNING AND ENVIRONMENT ACT 1987	s 178G	Duty to sign amended agreement and give copy to each other party to the agreement	Chief Executive Officer Executive Director Planning & Design Manager City Development Manager Planning & Growth	

Column 1		Column 2	Column 3	Column 4
Statute or Source	**Provision**	**Matter delegated**	**Delegate by Position**	**Conditions and Limitations**
PLANNING AND ENVIRONMENT ACT 1987	s 178H	Power to require a person who applies to amend or end an agreement to pay the costs of giving notices and preparing the amended agreement	Chief Executive Officer Executive Director Planning & Design Manager City Development Coordinator Strategic Implementation Coordinator Statutory Planning Statutory Planning Project Coordinator Team Leader Statutory Planning Principal Planner Principal Planner - Business Facilitation Senior Statutory Planner Town Planner Student Planner Team Leader Statutory Planning Administration Administration/Technical Officer	
PLANNING AND ENVIRONMENT ACT 1987	s 178I(3)	Duty to notify, in writing, each party to the agreement of the ending of the agreement relating to Crown land	Chief Executive Officer Executive Director Planning & Design Manager City Development Coordinator Strategic Implementation Coordinator Statutory Planning Statutory Planning Project Coordinator Team Leader Statutory Planning Principal Planner Principal Planner - Business Facilitation Senior Statutory Planner Town Planner Student Planner	
PLANNING AND ENVIRONMENT ACT 1987	s 179(2)	Duty to make copy of each agreement available in accordance with the public availability requirements	Chief Executive Officer Executive Director Planning & Design Manager City Development Coordinator Strategic Implementation Coordinator Statutory Planning Statutory Planning Project Coordinator Team Leader Statutory Planning Principal Planner Principal Planner - Business Facilitation Senior Statutory Planner Town Planner Student Planner	

Column 1		Column 2	Column 3	Column 4
Statute or Source	**Provision**	**Matter delegated**	**Delegate by Position**	**Conditions and Limitations**
PLANNING AND ENVIRONMENT ACT 1987	s 181	Duty to apply to the Registrar of Titles to record the agreement	Chief Executive Officer Executive Director Planning & Design Manager City Development Coordinator Strategic Implementation Coordinator Statutory Planning Statutory Planning Project Coordinator Team Leader Statutory Planning Principal Planner Principal Planner - Business Facilitation	
PLANNING AND ENVIRONMENT ACT 1987	s 181(1A)(a)	Power to apply to the Registrar of Titles to record the agreement	Chief Executive Officer Executive Director Planning & Design Manager City Development Coordinator Strategic Implementation Coordinator Statutory Planning Statutory Planning Project Coordinator Team Leader Statutory Planning Principal Planner Principal Planner - Business Facilitation	
PLANNING AND ENVIRONMENT ACT 1987	s 181(1A)(b)	Duty to apply to the Registrar of Titles, without delay, to record the agreement	Chief Executive Officer Executive Director Planning & Design Manager City Development Coordinator Strategic Implementation Coordinator Statutory Planning Statutory Planning Project Coordinator Team Leader Statutory Planning Principal Planner Principal Planner - Business Facilitation	

	Column 1	Column 2	Column 3	Column 4
Statute or Source	**Provision**	**Matter delegated**	**Delegate by Position**	**Conditions and Limitations**
PLANNING AND ENVIRONMENT ACT 1987	s 182	Power to enforce an agreement	Chief Executive Officer Executive Director Planning & Design Manager City Development Coordinator Statutory Planning Statutory Planning Project Coordinator Coordinator Strategic Implementation Coordinator Planning Delivery Team Leader Statutory Planning Principal Planner Principal Planner - Business Facilitation Principal Planning Investigations Officer Senior Statutory Planner Planning Investigations Officer Senior Planning Investigations Officer Town Planner Student Planner	
PLANNING AND ENVIRONMENT ACT 1987	s 183	Duty to tell Registrar of Titles of ending/amendment of agreement	Chief Executive Officer Executive Director Planning & Design Manager City Development Coordinator Strategic Implementation Coordinator Statutory Planning Statutory Planning Project Coordinator Team Leader Statutory Planning Principal Planner Principal Planner - Business Facilitation	
PLANNING AND ENVIRONMENT ACT 1987	s 184F(1)	Power to decide to amend or end an agreement at any time after an application for review of the failure of Council to make a decision	Chief Executive Officer Executive Director Planning & Design Manager City Development Manager Planning & Growth	

Column 1		Column 2	Column 3	Column 4
Statute or Source	**Provision**	**Matter delegated**	**Delegate by Position**	**Conditions and Limitations**
PLANNING AND ENVIRONMENT ACT 1987	s 184F(2)	Duty not to amend or end the agreement or give notice of the decision after an application is made to VCAT for review of a failure to amend or end an agreement	Chief Executive Officer Executive Director Planning & Design Manager City Development Coordinator Strategic Implementation Coordinator Statutory Planning Statutory Planning Project Coordinator Team Leader Statutory Planning Principal Planner Principal Planner - Business Facilitation Senior Statutory Planner Town Planner Student Planner	
PLANNING AND ENVIRONMENT ACT 1987	s 184F(3)	Duty to inform the principal registrar if the responsible authority decides to amend or end an agreement after an application is made for the review of its failure to end or amend the agreement	Chief Executive Officer Executive Director Planning & Design Manager City Development Coordinator Strategic Implementation Coordinator Statutory Planning Statutory Planning Project Coordinator Team Leader Statutory Planning Principal Planner Principal Planner - Business Facilitation Senior Statutory Planner Town Planner Student Planner	
PLANNING AND ENVIRONMENT ACT 1987	s 184F(5)	Function of receiving advice from the principal registrar that the agreement may be amended or ended in accordance with Council's decision	Chief Executive Officer Executive Director Planning & Design Manager City Development Coordinator Strategic Implementation Coordinator Statutory Planning Statutory Planning Project Coordinator Team Leader Statutory Planning Principal Planner Principal Planner - Business Facilitation Senior Statutory Planner Town Planner Student Planner	

Column 1		Column 2	Column 3	Column 4
Statute or Source	**Provision**	**Matter delegated**	**Delegate by Position**	**Conditions and Limitations**
PLANNING AND ENVIRONMENT ACT 1987	s 184G(2)	Duty to comply with a direction of the Tribunal	Chief Executive Officer Executive Director Planning & Design Manager City Development Coordinator Strategic Implementation Coordinator Statutory Planning Statutory Planning Project Coordinator Team Leader Statutory Planning Principal Planner Principal Planner - Business Facilitation Senior Statutory Planner Town Planner Student Planner Principal Planning Investigations Officer Senior Planning Investigations Officer Planning Investigations Officer	
PLANNING AND ENVIRONMENT ACT 1987	s 184G(3)	Duty to give notice as directed by the Tribunal	Chief Executive Officer Executive Director Planning & Design Manager City Development Coordinator Strategic Implementation Coordinator Statutory Planning Statutory Planning Project Coordinator Team Leader Statutory Planning Principal Planner Principal Planner - Business Facilitation Senior Statutory Planner Town Planner Student Planner	
PLANNING AND ENVIRONMENT ACT 1987	s 185B(1)	Duty to comply with a request from the Minister to provide the name, address, email address or telephone number of any person to whom the Minister is required to give notice	Chief Executive Officer Executive Director Planning & Design Manager City Development Coordinator Strategic Implementation Coordinator Statutory Planning Statutory Planning Project Coordinator Team Leader Statutory Planning Principal Planner Principal Planner - Business Facilitation Senior Statutory Planner Town Planner Student Planner	

	Column 1	Column 2	Column 3	Column 4
Statute or Source	**Provision**	**Matter delegated**	**Delegate by Position**	**Conditions and Limitations**
PLANNING AND ENVIRONMENT ACT 1987	s 198(1)	Function to receive application for planning certificate	Not applicable	
PLANNING AND ENVIRONMENT ACT 1987	s 199(1)	Duty to give planning certificate to applicant	Not applicable	
PLANNING AND ENVIRONMENT ACT 1987	s 201(1)	Function of receiving application for declaration of underlying zoning	Chief Executive Officer Executive Director Planning & Design Manager City Development Coordinator Statutory Planning Statutory Planning Projects Coordinator Coordinator Strategic Implementation Team Leader Statutory Planning Principal Planner Senior Statutory Planner Town Planner Student Planner	
PLANNING AND ENVIRONMENT ACT 1987	s 201(3)	Duty to make declaration	Chief Executive Officer Executive Director Planning & Design Manager City Development Coordinator Statutory Planning Statutory Planning Projects Coordinator Coordinator Strategic Implementation Senior Strategic Planner Strategic Planner	

	Column 1	Column 2	Column 3	Column 4
Statute or Source	**Provision**	**Matter delegated**	**Delegate by Position**	**Conditions and Limitations**
PLANNING AND ENVIRONMENT ACT 1987		Power to decide, in relation to any planning scheme or permit, that a specified thing has or has not been done to the satisfaction of Council	Chief Executive Officer Executive Directors Manager City Development Manager Planning & Growth Manager Urban Design and Heritage Manager Civil Infrastructure Coordinator Statutory Planning Statutory Planning Project Coordinator Coordinator Strategic Implementation Coordinator Strategic Planning Coordinator Planning Delivery Coordinator Development Planning Principal Planner Principal Planner - Business Facilitation Senior Statutory Planner Team Leader Statutory Planning Principal Development Engineer Senior Development Engineer Technical Officer (Engineering) Business Support Officer Senior WSUD Development Engineer Senior Development Engineer Traffic Traffic Development Engineer Principal Stormwater Planning Officer Development Engineer Coordinator Open Space Planning Senior Open Space Planner Open Space Planner Parks Planning Officer Senior Planning Subdivision Officer Subdivision Officer Town Planner Student Planner Environmental Planning Team Leader Environmental Planning Officer Senior Sustainable Development Officer	

	Column 1	Column 2	Column 3	Column 4
Statute or Source	**Provision**	**Matter delegated**	**Delegate by Position**	**Conditions and Limitations**
PLANNING AND ENVIRONMENT ACT 1987		Power, in relation to any planning scheme or permit, to consent or refuse to consent to any matter which requires the consent or approval of Council	Chief Executive Officer Executive Director Planning & Design Manager City Development Manager Planning & Growth Manager Urban Design and Heritage Coordinator Statutory Planning Statutory Planning Project Coordinator Coordinator Strategic Implementation Coordinator Planning Delivery Coordinator Strategic Planning Principal Planner Principal Planner - Business Facilitation Senior Statutory Planner Team Leader Statutory Planning Senior Planning Subdivision Officer Subdivision Officer Principal Planning Investigations Officer Planning Investigations Officer Senior Planning Investigations Officer Town Planner Student Planner	

	Column 1	Column 2	Column 3	Column 4
Statute or Source	**Provision**	**Matter delegated**	**Delegate by Position**	**Conditions and Limitations**
PLANNING AND ENVIRONMENT ACT 1987		Power to approve any plan or any amendment to a plan or other document in accordance with a provision of a planning scheme or condition in a permit	Chief Executive Officer Executive Directors Manager City Development Manager Planning & Growth Manager Urban Design and Heritage Manager Civil Infrastructure Coordinator Statutory Planning Statutory Planning Project Coordinator Coordinator Strategic Implementation Coordinator Strategic Planning Coordinator Planning Delivery Coordinator Development Planning Principal Planner Principal Planner - Business Facilitation Senior Statutory Planner Team Leader Statutory Planning Coordinator Development Planning Principal Development Engineer Senior Development Engineer Development Engineer Technical Officer (Engineering) Business Support Officer Senior WSUD Development Engineer Senior Development Engineer Traffic Traffic Development Engineer Principal Stormwater Planning Officer Coordinator Open Space Planning Senior Open Space Planner Open Space Planner Parks Planning Officer Senior Planning Subdivision Officer Subdivision Officer Town Planner Student Planner Environmental Planning Team Leader Environmental Planning Officer	

	Column 1	Column 2	Column 3	Column 4
Statute or Source	**Provision**	**Matter delegated**	**Delegate by Position**	**Conditions and Limitations**
PLANNING AND ENVIRONMENT ACT 1987		Power to give written authorisation in accordance with a provision of a planning scheme	Chief Executive Officer Executive Director Planning & Design Manager City Development Manager Planning & Growth Manager Urban Design and Heritage Coordinator Statutory Planning Statutory Planning Project Coordinator Coordinator Strategic Implementation Coordinator Strategic Planning Coordinator Planning Delivery Team Leader Statutory Planning Principal Planner Principal Planner - Business Facilitation Senior Statutory Planner Town Planner Student Planner	
PLANNING AND ENVIRONMENT ACT 1987	s 201UAB(1)	Function of providing the Victoria Planning Authority with information relating to any land within municipal district	Chief Executive Officer Executive Director Planning & Design Manager City Development Manager Planning & Growth Coordinator Statutory Planning Statutory Planning Project Coordinator Coordinator Strategic Implementation Coordinator Strategic Planning Coordinator Planning Delivery Team Leader Statutory Planning Principal Planner- Business Facilitation Principal Planner Senior Statutory Planner Town Planner Student Planner Senior Planning Subdivision Officer Subdivision Officer	

Column 1		Column 2	Column 3	Column 4
Statute or Source	**Provision**	**Matter delegated**	**Delegate by Position**	**Conditions and Limitations**
PLANNING AND ENVIRONMENT ACT 1987	s 201UAB(2)	Duty to provide the Victoria Planning Authority with information requested under s 201UAB(1) as soon as possible	Chief Executive Officer Executive Director Planning & Design Manager City Development Manager Planning & Growth Coordinator Statutory Planning Statutory Planning Project Coordinator Coordinator Strategic Implementation Coordinator Strategic Planning Coordinator Planning Delivery Team Leader Statutory Planning Principal Planner Principal Planner - Business Facilitation Senior Statutory Planner Town Planner Student Planner Senior Planning Subdivision Officer Subdivision Officer	
PLANNING AND ENVIRONMENT ACT 1987	-----	Power to determine whether or not a document or series of documents constitute a Development Plan for the purposes of the Greater Geelong Planning Scheme is to the satisfaction of the Responsible Authority	Chief Executive Officer Executive Director Planning & Design Manager City Development Coordinator Statutory Planning Statutory Planning Project Coordinator	
PLANNING AND ENVIRONMENT ACT 1987		Exercise all the powers, duties and functions of a referral authority under the Planning and Environment Act	Chief Executive Officer Executive Director Planning & Design Manager City Development Coordinator Statutory Planning Statutory Planning Project Coordinator Coordinator Strategic Implementation Team Leader Statutory Planning Principal Planner Principal Planner - Business Facilitation Senior Statutory Planner Town Planner Student Planner	

PLANNING AND ENVIRONMENT (FEES) REGULATIONS 2016

Column 1		Column 2	Column 3	Column 4
Statute or Source	**Provision**	**Matter delegated**	**Delegate by Position**	**Conditions and Limitations**
PLANNING AND ENVIRONMENT (FEES) REGULATIONS 2016	r 19	Power to waive or rebate a fee relating to an amendment of a planning scheme	Chief Executive Officer Executive Director Planning & Design Manager City Development Coordinator Strategic Implementation	
PLANNING AND ENVIRONMENT (FEES) REGULATIONS 2016	r 20	Power to waive or rebate a fee other than a fee relating to an amendment to a planning scheme	Chief Executive Officer Executive Director Planning & Design Manager City Development Coordinator Statutory Planning Statutory Planning Project Coordinator Coordinator Strategic Implementation	
PLANNING AND ENVIRONMENT (FEES) REGULATIONS 2016	r 21	Duty to record matters taken into account and which formed the basis of a decision to waive or rebate a fee under r 19 or 20	Chief Executive Officer Executive Director Planning & Design Manager City Development Coordinator Strategic Implementation Statutory Planning Project Coordinator Coordinator Strategic Implementation	

PLANNING AND ENVIRONMENT REGULATIONS 2015

Column 1		Column 2	Column 3	Column 4
Statute or Source	**Provision**	**Matter delegated**	**Delegate by Position**	**Conditions and Limitations**
PLANNING AND ENVIRONMENT REGULATIONS 2015	r 6	Function of receiving notice, under s 19(1)(c) of the Act, from a planning authority of its preparation of an amendment to a planning scheme	Chief Executive Officer Executive Director Planning & Design Manager City Development Manager Planning & Growth Coordinator Strategic Planning Coordinator Strategic Implementation Coordinator Planning Delivery	Where Council is not the planning authority and the amendment affects land within Council's municipal district; or where the amendment will amend the planning scheme to designate Council as an acquiring authority
PLANNING AND ENVIRONMENT REGULATIONS 2015	r 21	Power of responsible authority to require a permit applicant to verify information (by statutory declaration or other written confirmation satisfactory to the responsible authority) in an application for a permit or to amend a permit or any information provided under s 54 of the Act	Chief Executive Officer Executive Director Planning & Design Manager City Development Coordinator Statutory Planning Statutory Planning Project Coordinator Coordinator Strategic Implementation Team Leader Statutory Planning Principal Planner Principal Planner - Business Facilitation Senior Statutory Planner Town Planner Student Planner	
PLANNING AND ENVIRONMENT REGULATIONS 2015	r 25(a)	Duty to make copy of matter considered under s 60(1A)(g) in accordance with the public availability requirements	Chief Executive Officer Executive Director Planning & Design Manager City Development Coordinator Statutory Planning Statutory Planning Project Coordinator Coordinator Strategic Implementation Team Leader Statutory Planning Principal Planner Principal Planner - Business Facilitation Senior Statutory Planner Town Planner Student Planner	Where Council is the responsible authority

	Column 1	Column 2	Column 3	Column 4
Statute or Source	**Provision**	**Matter delegated**	**Delegate by Position**	**Conditions and Limitations**
PLANNING AND ENVIRONMENT REGULATIONS 2015	r 25(b)	Function of receiving a copy of any document considered under s 60(1A)(g) by the responsible authority and duty to make the document available in accordance with the public availability requirements	Chief Executive Officer Executive Director Planning & Design Manager City Development Coordinator Statutory Planning Statutory Planning Project Coordinator Coordinator Strategic Implementation Team Leader Statutory Planning Principal Planner Principal Planner - Business Facilitation Senior Statutory Planner Town Planner Student Planner Team Leader Statutory Planning Administration Administration/Technical Officer	Where Council is not the responsible authority but the relevant land is within Council's municipal district
PLANNING AND ENVIRONMENT REGULATIONS 2015	r 42	Function of receiving notice under s 96C(1)(c) of the Act from a planning authority of its preparation of a combined application for an amendment to a planning scheme and notice of a permit application	Chief Executive Officer Executive Director Planning & Design Manager City Development Manager Planning & Growth Coordinator Strategic Implementation Coordinator Strategic Planning Coordinator Planning Delivery Coordinator Statutory Planning Statutory Planning Projects Coordinator	Where Council is not the planning authority and the amendment affects land within Council's municipal district; or where the amendment will amend the planning scheme to designate Council as an acquiring authority.

RESIDENTIAL TENANCIES ACT 1997

Column 1		Column 2	Column 3	Column 4
Statute or Source	**Provision**	**Matter delegated**	**Delegate by Position**	**Conditions and Limitations**
RESIDENTIAL TENANCIES ACT 1997	s 518F	Power to issue notice to caravan park regarding emergency management plan if determined that the plan does not comply with the requirements	Chief Executive Officer Executive Director Planning & Design Manager City Development Municipal Building Surveyor Coordinator Building Services Deputy Municipal Building Surveyor - Governance Deputy Municipal Building Surveyor - Permits Building Surveyor Building Inspector	
RESIDENTIAL TENANCIES ACT 1997	s 522(1)	Power to give a compliance notice to a person	Chief Executive Officer Executive Director Planning & Design Manager City Development Municipal Building Surveyor Coordinator Building Services Deputy Municipal Building Surveyor - Governance Deputy Municipal Building Surveyor - Permits Building Surveyor Building Inspector	
RESIDENTIAL TENANCIES ACT 1997	S 525(2)	Power to authorise an officer to exercise powers in s 526 (either generally or in a particular case)	Chief Executive Officer Executive Director Planning & Design Manager City Development Municipal Building Surveyor Coordinator Building Services Deputy Municipal Building Surveyor - Governance Deputy Municipal Building Surveyor - Permits Building Inspector	
RESIDENTIAL TENANCIES ACT 1997	s 525(4)	Duty to issue identity card to authorised officers	Chief Executive Officer Executive Director Planning & Design Manager City Development Coordinator Building Services Support Municipal Building Surveyor Coordinator Building Services Deputy Municipal Building Surveyor - Governance Deputy Municipal Building Surveyor - Permits	

Column 1		Column 2	Column 3	Column 4
Statute or Source	**Provision**	**Matter delegated**	**Delegate by Position**	**Conditions and Limitations**
RESIDENTIAL TENANCIES ACT 1997	s 526(5)	Duty to keep record of entry by authorised officer under s 526	Chief Executive Officer Executive Director Planning & Design Manager City Development Municipal Building Surveyor Coordinator Building Services Coordinator Building Services Support Deputy Municipal Building Surveyor - Governance Deputy Municipal Building Surveyor - Permits Building Surveyor Building Investigations Officer Team Leader Building Services Administration Technical Officer	
RESIDENTIAL TENANCIES ACT 1997	s 526A(3)	Function of receiving report of inspection	Chief Executive Officer Executive Director Planning & Design Manager City Development Coordinator Building Services Support Municipal Building Surveyor Coordinator Building Services Deputy Municipal Building Surveyor - Governance Deputy Municipal Building Surveyor - Permits Building Surveyor Building Inspector Building Investigations Officer	
RESIDENTIAL TENANCIES ACT 1997	s 527	Power to authorise a person to institute proceedings (either generally or in a particular case)	Chief Executive Officer Executive Director Planning & Design Executive Director Community Service Delivery Manager City Development Manager Health & Local Laws Municipal Building Surveyor Coordinator Building Services	

RESIDENTIAL TENANCIES (CARAVAN PARKS AND MOVABLE DWELLINGS REGISTRATION AND STANDARDS) REGULATIONS 2020

Column 1	Column 2	Column 3	Column 4
Statute or Source	**Provision**	**Matter delegated**	**Delegate by Position**	**Conditions and Limitations**
RESIDENTIAL TENANCIES (CARAVAN PARKS AND MOVABLE DWELLINGS REGISTRATION AND STANDARDS) REGULATIONS 2020	r 7	Power to enter into a written agreement with a caravan park owner	Chief Executive Officer Executive Director Planning & Design Coordinator Building Services Support Municipal Building Surveyor Coordinator Building Services Deputy Municipal Building Surveyor - Governance Deputy Municipal Building Surveyor - Permits	
RESIDENTIAL TENANCIES (CARAVAN PARKS AND MOVABLE DWELLINGS REGISTRATION AND STANDARDS) REGULATIONS 2020	r 10	Function of receiving application for registration	Chief Executive Officer Executive Director Planning & Design Municipal Building Surveyor Coordinator Building Services Coordinator Building Services Support Deputy Municipal Building Surveyor - Governance Deputy Municipal Building Surveyor - Permits Building Surveyor Building Inspector Assistant Building Surveyor Technical Officer Team Leader Building Services Administration Administration/Technical Officer Administration Officer	
RESIDENTIAL TENANCIES (CARAVAN PARKS AND MOVABLE DWELLINGS REGISTRATION AND STANDARDS) REGULATIONS 2020	r 11	Function of receiving application for renewal of registration	Chief Executive Officer Executive Director Planning & Design Municipal Building Surveyor Coordinator Building Services Coordinator Building Services Support Deputy Municipal Building Surveyor - Governance Deputy Municipal Building Surveyor - Permits Building Surveyor Building Inspector Assistant Building Surveyor Technical Officer Team Leader Building Services Administration Administration/Technical Officer Administration Officer	
RESIDENTIAL TENANCIES (CARAVAN PARKS AND MOVABLE DWELLINGS REGISTRATION AND STANDARDS) REGULATIONS 2020	r 12(1)	Duty to grant the registration if satisfied that the caravan park complies with these regulations	Chief Executive Officer Executive Director Planning & Design Municipal Building Surveyor Coordinator Building Services Coordinator Building Services Support Deputy Municipal Building Surveyor - Governance Deputy Municipal Building Surveyor - Permits	

Column 1		Column 2	Column 3	Column 4
Statute or Source	**Provision**	**Matter delegated**	**Delegate by Position**	**Conditions and Limitations**
RESIDENTIAL TENANCIES (CARAVAN PARKS AND MOVABLE DWELLINGS REGISTRATION AND STANDARDS) REGULATIONS 2020	r 12(1)	Power to refuse to renew the registration if not satisfied that the caravan park complies with these regulations	Chief Executive Officer Executive Director Planning & Design Municipal Building Surveyor Coordinator Building Services Coordinator Building Services Support Deputy Municipal Building Surveyor - Governance Deputy Municipal Building Surveyor - Permits	
RESIDENTIAL TENANCIES (CARAVAN PARKS AND MOVABLE DWELLINGS REGISTRATION AND STANDARDS) REGULATIONS 2020	r 12(2)	Duty to renew the registration if satisfied that the caravan park complies with these regulations	Chief Executive Officer Executive Director Planning & Design Municipal Building Surveyor Coordinator Building Services Coordinator Building Services Support Deputy Municipal Building Surveyor - Governance Deputy Municipal Building Surveyor - Permits Building Surveyor Building Inspector Assistant Building Surveyor Team Leader Building Services Administration Administration/Technical Officer Technical Officer	
RESIDENTIAL TENANCIES (CARAVAN PARKS AND MOVABLE DWELLINGS REGISTRATION AND STANDARDS) REGULATIONS 2020	r 12(2)	Power to refuse to renew the registration if not satisfied that the caravan park complies with these regulations	Chief Executive Officer Executive Director Planning & Design Municipal Building Surveyor Coordinator Building Services Coordinator Building Services Support Deputy Municipal Building Surveyor - Governance Deputy Municipal Building Surveyor - Permits	
RESIDENTIAL TENANCIES (CARAVAN PARKS AND MOVABLE DWELLINGS REGISTRATION AND STANDARDS) REGULATIONS 2020	r 12(3)	Duty to have regard to matters in determining an application for registration or an application for renewal of registration	Chief Executive Officer Executive Director Planning & Design Municipal Building Surveyor Coordinator Building Services Coordinator Building Services Support Deputy Municipal Building Surveyor - Governance Deputy Municipal Building Surveyor - Permits	

	Column 1	Column 2	Column 3	Column 4
Statute or Source	**Provision**	**Matter delegated**	**Delegate by Position**	**Conditions and Limitations**
RESIDENTIAL TENANCIES (CARAVAN PARKS AND MOVABLE DWELLINGS REGISTRATION AND STANDARDS) REGULATIONS 2020	r 12(4) & (5)	Duty to issue certificate of registration	Chief Executive Officer Executive Director Planning & Design Municipal Building Surveyor Coordinator Building Services Coordinator Building Services Support Deputy Municipal Building Surveyor - Governance Deputy Municipal Building Surveyor - Permits Building Surveyor Building Inspector Assistant Building Surveyor Technical Officer Team Leader Building Services Administration Administration/Technical Officer Administration Officer	
RESIDENTIAL TENANCIES (CARAVAN PARKS AND MOVABLE DWELLINGS REGISTRATION AND STANDARDS) REGULATIONS 2020	r 14(1)	Function of receiving notice of transfer of ownership	Chief Executive Officer Executive Director Planning & Design Municipal Building Surveyor Coordinator Building Services Coordinator Building Services Support Deputy Municipal Building Surveyor - Governance Deputy Municipal Building Surveyor - Permits Building Surveyor Building Inspector Assistant Building Surveyor Technical Officer Team Leader Building Services Administration Administration/Technical Officer Administration Officer	
RESIDENTIAL TENANCIES (CARAVAN PARKS AND MOVABLE DWELLINGS REGISTRATION AND STANDARDS) REGULATIONS 2020	r 14(3)	Power to determine where notice of transfer is displayed	Chief Executive Officer Executive Director Planning & Design Coordinator Building Services Support Municipal Building Surveyor Coordinator Building Services Deputy Municipal Building Surveyor - Governance Deputy Municipal Building Surveyor - Permits Building Surveyor Building Inspector Assistant Building Surveyor Team Leader Building Services Administration Technical Officer	

Column 1		Column 2	Column 3	Column 4
Statute or Source	**Provision**	**Matter delegated**	**Delegate by Position**	**Conditions and Limitations**
RESIDENTIAL TENANCIES (CARAVAN PARKS AND MOVABLE DWELLINGS REGISTRATION AND STANDARDS) REGULATIONS 2020	r 15(1)	Duty to transfer registration to new caravan park owner	Chief Executive Officer Executive Director Planning & Design Municipal Building Surveyor Coordinator Building Services Coordinator Building Services Support Deputy Municipal Building Surveyor - Governance Deputy Municipal Building Surveyor - Permits Building Surveyor Building Inspector Assistant Building Surveyor Technical Officer Team Leader Building Services Administration Administration/Technical Officer Administration Officer	
RESIDENTIAL TENANCIES (CARAVAN PARKS AND MOVABLE DWELLINGS REGISTRATION AND STANDARDS) REGULATIONS 2020	r 15(2)	Duty to issue a certificate of transfer of registration	Chief Executive Officer Executive Director Planning & Design Municipal Building Surveyor Coordinator Building Services Coordinator Building Services Support Deputy Municipal Building Surveyor - Governance Deputy Municipal Building Surveyor - Permits Building Surveyor Building Inspector Assistant Building Surveyor Technical Officer Team Leader Building Services Administration Administration/Technical Officer Administration Officer	
RESIDENTIAL TENANCIES (CARAVAN PARKS AND MOVABLE DWELLINGS REGISTRATION AND STANDARDS) REGULATIONS 2020	r 15(3)	Power to determine where certificate of transfer of registration is displayed	Chief Executive Officer Executive Director Planning & Design Municipal Building Surveyor Coordinator Building Services Coordinator Building Services Support Deputy Municipal Building Surveyor - Governance Deputy Municipal Building Surveyor - Permits Building Surveyor Building Inspector Assistant Building Surveyor Technical Officer	

Column 1		Column 2	Column 3	Column 4
Statute or Source	**Provision**	**Matter delegated**	**Delegate by Position**	**Conditions and Limitations**
RESIDENTIAL TENANCIES (CARAVAN PARKS AND MOVABLE DWELLINGS REGISTRATION AND STANDARDS) REGULATIONS 2020	r 16(1)	Power to determine the fee to accompany applications for registration or applications for renewal of registration	Chief Executive Officer Executive Director Planning & Design Coordinator Building Services Support Municipal Building Surveyor Coordinator Building Services Deputy Municipal Building Surveyor - Governance Deputy Municipal Building Surveyor - Permits Building Surveyor Building Inspector Assistant Building Surveyor Technical Officer Team Leader Building Services Administration Administration/Technical Officer Administration Officer	
RESIDENTIAL TENANCIES (CARAVAN PARKS AND MOVABLE DWELLINGS REGISTRATION AND STANDARDS) REGULATIONS 2020	r 17	Duty to keep register of caravan parks	Chief Executive Officer Executive Director Planning & Design Municipal Building Surveyor Coordinator Building Services Coordinator Building Services Support Deputy Municipal Building Surveyor - Governance Deputy Municipal Building Surveyor - Permits Building Surveyor Building Inspector Assistant Building Surveyor Technical Officer Team Leader Building Services Administration Administration/Technical Officer Administration Officer	
RESIDENTIAL TENANCIES (CARAVAN PARKS AND MOVABLE DWELLINGS REGISTRATION AND STANDARDS) REGULATIONS 2020	r 18(4)	Power to determine where the emergency contact person's details are displayed	Chief Executive Officer Executive Director Planning & Design Municipal Building Surveyor Coordinator Building Services Coordinator Building Services Support Deputy Municipal Building Surveyor - Governance Deputy Municipal Building Surveyor - Permits Building Surveyor Building Inspector Assistant Building Surveyor Technical Officer	

Column 1		Column 2	Column 3	Column 4
Statute or Source	**Provision**	**Matter delegated**	**Delegate by Position**	**Conditions and Limitations**
RESIDENTIAL TENANCIES (CARAVAN PARKS AND MOVABLE DWELLINGS REGISTRATION AND STANDARDS) REGULATIONS 2020	r 18(6)	Power to determine where certain information is displayed	Chief Executive Officer Executive Director Planning & Design Municipal Building Surveyor Coordinator Building Services Coordinator Building Services Support Deputy Municipal Building Surveyor - Governance Deputy Municipal Building Surveyor - Permits Building Surveyor Building Inspector Assistant Building Surveyor Technical Officer	
RESIDENTIAL TENANCIES (CARAVAN PARKS AND MOVABLE DWELLINGS REGISTRATION AND STANDARDS) REGULATIONS 2020	r 22(1)	Duty to notify a caravan park owner of the relevant emergency services agencies for the caravan park, on the request of the caravan park owner	Chief Executive Officer Executive Director Planning & Design Municipal Building Surveyor Coordinator Building Services Coordinator Building Services Support Deputy Municipal Building Surveyor - Governance Deputy Municipal Building Surveyor - Permits Building Surveyor Building Inspector Assistant Building Surveyor Technical Officer	
RESIDENTIAL TENANCIES (CARAVAN PARKS AND MOVABLE DWELLINGS REGISTRATION AND STANDARDS) REGULATIONS 2020	r 22(2)	Duty to consult with relevant emergency services agencies	Chief Executive Officer Executive Director Planning & Design Municipal Building Surveyor Coordinator Building Services Coordinator Building Services Support Deputy Municipal Building Surveyor - Governance Deputy Municipal Building Surveyor - Permits	
RESIDENTIAL TENANCIES (CARAVAN PARKS AND MOVABLE DWELLINGS REGISTRATION AND STANDARDS) REGULATIONS 2020	r 23	Power to determine places in which caravan park owner must display a copy of emergency procedures	Chief Executive Officer Executive Director Planning & Design Municipal Building Surveyor Coordinator Building Services Coordinator Building Services Support Deputy Municipal Building Surveyor - Governance Deputy Municipal Building Surveyor - Permits Building Surveyor Building Inspector Assistant Building Surveyor Technical Officer	

Column 1	Column 2	Column 3	Column 4
Statute or Source	**Provision**	**Matter delegated**	**Delegate by Position**	**Conditions and Limitations**
RESIDENTIAL TENANCIES (CARAVAN PARKS AND MOVABLE DWELLINGS REGISTRATION AND STANDARDS) REGULATIONS 2020	r 24	Power to determine places in which caravan park owner must display copy of public emergency warnings	Chief Executive Officer Executive Director Planning & Design Municipal Building Surveyor Coordinator Building Services (Municipal Building Surveyor) Coordinator Building Services Support Deputy Municipal Building Surveyor - Governance Deputy Municipal Building Surveyor - Permits Building Surveyor Building Inspector Assistant Building Surveyor Technical Officer	
RESIDENTIAL TENANCIES (CARAVAN PARKS AND MOVABLE DWELLINGS REGISTRATION AND STANDARDS) REGULATIONS 2020	r 25(3)	Duty to consult with relevant floodplain management authority	Chief Executive Officer Executive Director Planning & Design Municipal Building Surveyor Coordinator Building Services Deputy Municipal Building Surveyor - Governance Deputy Municipal Building Surveyor - Permits Building Surveyor Assistant Building Surveyor Technical Officer	
RESIDENTIAL TENANCIES (CARAVAN PARKS AND MOVABLE DWELLINGS REGISTRATION AND STANDARDS) REGULATIONS 2020	r 26	Duty to have regard to any report of the relevant fire authority	Chief Executive Officer Executive Director Planning & Design Municipal Building Surveyor Coordinator Building Services Coordinator Building Services Support Deputy Municipal Building Surveyor - Governance Deputy Municipal Building Surveyor - Permits Building Surveyor Building Inspector Assistant Building Surveyor Technical Officer	
RESIDENTIAL TENANCIES (CARAVAN PARKS AND MOVABLE DWELLINGS REGISTRATION AND STANDARDS) REGULATIONS 2020	r 28(c)	Power to approve system for the collection, removal and disposal of sewage and wastewater from a movable dwelling	Chief Executive Officer Executive Director Planning & Design Municipal Building Surveyor Coordinator Building Services Coordinator Building Services Support Deputy Municipal Building Surveyor - Governance Deputy Municipal Building Surveyor - Permits Building Surveyor Building Inspector Assistant Building Surveyor Technical Officer	

Column 1		Column 2	Column 3	Column 4
Statute or Source	**Provision**	**Matter delegated**	**Delegate by Position**	**Conditions and Limitations**
RESIDENTIAL TENANCIES (CARAVAN PARKS AND MOVABLE DWELLINGS REGISTRATION AND STANDARDS) REGULATIONS 2020	r 40	Function of receiving notice of proposed installation of unregistrable movable dwelling or rigid annexe	Chief Executive Officer Executive Director Planning & Design Municipal Building Surveyor Coordinator Building Services Coordinator Building Services Support Deputy Municipal Building Surveyor - Governance Deputy Municipal Building Surveyor - Permits Building Surveyor Building Inspector Assistant Building Surveyor Technical Officer Team Leader Building Services Administration Administration/Technical Officer Administration Officer	
RESIDENTIAL TENANCIES (CARAVAN PARKS AND MOVABLE DWELLINGS REGISTRATION AND STANDARDS) REGULATIONS 2020	r 40(b)	Power to require notice of proposal to install unregistrable movable dwelling or rigid annexe	Chief Executive Officer Executive Director Planning & Design Municipal Building Surveyor Coordinator Building Services Coordinator Building Services Support Deputy Municipal Building Surveyor - Governance Deputy Municipal Building Surveyor - Permits Building Surveyor Building Inspector Assistant Building Surveyor Technical Officer Team Leader Building Services Administration Administration/Technical Officer Administration Officer	
RESIDENTIAL TENANCIES (CARAVAN PARKS AND MOVABLE DWELLINGS REGISTRATION AND STANDARDS) REGULATIONS 2020	r 41(4)	Function of receiving installation certificate	Chief Executive Officer Executive Director Planning & Design Municipal Building Surveyor Coordinator Building Services Coordinator Building Services Support Deputy Municipal Building Surveyor - Governance Deputy Municipal Building Surveyor - Permits Building Surveyor Building Inspector Assistant Building Surveyor Technical Officer Team Leader Building Services Administration Administration/Technical Officer Administration Officer	

	Column 1	Column 2	Column 3	Column 4
Statute or Source	**Provision**	**Matter delegated**	**Delegate by Position**	**Conditions and Limitations**
RESIDENTIAL TENANCIES (CARAVAN PARKS AND MOVABLE DWELLINGS REGISTRATION AND STANDARDS) REGULATIONS 2020	r 43	Power to approve use of a non-habitable structure as a dwelling or part of a dwelling	Chief Executive Officer Executive Director Planning & Design Municipal Building Surveyor Coordinator Building Services Deputy Municipal Building Surveyor - Governance Deputy Municipal Building Surveyor - Permits	
RESIDENTIAL TENANCIES (CARAVAN PARKS AND MOVABLE DWELLINGS REGISTRATION AND STANDARDS) REGULATIONS 2020	Schedule 3 clause 4(3)	Power to approve the removal of wheels and axles from unregistrable movable dwelling	Chief Executive Officer Executive Director Planning & Design Municipal Building Surveyor Coordinator Building Services Deputy Municipal Building Surveyor - Governance Deputy Municipal Building Surveyor - Permits	

ROAD MANAGEMENT ACT 2004

Column 1		Column 2	Column 3	Column 4
Statute or Source	**Provision**	**Matter delegated**	**Delegate by Position**	**Conditions and Limitations**
ROAD MANAGEMENT ACT 2004	s 11(1)	Power to declare a road by publishing a notice in the Government Gazette	Chief Executive Officer Executive Director City Infrastructure Executive Director Strategy, Governance Corporate Chief Financial Officer Manager Civil Infrastructure Manager Capital Projects Coordinator Revenue Property & Valuations	Obtain consent in circumstances specified in s 11(2)
ROAD MANAGEMENT ACT 2004	s 11(8)	Power to name a road or change the name of a road by publishing notice in Government Gazette	Chief Executive Officer Executive Director City Infrastructure Executive Director Strategy, Governance and Corporate Chief Financial Officer Manager Civil Infrastructure Manager Capital Projects Coordinator Revenue Property & Valuations	Not applicable
ROAD MANAGEMENT ACT 2004	s 11(9)(b)	Duty to advise Registrar	Chief Executive Officer Executive Director City Infrastructure Executive Director Strategy, Governance and Corporate Chief Financial Officer Manager Civil Infrastructure Manager Capital Projects Coordinator Revenue Property & Valuations	
ROAD MANAGEMENT ACT 2004	s 11(10)	Duty to inform Secretary to Department of Environment, Land, Water and Planning of declaration etc.	Chief Executive Officer Executive Director City Infrastructure Executive Director Strategy, Governance and Corporate Chief Financial Officer Manager Civil Infrastructure Manager Capital Projects Coordinator Revenue Property & Valuations	Clause subject to s 11(10A)
ROAD MANAGEMENT ACT 2004	s 11(10A)	Duty to inform Secretary to Department of Environment, Land, Water and Planning or nominated person	Chief Executive Officer Executive Director City Infrastructure Manager Civil Infrastructure Manager Capital Projects	Where council is the coordinating road authority
ROAD MANAGEMENT ACT 2004	s 12(2)	Power to discontinue road or part of a road	Chief Executive Officer Executive Director City Infrastructure Manager Civil Infrastructure Manager Capital Projects	Were council is the coordinating road authority

	Column 1	Column 2	Column 3	Column 4
Statute or Source	**Provision**	**Matter delegated**	**Delegate by Position**	**Conditions and Limitations**
ROAD MANAGEMENT ACT 2004	s 12(4)	Duty to publish, and provide copy, notice of proposed discontinuance	Chief Executive Officer Executive Director City Infrastructure Executive Director Strategy, Governance and Corporate Manager Enterprise Program Management Office Manager Civil Infrastructure Manager Capital Projects	Power of coordinating road authority where it is the discontinuing body unless subsection (11) applies
ROAD MANAGEMENT ACT 2004	s 12(5)	Duty to consider written submissions received within 28 days of notice	Chief Executive Officer Executive Director City Infrastructure Executive Director Strategy, Governance and Corporate Manager Enterprise Program Management Office Manager Civil Infrastructure Manager Capital Projects	Power of coordinating road authority where it is the discontinuing body unless subsection (11) applies
ROAD MANAGEMENT ACT 2004	s 12(6)	Function of hearing a person in support of their written submission	Chief Executive Officer Executive Director City Infrastructure Executive Director Strategy, Governance and Corporate Manager Enterprise Program Management Office Manager Civil Infrastructure Manager Capital Projects	Power of coordinating road authority where it is the discontinuing body unless subsection (11) applies
ROAD MANAGEMENT ACT 2004	s 12(7)	Duty to fix day, time and place of meeting under subsection (6) and to give notice	Chief Executive Officer Executive Director City Infrastructure Executive Director Strategy, Governance and Corporate Manager Enterprise Program Management Office Manager Civil Infrastructure Manager Capital Projects	Power of coordinating road authority where it is the discontinuing body unless subsection (11) applies
ROAD MANAGEMENT ACT 2004	s 12(10)	Duty to notify of decision made	Chief Executive Officer Executive Director City Infrastructure Executive Director Strategy, Governance and Corporate Manager Enterprise Program Management Office Manager Civil Infrastructure Manager Capital Projects	Duty of coordinating road authority where it is the discontinuing body does not apply where an exemption is specified by the regulations or given by the Minister
ROAD MANAGEMENT ACT 2004	s 13(1)	Power to fix a boundary of a road by publishing notice in Government Gazette	Chief Executive Officer Executive Director City Infrastructure Manager Civil Infrastructure Manager Capital Projects Coordinator Development Planning Coordinator Infrastructure Planning	Power of coordinating road authority and obtain consent under s 13(3) &s 13(4) as appropriate
ROAD MANAGEMENT ACT 2004	s 14(4)	Function of receiving notice from the Head, Transport for Victoria	Chief Executive Officer Executive Director City Infrastructure Manager Civil Infrastructure Manager Capital Projects	

	Column 1	Column 2	Column 3	Column 4
Statute or Source	**Provision**	**Matter delegated**	**Delegate by Position**	**Conditions and Limitations**
ROAD MANAGEMENT ACT 2004	s 14(7)	Power to appeal against decision of the Head, Transport for Victoria	Chief Executive Officer Executive Director City Infrastructure Manager Civil Infrastructure Manager Capital Projects	Not applicable
ROAD MANAGEMENT ACT 2004	s 15(1)	Power to enter into arrangement with another road authority, utility or a provider of public transport to transfer a road management function of the road authority to the other road authority, utility or provider of public transport	Chief Executive Officer Executive Director City Infrastructure Manager Civil Infrastructure Manager Capital Projects Coordinator Development Planning Coordinator Design & Services Coordinator Infrastructure Planning Coordinator Program Delivery	Not applicable
ROAD MANAGEMENT ACT 2004	s 15(1A)	Power to enter into arrangement with a utility to transfer a road management function of the utility to the road authority	Chief Executive Officer Executive Director City Infrastructure Manager Civil Infrastructure Manager Capital Projects Coordinator Development Planning Coordinator Design & Services Coordinator Infrastructure Planning Coordinator Program Delivery	Not applicable
ROAD MANAGEMENT ACT 2004	s 15(2)	Duty to include details of arrangement in public roads register	Chief Executive Officer Executive Director City Infrastructure Manager Civil Infrastructure Manager Capital Projects Coordinator Infrastructure Planning Coordinator Transport Coordinator Program Delivery	
ROAD MANAGEMENT ACT 2004	s 16(7)	Power to enter into an arrangement under s 15	Chief Executive Officer Executive Director City Infrastructure Manager Civil Infrastructure Manager Capital Projects	Not applicable
ROAD MANAGEMENT ACT 2004	s 16(8)	Duty to enter details of determination in public roads register	Chief Executive Officer Executive Director City Infrastructure Manager Civil Infrastructure Manager Capital Projects Coordinator Infrastructure Planning Coordinator Development Planning Coordinator Transport	

Column 1		Column 2	Column 3	Column 4
Statute or Source	**Provision**	**Matter delegated**	**Delegate by Position**	**Conditions and Limitations**
ROAD MANAGEMENT ACT 2004	s 17(2)	Duty to register public road in public roads register	Chief Executive Officer Executive Director City Infrastructure Manager Civil Infrastructure Manager Capital Projects Coordinator Infrastructure Planning Coordinator Transport	Where council is the coordinating road authority
ROAD MANAGEMENT ACT 2004	s 17(3)	Power to decide that a road is reasonably required for general public use	Chief Executive Officer Executive Director City Infrastructure Manager Civil Infrastructure Manager Capital Projects	Where council is the coordinating road authority
ROAD MANAGEMENT ACT 2004	s 17(3)	Duty to register a road reasonably required for general public use in public roads register	Chief Executive Officer Executive Director City Infrastructure Manager Civil Infrastructure Manager Capital Projects	Where council is the coordinating road authority
ROAD MANAGEMENT ACT 2004	s 17(4)	Power to decide that a road is no longer reasonably required for general public use	Chief Executive Officer Executive Director City Infrastructure Manager Civil Infrastructure Manager Capital Projects Coordinator Infrastructure Planning Coordinator Development Planning Coordinator Transport	Where council is the coordinating road authority
ROAD MANAGEMENT ACT 2004	s 17(4)	Duty to remove road no longer reasonably required for general public use from public roads register	Chief Executive Officer Executive Director City Infrastructure Manager Civil Infrastructure Manager Capital Projects Coordinator Infrastructure Planning Coordinator Development Planning Coordinator Transport	Where council is the coordinating road authority
ROAD MANAGEMENT ACT 2004	s 18(1)	Power to designate ancillary area	Chief Executive Officer Executive Director City Infrastructure Manager Civil Infrastructure Manager Capital Projects Coordinator Development Planning Coordinator Infrastructure Planning	Where council is the coordinating road authority, and obtain consent in circumstances specified in s 18(2)

Column 1		Column 2	Column 3	Column 4
Statute or Source	**Provision**	**Matter delegated**	**Delegate by Position**	**Conditions and Limitations**
ROAD MANAGEMENT ACT 2004	s 18(3)	Duty to record designation in public roads register	Chief Executive Officer Executive Director City Infrastructure Manager Civil Infrastructure Manager Capital Projects Coordinator Infrastructure Planning Coordinator Transport	Where council is the coordinating road authority
ROAD MANAGEMENT ACT 2004	s 19(1)	Duty to keep register of public roads in respect of which it is the coordinating road authority	Chief Executive Officer Executive Director City Infrastructure Manager Civil Infrastructure Manager Capital Projects Coordinator Infrastructure Planning Coordinator Transport	
ROAD MANAGEMENT ACT 2004	s 19(4)	Duty to specify details of discontinuance in public roads register	Chief Executive Officer Executive Director City Infrastructure Manager Civil Infrastructure Manager Capital Projects Coordinator Infrastructure Planning Coordinator Development Planning Coordinator Transport	
ROAD MANAGEMENT ACT 2004	s 19(5)	Duty to ensure public roads register is available for public inspection	Chief Executive Officer Executive Director City Infrastructure Manager Civil Infrastructure Manager Capital Projects Coordinator Infrastructure Planning Coordinator Transport	
ROAD MANAGEMENT ACT 2004	s 21	Function of replying to request for information or advice	Chief Executive Officer Executive Director City Infrastructure Manager Civil Infrastructure Manager Capital Projects Coordinator Design & Services Coordinator Development Planning Coordinator Infrastructure Planning Coordinator Transport Coordinator Program Delivery	Obtain consent in circumstances specified in s 11(2)

Column 1		Column 2	Column 3	Column 4
Statute or Source	**Provision**	**Matter delegated**	**Delegate by Position**	**Conditions and Limitations**
ROAD MANAGEMENT ACT 2004	s 22(2)	Function of commenting on proposed direction	Chief Executive Officer Executive Director City Infrastructure Manager Civil Infrastructure Manager Capital Projects Coordinator Design & Services Coordinator Development Planning Coordinator Infrastructure Planning Coordinator Program Delivery Coordinator Transport Coordinator Program Delivery	
ROAD MANAGEMENT ACT 2004	s 22(4)	Duty to publish a copy or summary of any direction made under s 22 by the Minister in its annual report	Chief Executive Officer Executive Director City Infrastructure Manager Civil Infrastructure Manager Capital Projects	
ROAD MANAGEMENT ACT 2004	s 22(5)	Duty to give effect to a direction under this section	Chief Executive Officer Executive Director City Infrastructure Manager Civil Infrastructure Manager Capital Projects	
ROAD MANAGEMENT ACT 2004	s 40(1)	Duty to inspect, maintain and repair a public road	Chief Executive Officer Executive Director City Infrastructure Manager Civil Infrastructure Manager Capital Projects Coordinator Design & Services Coordinator Development Planning Coordinator Infrastructure Planning Coordinator Program Delivery Coordinator Transport	
ROAD MANAGEMENT ACT 2004	s 40(5)	Power to inspect, maintain and repair a road which is not a public road	Chief Executive Officer Executive Director City Infrastructure Manager Civil Infrastructure Manager Capital Projects Coordinator Design & Services Coordinator Development Planning Coordinator Infrastructure Planning Coordinator Program Delivery Coordinator Transport	Not applicable

	Column 1	Column 2	Column 3	Column 4
Statute or Source	**Provision**	**Matter delegated**	**Delegate by Position**	**Conditions and Limitations**
ROAD MANAGEMENT ACT 2004	s 41(1)	Power to determine the standard of construction, inspection, maintenance and repair	Chief Executive Officer Executive Director City Infrastructure Manager Civil Infrastructure Manager Capital Projects	
ROAD MANAGEMENT ACT 2004	s 42(1)	Power to declare a public road as a controlled access road	Chief Executive Officer Executive Director City Infrastructure Manager Civil Infrastructure Manager Capital Projects Coordinator Development Planning Coordinator Infrastructure Planning Coordinator Program Delivery	Power of coordinating road authority and Schedule 2 also applies
ROAD MANAGEMENT ACT 2004	s 42(2)	Power to amend or revoke declaration by notice published in Government Gazette	Chief Executive Officer Executive Director City Infrastructure Manager Civil Infrastructure Manager Capital Projects Coordinator Development Planning Coordinator Infrastructure Planning	Power of coordinating road authority and Schedule 2 also applies
ROAD MANAGEMENT ACT 2004	s 42A(3)	Duty to consult with Head, Transport for Victoria and Minister for Local Government before road is specified	Chief Executive Officer Executive Director City Infrastructure Manager Civil Infrastructure Manager Capital Projects	Where council is the coordinating road authority if road is a municipal road or part thereof
ROAD MANAGEMENT ACT 2004	s 42A(4)	Power to approve Minister's decision to specify a road as a specified freight road	Chief Executive Officer Executive Director City Infrastructure Manager Civil Infrastructure Manager Capital Projects	Where council is the coordinating road authority if road is a municipal road or part thereof and where road is to be specified a freight road
ROAD MANAGEMENT ACT 2004	s 48EA	Duty to notify the owner or occupier of land and provider of public transport on which rail infrastructure or rolling stock is located (and any relevant provider of public transport)	Chief Executive Officer Executive Director City Infrastructure Manager Civil Infrastructure Manager Capital Projects	Where Council is the responsible road authority, infrastructure manager or works manager
ROAD MANAGEMENT ACT 2004	s 48M(3)	Function of consulting with the relevant authority for purposes of developing guidelines under s 48M	Chief Executive Officer Executive Director City Infrastructure Manager Civil Infrastructure Manager Capital Projects	

Column 1		Column 2	Column 3	Column 4
Statute or Source	**Provision**	**Matter delegated**	**Delegate by Position**	**Conditions and Limitations**
ROAD MANAGEMENT ACT 2004	s 49	Power to develop and publish a road management plan	Chief Executive Officer Executive Director City Infrastructure Manager Civil Infrastructure Manager Capital Projects	
ROAD MANAGEMENT ACT 2004	s 51	Power to determine standards by incorporating the standards in a road management plan	Chief Executive Officer Executive Director City Infrastructure Manager Civil Infrastructure Manager Capital Projects	
ROAD MANAGEMENT ACT 2004	s 53(2)	Power to cause notice to be published in Government Gazette of amendment etc of document in road management plan	Chief Executive Officer Executive Director City Infrastructure Manager Civil Infrastructure Manager Capital Projects Coordinator Transport Coordinator Infrastructure Planning	Not applicable
ROAD MANAGEMENT ACT 2004	s 54(2)	Duty to give notice of proposal to make a road management plan	Chief Executive Officer Executive Director City Infrastructure Manager Civil Infrastructure Manager Capital Projects Coordinator Infrastructure Planning Coordinator Transport	
ROAD MANAGEMENT ACT 2004	s 54(5)	Duty to conduct a review of road management plan at prescribed intervals	Chief Executive Officer Executive Director City Infrastructure Manager Civil Infrastructure Manager Capital Projects Coordinator Infrastructure Planning Coordinator Transport	
ROAD MANAGEMENT ACT 2004	s 54(6)	Power to amend road management plan	Chief Executive Officer Executive Director City Infrastructure Manager Civil Infrastructure Manager Capital Projects Coordinator Infrastructure Planning Coordinator Transport	Not applicable
ROAD MANAGEMENT ACT 2004	s 54(7)	Duty to incorporate the amendments into the road management plan	Chief Executive Officer Executive Director City Infrastructure Manager Civil Infrastructure Manager Capital Projects Coordinator Infrastructure Planning Coordinator Transport	

Column 1		Column 2	Column 3	Column 4
Statute or Source	**Provision**	**Matter delegated**	**Delegate by Position**	**Conditions and Limitations**
ROAD MANAGEMENT ACT 2004	s 55(1)	Duty to cause notice of road management plan to be published in Government Gazette and newspaper	Chief Executive Officer Executive Director City Infrastructure Manager Civil Infrastructure Manager Capital Projects Coordinator Infrastructure Planning Coordinator Transport	
ROAD MANAGEMENT ACT 2004	s 63(1)	Power to consent to conduct of works on road	Chief Executive Officer Executive Director City Infrastructure Manager Civil Infrastructure Manager Capital Projects Manager City Works	Where council is the coordinating road authority
ROAD MANAGEMENT ACT 2004	s 63(2)(e)	Power to conduct or to authorise the conduct of works in, on, under or over a road in an emergency	Chief Executive Officer Executive Director City Infrastructure Manager Civil Infrastructure Manager Capital Projects Manager City Works	Where council is the infrastructure manager
ROAD MANAGEMENT ACT 2004	s 64(1)	Duty to comply with clause 13 of Schedule 7	Chief Executive Officer Executive Director City Infrastructure Manager Civil Infrastructure Manager Capital Projects Manager City Works	Where council is the infrastructure manager or works manager

	Column 1	Column 2	Column 3	Column 4
Statute or Source	**Provision**	**Matter delegated**	**Delegate by Position**	**Conditions and Limitations**
ROAD MANAGEMENT ACT 2004	s 66(1)	Power to consent to structure etc	Chief Executive Officer Executive Director City Infrastructure Executive Director Community Service Delivery Manager Health & Local Laws Manager Civil Infrastructure Manager Capital Projects Coordinator Development Planning Coordinator Amenity Protection Permits and Review Services Coordinator Parking & Animal Management Services Coordinator Infrastructure Planning Prosecutions and Local Laws Technical Officer Health & Amenity Officer Team Leader Parking & Information Services Parking Information Services Officer Team Leader Animal & Information Services Parking & Information Services Lead Officer Lead Animal & Information Services Officer Animal Management Officer Project Support & Engagement Officer Principal Infrastructure Engineer	Where council is the coordinating road authority
ROAD MANAGEMENT ACT 2004	s 67(2)	Function of receiving the name & address of the person responsible for distributing the sign or bill	Chief Executive Officer Executive Director City Infrastructure Manager Civil Infrastructure Manager Capital Projects Coordinator Development Planning	Where council is the coordinating road authority

Column 1		Column 2	Column 3	Column 4
Statute or Source	**Provision**	**Matter delegated**	**Delegate by Position**	**Conditions and Limitations**
ROAD MANAGEMENT ACT 2004	s 67(3)	Power to request information	Chief Executive Officer Executive Director City Infrastructure Executive Director Community Service Delivery Manager Health & Local Laws Manager Civil Infrastructure Manager Capital Projects Coordinator Development Planning Coordinator Design & Services Coordinator Amenity Protection Permits and Review Services Coordinator Parking & Animal Management Services Coordinator Infrastructure Planning Coordinator Transport Prosecutions & Local Laws Technical Officer Team Leader Parking & Information Services Health & Amenity Officer Parking Information Services Officer Parking & Information Services Lead Officer Team Leader Animal & Information Services Lead Animal & Information Services Officer Animal Management Officer Project Support & Engagement Officer Principal Infrastructure Engineer	Where council is the coordinating road authority
ROAD MANAGEMENT ACT 2004	s 68(2)	Power to request information	Chief Executive Officer Executive Director City Infrastructure Manager Civil Infrastructure Manager Capital Projects Coordinator Development Planning Coordinator Design & Services Coordinator Transport Coordinator Infrastructure Planning Coordinator Program Delivery Principal Infrastructure Engineer	Where council is the coordinating road authority
ROAD MANAGEMENT ACT 2004	s 71(3)	Power to appoint an authorised officer	Chief Executive Officer Executive Director City Infrastructure Executive Director Community Service Delivery Manager Civil Infrastructure Manager Capital Projects Manager Health & Local Laws	Not applicable

Column 1		Column 2	Column 3	Column 4
Statute or Source	**Provision**	**Matter delegated**	**Delegate by Position**	**Conditions and Limitations**
ROAD MANAGEMENT ACT 2004	s 72	Duty to issue an identity card to each authorised officer	Chief Executive Officer Executive Director City Infrastructure Manager Civil Infrastructure Manager Capital Projects Technical Officer Security	
ROAD MANAGEMENT ACT 2004	s 85	Function of receiving report from authorised officer	Chief Executive Officer Executive Director City Infrastructure Manager Civil Infrastructure Manager Capital Projects	
ROAD MANAGEMENT ACT 2004	s 86	Duty to keep register re s 85 matters	Chief Executive Officer Executive Director City Infrastructure Manager Civil Infrastructure Manager Capital Projects Coordinator Development Planning	
ROAD MANAGEMENT ACT 2004	s 87(1)	Function of receiving complaints	Chief Executive Officer Executive Director City Infrastructure Manager Civil Infrastructure Manager Capital Projects	
ROAD MANAGEMENT ACT 2004	s 87(2)	Duty to investigate complaint and provide report	Chief Executive Officer Executive Director City Infrastructure Manager Civil Infrastructure Manager Capital Projects Coordinator Design & Services Coordinator Development Planning Coordinator Infrastructure Planning Coordinator Transport Coordinator Program Delivery	
ROAD MANAGEMENT ACT 2004	s 96	Power to authorise a person for the purpose of instituting legal proceedings	Chief Executive Officer Executive Director City Infrastructure Executive Director Community Service Delivery Manager Civil Infrastructure Manager Capital Projects Manager Health and Local Laws	
ROAD MANAGEMENT ACT 2004	s 112(2)	Power to recover damages in court	Chief Executive Officer Executive Director City Infrastructure Manager Civil Infrastructure Manager Capital Projects	Not applicable

Column 1		Column 2	Column 3	Column 4
Statute or Source	**Provision**	**Matter delegated**	**Delegate by Position**	**Conditions and Limitations**
ROAD MANAGEMENT ACT 2004	s 116	Power to cause or carry out inspection	Chief Executive Officer Executive Director City Infrastructure Manager Civil Infrastructure Manager Capital Projects Coordinator Transport Coordinator Infrastructure Planning Principal Asset Management Engineer Principal Infrastructure Engineer	Not applicable
ROAD MANAGEMENT ACT 2004	s 119(2)	Function of consulting with the Head, Transport for Victoria	Chief Executive Officer Executive Director City Infrastructure Manager Civil Infrastructure Manager Capital Projects	
ROAD MANAGEMENT ACT 2004	s 120(1)	Power to exercise road management functions on an arterial road (with the consent of The Head, Transport for Victoria)	Chief Executive Officer Executive Director City Infrastructure Manager Civil Infrastructure Manager Capital Projects	
ROAD MANAGEMENT ACT 2004	s 120(2)	Duty to seek consent of VicRoads to exercise road management functions before exercising power in s 120(1)	Chief Executive Officer Executive Director City Infrastructure Manager Civil Infrastructure Manager Capital Projects Coordinator Design & Services Coordinator Development Planning Coordinator Infrastructure Planning Coordinator Transport Coordinator Program Delivery	
ROAD MANAGEMENT ACT 2004	s 121(1)	Power to enter into an agreement in respect of works	Chief Executive Officer Executive Director City Infrastructure Manager Civil Infrastructure Manager Capital Projects Coordinator Development Planning Coordinator Program Delivery Coordinator Design & Services Coordinator Infrastructure Planning	Not applicable
ROAD MANAGEMENT ACT 2004	s 122(1)	Power to charge and recover fees	Chief Executive Officer Executive Director City Infrastructure Manager Civil Infrastructure Manager Capital Projects	Not applicable

	Column 1	Column 2	Column 3	Column 4
Statute or Source	**Provision**	**Matter delegated**	**Delegate by Position**	**Conditions and Limitations**
ROAD MANAGEMENT ACT 2004	s 123(1)	Power to charge for any service	Chief Executive Officer Executive Director City Infrastructure Manager Civil Infrastructure Manager Capital Projects	Not applicable
ROAD MANAGEMENT ACT 2004	Schedule 2 Clause 2(1)	Power to make a decision in respect of controlled access roads	Chief Executive Officer Executive Director City Infrastructure Manager Civil Infrastructure Manager Capital Projects Coordinator Development Planning Coordinator Infrastructure Planning	Not applicable
ROAD MANAGEMENT ACT 2004	Schedule 2 Clause 3(1)	Duty to make policy about controlled access roads	Chief Executive Officer Executive Director City Infrastructure Manager Civil Infrastructure Manager Capital Projects	
ROAD MANAGEMENT ACT 2004	Schedule 2 Clause 3(2)	Power to amend, revoke or substitute policy about controlled access roads	Chief Executive Officer Executive Director City Infrastructure Manager Civil Infrastructure Manager Capital Projects	Not applicable
ROAD MANAGEMENT ACT 2004	Schedule 2 Clause 4	Function of receiving details of proposal from the Head, Transport for Victoria	Chief Executive Officer Executive Director City Infrastructure Manager Civil Infrastructure Manager Capital Projects Coordinator Development Planning	
ROAD MANAGEMENT ACT 2004	Schedule 2 Clause 5	Duty to publish notice of declaration	Chief Executive Officer Executive Director City Infrastructure Manager Civil Infrastructure Manager Capital Projects	
ROAD MANAGEMENT ACT 2004	Schedule 7, Clause 7(1)	Duty to give notice to relevant coordinating road authority of proposed installation of non-road infrastructure or related works on a road reserve	Chief Executive Officer Executive Director City Infrastructure Manager Civil Infrastructure Manager Capital Projects	Where council is the infrastructure manager or works manager

Column 1		Column 2	Column 3	Column 4
Statute or Source	**Provision**	**Matter delegated**	**Delegate by Position**	**Conditions and Limitations**
ROAD MANAGEMENT ACT 2004	Schedule 7, Clause 8(1)	Duty to give notice to any other infrastructure manager or works manager responsible for any non-road infrastructure in the area, that could be affected by any proposed installation of infrastructure or related works on a road or road reserve of any road	Chief Executive Officer Executive Director City Infrastructure Manager Civil Infrastructure Manager Capital Projects	Where council is the infrastructure manager or works manager
ROAD MANAGEMENT ACT 2004	Schedule 7, Clause 9(1)	Duty to comply with request for information from a coordinating road authority, an infrastructure manager or a works manager responsible for existing or proposed infrastructure in relation to the location of any non-road infrastructure and technical advice or assistance in conduct of works	Chief Executive Officer Executive Director City Infrastructure Manager Civil Infrastructure Manager Capital Projects	Where council is the infrastructure manager or works manager responsible for non-road infrastructure
ROAD MANAGEMENT ACT 2004	Schedule 7, Clause 9(2)	Duty to give information to another infrastructure manager or works manager where becomes aware any infrastructure or works are not in the location shown on records, appear to be in an unsafe condition or appear to need maintenance	Chief Executive Officer Executive Director City Infrastructure Manager Civil Infrastructure Manager Capital Projects	Where council is the infrastructure manager or works manager
ROAD MANAGEMENT ACT 2004	Schedule 7, Clause 10(2)	Where Schedule 7 Clause 10(1) applies, duty to, where possible, conduct appropriate consultation with persons likely to be significantly affected	Chief Executive Officer Executive Director City Infrastructure Manager Civil Infrastructure Manager Capital Projects	Where council is the infrastructure manager or works manager

Column 1		Column 2	Column 3	Column 4
Statute or Source	**Provision**	**Matter delegated**	**Delegate by Position**	**Conditions and Limitations**
ROAD MANAGEMENT ACT 2004	Schedule 7 Clause 12(2)	Power to direct infrastructure manager or works manager to conduct reinstatement works	Chief Executive Officer Executive Director City Infrastructure Manager Civil Infrastructure Manager Capital Projects	Where council is the coordinating road authority
ROAD MANAGEMENT ACT 2004	Schedule 7 Clause 12(3)	Power to take measures to ensure reinstatement works are completed	Chief Executive Officer Executive Director City Infrastructure Manager Civil Infrastructure Manager Capital Projects	Where council is the coordinating road authority
ROAD MANAGEMENT ACT 2004	Schedule 7 Clause 12(4)	Duty to ensure that works are conducted by an appropriately qualified person	Chief Executive Officer Executive Director City Infrastructure Manager Civil Infrastructure Manager Capital Projects	Where council is the coordinating road authority
ROAD MANAGEMENT ACT 2004	Schedule 7 Clause 12(5)	Power to recover costs	Chief Executive Officer Executive Director City Infrastructure Manager Civil Infrastructure Manager Capital Projects	Where council is the coordinating road authority
ROAD MANAGEMENT ACT 2004	Schedule 7 Clause 13(1)	duty to notify relevant coordinating road authority within 7 days that works have been completed, subject to Schedule 7, Clause 13(2)	Chief Executive Officer Executive Director City Infrastructure Manager Civil Infrastructure Manager Capital Projects	Where council is the works manager
ROAD MANAGEMENT ACT 2004	Schedule 7 Clause 13(2)	power to vary notice period	Chief Executive Officer Executive Director City Infrastructure Manager Civil Infrastructure Manager Capital Projects	Where council is the coordinating road authority
ROAD MANAGEMENT ACT 2004	Schedule 7 Clause 13(3)	Duty to ensure works manager has complied with obligation to give notice under Schedule 7 Clause 13(1)	Chief Executive Officer Executive Director City Infrastructure Manager Civil Infrastructure Manager Capital Projects	Where council is the infrastructure manager
ROAD MANAGEMENT ACT 2004	Schedule 7 Clause 16(1)	Power to consent to proposed works	Chief Executive Officer Executive Director City Infrastructure Manager Civil Infrastructure Manager Capital Projects Coordinator Development Planning Coordinator Infrastructure Planning	Where council is the coordinating road authority

Column 1		Column 2	Column 3	Column 4
Statute or Source	**Provision**	**Matter delegated**	**Delegate by Position**	**Conditions and Limitations**
ROAD MANAGEMENT ACT 2004	Schedule 7 Clause 16(4)	Duty to consult	Chief Executive Officer Executive Director City Infrastructure Manager Civil Infrastructure Manager Capital Projects Coordinator Development Planning	Where council is the coordinating road authority, responsible authority or infrastructure manager
ROAD MANAGEMENT ACT 2004	Schedule 7 Clause 16(5)	Power to consent to proposed works	Chief Executive Officer Executive Director City Infrastructure Manager Civil Infrastructure Manager Capital Projects Coordinator Development Planning Coordinator Infrastructure Planning Principal Infrastructure Engineer	Where council is the coordinating road authority
ROAD MANAGEMENT ACT 2004	Schedule 7 Clause 16(6)	Power to set reasonable conditions on consent	Chief Executive Officer Executive Director City Infrastructure Manager Civil Infrastructure Manager Capital Projects Coordinator Development Planning Coordinator Infrastructure Planning Principal Infrastructure Engineer	Where council is the coordinating road authority
ROAD MANAGEMENT ACT 2004	Schedule 7 Clause 16(8)	Power to include consents and conditions	Chief Executive Officer Executive Director City Infrastructure Manager Civil Infrastructure Manager Capital Projects Coordinator Development Planning Coordinator Infrastructure Planning Principal Infrastructure Engineer	Where council is the coordinating road authority
ROAD MANAGEMENT ACT 2004	Schedule 7 Clause 17(2)	Power to refuse to give consent and duty to give reasons for refusal	Chief Executive Officer Executive Director City Infrastructure Manager Civil Infrastructure Manager Capital Projects Coordinator Development Planning Coordinator Infrastructure Planning	Where council is the coordinating road authority
ROAD MANAGEMENT ACT 2004	Schedule 7 Clause 18(1)	Power to enter into an agreement	Chief Executive Officer Executive Director City Infrastructure Manager Civil Infrastructure Manager Capital Projects Coordinator Development Planning	Where council is the coordinating road authority

Column 1		Column 2	Column 3	Column 4
Statute or Source	**Provision**	**Matter delegated**	**Delegate by Position**	**Conditions and Limitations**
ROAD MANAGEMENT ACT 2004	Schedule 7 Clause 19(1)	Power to give notice requiring rectification of works	Chief Executive Officer Executive Director City Infrastructure Manager Civil Infrastructure Manager Capital Projects Coordinator Development Planning Coordinator Program Delivery Coordinator Infrastructure Planning	Where council is the coordinating road authority
ROAD MANAGEMENT ACT 2004	Schedule 7 Clause 19(2) & (3)	Power to conduct the rectification works or engage a person to conduct the rectification works and power to recover costs incurred	Chief Executive Officer Executive Director City Infrastructure Manager Civil Infrastructure Manager Capital Projects Coordinator Development Planning Coordinator Program Delivery Coordinator Infrastructure Planning	Where council is the coordinating road authority
ROAD MANAGEMENT ACT 2004	Schedule 7 Clause 20(1)	Power to require removal, relocation, replacement or upgrade of existing non-road infrastructure	Chief Executive Officer Executive Director City Infrastructure Manager Civil Infrastructure Manager Capital Projects Coordinator Development Planning Coordinator Program Delivery Coordinator Design & Services Coordinator Infrastructure Planning	Where council is the coordinating road authority
ROAD MANAGEMENT ACT 2004	Schedule 7A Clause 2	Power to cause street lights to be installed on roads	Chief Executive Officer Executive Director City Infrastructure Manager Civil Infrastructure Manager Capital Projects	Power of responsible road authority where it is the coordinating road authority or responsible road authority in respect of the road
ROAD MANAGEMENT ACT 2004	Schedule 7A Clause 3(1)(d)	Duty to pay installation and operation costs of street lighting - where road is not an arterial road	Chief Executive Officer Executive Director City Infrastructure Manager Civil Infrastructure Manager Capital Projects	Where council is the responsible road authority
ROAD MANAGEMENT ACT 2004	Schedule 7A Clause 3(1)(e)	Duty to pay installation and operation costs of street lighting ,¬ where road is a service road on an arterial road and adjacent areas	Chief Executive Officer Executive Director City Infrastructure Manager Civil Infrastructure Manager Capital Projects	Where council is the responsible road authority

Column 1		Column 2	Column 3	Column 4
Statute or Source	**Provision**	**Matter delegated**	**Delegate by Position**	**Conditions and Limitations**
ROAD MANAGEMENT ACT 2004	Schedule 7A Clause 3(1)(f)	Duty to pay installation and percentage of operation costs of street lighting ¬ for arterial roads in accordance with clauses 3(2) and 4	Chief Executive Officer Executive Director City Infrastructure Manager Civil Infrastructure Manager Capital Projects	Duty of council as responsible road authority that installed the light (re: installation costs) and where council is relevant municipal council (re: operating costs)

ROAD MANAGEMENT (GENERAL) REGULATIONS 2016

Column 1	Column 2	Column 3	Column 4
Statute or Source	**Provision**	**Matter delegated**	**Delegate by Position**	**Conditions and Limitations**
ROAD MANAGEMENT (GENERAL) REGULATIONS 2016	r 8(1)	Duty to conduct reviews of road management plan	Chief Executive Officer Executive Director City Infrastructure Manager Civil Infrastructure Manager Capital Projects Coordinator Infrastructure Planning Coordinator Program Delivery Coordinator Transport	
ROAD MANAGEMENT (GENERAL) REGULATIONS 2016	r 9(2)	Duty to produce written report of review of road management plan and make report available	Chief Executive Officer Executive Director City Infrastructure Manager Civil Infrastructure Manager Capital Projects Coordinator Infrastructure Planning Coordinator Program Delivery Coordinator Transport	
ROAD MANAGEMENT (GENERAL) REGULATIONS 2016	r 9(3)	Duty to give notice where road management review is completed and no amendments will be made (or no amendments for which notice is required)	Chief Executive Officer Executive Director City Infrastructure Manager Civil Infrastructure Manager Capital Projects Coordinator Infrastructure Planning Coordinator Transport	Where council is the coordinating road authority
ROAD MANAGEMENT (GENERAL) REGULATIONS 2016	r 10	Duty to give notice of amendment which relates to standard of construction, inspection, maintenance or repair under s 41 of the Act	Chief Executive Officer Executive Director City Infrastructure Manager Civil Infrastructure Manager Capital Projects Coordinator Infrastructure Planning Coordinator Transport	
ROAD MANAGEMENT (GENERAL) REGULATIONS 2016	r 13(1)	Duty to publish notice of amendments to road management plan	Chief Executive Officer Executive Director City Infrastructure Manager Civil Infrastructure Manager Capital Projects Coordinator Development Planning	Where council is the coordinating road authority
ROAD MANAGEMENT (GENERAL) REGULATIONS 2016	r 13(3)	Duty to record on road management plan the substance and date of effect of amendment	Chief Executive Officer Executive Director City Infrastructure Manager Civil Infrastructure Manager Capital Projects Coordinator Infrastructure Planning Coordinator Transport	

Column 1	Column 2	Column 3	Column 4
Statute or Source	**Provision**	**Matter delegated**	**Delegate by Position**	**Conditions and Limitations**
ROAD MANAGEMENT (GENERAL) REGULATIONS 2016	r 16(3)	Power to issue permit	Chief Executive Officer Executive Director City Infrastructure Manager Civil Infrastructure Manager Capital Projects Coordinator Development Planning Coordinator Infrastructure Planning Principal Infrastructure Engineer	Where council is the coordinating road authority
ROAD MANAGEMENT (GENERAL) REGULATIONS 2016	r 18(1)	Power to give written consent re damage to road	Chief Executive Officer Executive Director City Infrastructure Manager Civil Infrastructure Manager Capital Projects Coordinator Development Planning Coordinator Infrastructure Planning Principal Infrastructure Engineer	Where council is the coordinating road authority
ROAD MANAGEMENT (GENERAL) REGULATIONS 2016	r 23(2)	Power to make submission to Tribunal	Chief Executive Officer Executive Director City Infrastructure Manager Civil Infrastructure Manager Capital Projects	Where council is the coordinating road authority
ROAD MANAGEMENT (GENERAL) REGULATIONS 2016	r 23(4)	Power to charge a fee for application under s 66(1) Road Management Act	Chief Executive Officer Executive Director City Infrastructure Manager Civil Infrastructure Manager Capital Projects Coordinator Development Planning Coordinator Infrastructure Planning	Where council is the coordinating road authority
ROAD MANAGEMENT (GENERAL) REGULATIONS 2016	r 25(1)	Power to remove objects, refuse, rubbish or other material deposited or left on road	Chief Executive Officer Executive Director City Infrastructure Manager Civil Infrastructure Manager Capital Projects Coordinator Development Planning Coordinator Program Delivery Coordinator Infrastructure Planning	Where council is the coordinating road authority
ROAD MANAGEMENT (GENERAL) REGULATIONS 2016	r 25(2)	Power to sell or dispose of things removed from road or part of road (after first complying with r 25(3)	Chief Executive Officer Executive Director City Infrastructure Manager Civil Infrastructure Manager Capital Projects	Where council is the coordinating road authority
ROAD MANAGEMENT (GENERAL) REGULATIONS 2016	r 25(5)	Power to recover in the Magistrates' Court, expenses from person responsible	Chief Executive Officer Executive Director City Infrastructure Manager Civil Infrastructure Manager Capital Projects	

ROAD MANAGEMENT (WORKS AND INFRASTRUCTURE) REGULATIONS 2015

Column 1		Column 2	Column 3	Column 4
Statute or Source	**Provision**	**Matter delegated**	**Delegate by Position**	**Conditions and Limitations**
ROAD MANAGEMENT (WORKS AND INFRASTRUCTURE) REGULATIONS 2015	r 15	Power to exempt a person from requirement under clause 13(1) of Schedule 7 of the Act to give notice as to the completion of those works	Chief Executive Officer Executive Director City Infrastructure Manager Civil Infrastructure Manager Capital Projects	Where council is the coordinating road authority and where consent given under s 63(1) of the Act
ROAD MANAGEMENT (WORKS AND INFRASTRUCTURE) REGULATIONS 2015	r 22(2)	Power to waive whole or part of fee in certain circumstances	Chief Executive Officer Executive Director City Infrastructure Manager Civil Infrastructure Manager Capital Projects	Where council is the coordinating road authority

3. RECORD OF INFORMAL MEETINGS OF COUNCILLORS

Source: **Chief Executive Officer**
Acting CEO: **Kaarina Phyland**

Summary

1. The Governance Rules of the City of Greater Geelong require the tabling of records of informal meetings of Councillors at the next convenient Council meeting and that their record be included in the minutes of that Council meeting.
2. A summary of the informal meetings of Councillors is attached.

RESOLUTION - Item 3.1

Cr Mason moved, Cr Kontelj seconded -

That Council receive the summary of the informal meetings of Councillors for the period to 25 July 2023.

Carried

INFORMAL MEETINGS OF COUNCILLORS
(Council Meeting 25 July 2023)

Informal Meeting Details	Councillor Attendance/Apology	Officer Attendance	Agenda Items	Conflict of Interest Disclosures
Strategic Session **4 July 2023**	Crs Sullivan, Aitken, Cadwell, Hathway, Kontelj, Mason, Murrihy, Nelson	D Greaves (A/CEO) R Stevens (EXEC DIR) B Prosser (A/EXEC DIR) J Van Slageren (A/EXEC DIR) F Porter (MGR) S Albon (PROGRAM MGR) J Douglas (A/MGR)	• Commonwealth Games	• Nil
Councillor Briefing **11 July 2023**	Crs Aitken, Asher, Mason, Harwood, Hathway, Kontelj, Cadwell, Moloney, Murrihy, Nelson *Apology: Cr Sullivan*	K Phyland (A/CEO) R Stevens (EXEC DIR) G Smith (EXEC DIR) D Greaves (A/EXEC DIR) T Bradley (A/EXEC DIR) V Allan (Chief Legal Counsel, Governance and Risk Officer) K Pizzi (MGR) M McGorry (MGR) J Hurse (MGR) J Douglas (A/MGR) A Tong (CO ORD)	*Presentation:* • *Aged Care Reforms – Post Budget Update* • *Kerbside Transition Plan – Update* *Reports:* • Windemere Ward Councillor Sarah Hathway – Affirmation of Office • G21 and Football Victoria – Regional Football (Soccer) Strategy 2023-2033 • Upcoming International Delegate Opportunities • North Bellarine Aquatic Centre (NBAC) • Northern and Western Geelong Growth Areas – Strategic Assessment • Art and Heritage Collections Policy • Review of Council to Members of Council Staff Delegations • Planning Authorisation – Council to Staff • Audit and Risk Committee Summary Report (Confidential)	• Cr Kontelj declared a Conflict of Interest in the Northern & Western Geelong Growth Area – Strategic Assessment and left the meeting prior to discussion of the item.

4. PLANNING DELEGATIONS

Source: **Planning and Design**
Executive Director: **Gareth Smith**

Purpose

1. To provide the schedule of planning permit applications determined under delegation since the last report.

Background

2. Section 11 of the *Local Government Act 2020* 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. Section 63 of the *Local Government Act 2020* and section 188 of the *Planning and Environment Act 1987* allow Council to establish a delegated committee with the power to determine planning permit applications.

4. Council to Staff Instrument of Delegation allows staff to determine planning permit applications where there are less than 6 objections lodged.

5. The Planning Committee's terms of reference provide for determination of planning permit applications where there are 6 or more objections lodged.

6. The City is required by Council to provide information on planning permit applications determined under delegation.

Key Matters

7. The Schedule attached to this report provides information on the planning permit applications determined under delegation since the last report.

Cr Kontelj moved, Cr Moloney seconded -

That Council receive the information in the Schedule entitled Planning Decisions Report for June 2023.

Carried

Planning Decisions Report June 2023

App No	Location	Application Type	Decision Date	Description	Authority Description/ No of objectors
PP-1100-2021	8 Francis Street, BELMONT VIC 3216	Construction of Four (4) Dwellings	2/06/2023	PI - Permit Issued - VCAT	VCAT
PP-1123-2021	2/493 Hood Road, INDENTED HEAD VIC 3223	Construction of a dwelling on a lot less than 300 square metres	14/06/2023	PI - Permit Issued - VCAT	VCAT
PP-1213-2022	167-201 Lower Duneed Road, ARMSTRONG CREEK VIC 3217	Use and Development of a Telecommunication Facility; Creation of access from the Transport Zone	6/06/2023	NOD-DMC-Planning Permit	Decision Making Committee
PP-1250-2022	141 Noble Street, NEWTOWN VIC 3220	Partial Demolition with Alterations and Additions to a Dwelling Including Removal of an Outbuilding and Removal of Trees within a Heritage Overlay	13/06/2023	Grant a Planning Permit	Delegated Authority
PP-1312-2021	57 The Parade, OCEAN GROVE VIC 3226	Construction of a Three Storey Apartment Building Containing Dwellings with Basement Car Parking	9/06/2023	PI - Permit Issued - VCAT	VCAT
PP-1353-2021	179-193 Colac Road, GROVEDALE VIC 3216	Use and Development of the land for a Service Station, Convenience Restaurant, Childcare Centre and Gymnasium, Six (6) Lot Subdivision, Subdivide and create and alter access to a road in a Transport Zone 2 and Display Business Identification Signage and a reduction of car parking spaces	29/06/2023	Grant a Planning Permit	Delegated Authority
PP-1541-2021	91 Asbury Street East, OCEAN GROVE VIC 3226	Construction of Two (2) Double Storey Dwellings and Two (2) Lot Re-Subdivision (Boundary Re-alignment)	19/06/2023	PI - Permit Issued - VCAT	VCAT
PP-1546-2021	85B O'Briens Road, CORIO VIC 3214	Two (2) Lot Subdivision	26/06/2023	PI - Permit Issued - VCAT	VCAT

PP-218-2022	175 Bluff Road, ST LEONARDS VIC 3223	Construction of Two (2) Dwellings Above 7.5m in Height and Two (2) Lot Subdivision	5/06/2023	DMC Refusal	Decision Making Committee
PP-39-2022	231 Princes Highway, CORIO VIC 3214	Construction of a Second Dwelling and Two (2) Lot Subdivision	30/06/2023	DMC Refusal	Decision Making Committee
PP-678-2021	12 Donax Road, CORIO VIC 3214	Construction of Seven (7) Double Storey Dwellings	13/06/2023	Grant a Planning Permit	Delegated Authority
PP-731-2022	84 Pakington Street, GEELONG WEST VIC 3218	Use and Development of a Mixed Use Four Storey Commercial Building, including a Food and Drink Premises (Cafe), three Offices and Waiver of Car Parking Requirements	5/06/2023	Informal Refusal	Decision Making Committee
PP-746-2022	1-43 Beach Road, LARA VIC 3212	Use and Development for a Warehouse and Store, Reduction of Carparking and Removal of Native Vegetation	5/06/2023	NOD-DMC-Planning Permit	Decision Making Committee
PP-833-2017/A	37 Pioneer Road, GROVEDALE VIC 3216	Use and Development of a Child Care Centre and Creation of an Access onto a Road Zone - Category 1	5/06/2023	Informal Refusal	Decision Making Committee
PP-943-2021	1 Lonsdale Street, SOUTH GEELONG VIC 3220	Construction of Two (2) Dwellings and Two (2) Lot Subdivision and creation of a carriageway easement	23/06/2023	PI - Permit Issued - VCAT	VCAT
PP-12-2023	PARENT - 220 Heales Road, LARA VIC 3212	Use & Development for Waste Management Depot and Reduction of Car Parking	20/06/2023	NOD - Delegate	1
PP-1260-2022	62A South Valley Road, HIGHTON VIC 3216	Two Lot Subdivision	6/06/2023	NOD - Delegate	1
PP-1289-2022	21 Mundy Street, GEELONG VIC 3220	Construction of Two (2) Dwellings and Two (2) Subdivision	2/06/2023	NOD - Delegate	1
PP-1301-2022	60 Osborne Avenue, NORTH GEELONG VIC 3215	Construction of Two (2) Additional Dwellings and Three (3) Lot Subdivision	28/06/2023	NOD - Delegate	1

PP-1411-2022	41-43 Little Fyans Street, SOUTH GEELONG VIC 3220	Continuation of Use for Warehouse, Construction of Six (6) Warehouses, Three (3) Lot Subdivision, and Reduction to the Car Parking Requirement	22/06/2023	NOD - Delegate	1
PP-148-2023	201 West Fyans Street, NEWTOWN VIC 3220	Construct a Dwelling Over 7.5 Metres in height	2/06/2023	NOD - Delegate	1
PP-15-2023	10 Lucalbyn Court, WANDANA HEIGHTS VIC 3216	Construction of a Dwelling over 7.5m in height	2/06/2023	NOD - Delegate	2
PP-173-2023	9 Fairmont Road, NEWTOWN VIC 3220	Construction of a Dwelling over 7.5m in Height	28/06/2023	NOD - Delegate	4
PP-187-2023	8 Clavus Road, CORIO VIC 3214	Construction of Four (4) Dwellings	20/06/2023	NOD - Delegate	1
PP-210-2023	5 Vivian Street, BELMONT VIC 3216	Construct Two (2) Dwellings and Two (2) Lot Subdivision	14/06/2023	NOD - Delegate	1
PP-253-2023	9 Hughes Street, BELL PARK VIC 3215	Construction of Two (2) Additional Dwellings and Three (3) Lot Subdivision	23/06/2023	NOD - Delegate	1
PP-524-2022	163 Point Richards Road, PORTARLINGTON VIC 3223	Construction of a Dwelling Greater Than 7.5m in Height	2/06/2023	NOD - Delegate	3
PP-596-2022	7A George Street, BELMONT VIC 3216	Construction of Three (3) Dwellings and Three (3) Lot Subdivision	2/06/2023	NOD - Delegate	3
PP-689-2022	61 Peterho Boulevard, POINT LONSDALE VIC 3225	Construction of Two (2) Dwellings and Two (2) Lot Subdivision	9/06/2023	NOD - Delegate	2
PP-753-2022	19 Geelong Road, BARWON HEADS VIC 3227	Construction of Two (2) Dwellings and a Two (2) Lot Subdivision	1/06/2023	NOD - Delegate	2
PP-786-2022	183 Verner Street, EAST GEELONG VIC 3219	Construction of Two (2) Dwellings, Two (2) Lot Subdivision and Creation of a Carriageway Easement	13/06/2023	NOD - Delegate	2
PP-886-2022	165 Corio Street, GEELONG VIC 3220	Partial Demolition, Alterations and Additions to a Dwelling	14/06/2023	NOD - Delegate	1

5. CONFIDENTIAL

Council will close the meeting to the public in accordance with the provision of section 66(2) of the *Local Government Act 2020* to consider the following item:

5.1. Audit and Risk Committee Summary Report (Confidential)

Source:	**Strategy, Governance and Corporate**
Chief Legal Counsel, Governance & Risk Officer:	**Vesna Allan**

CONFIDENTIAL

Cr Sullivan moved, Cr Kontelj seconded -

That Council consider this report at the conclusion of the meeting as it is designated confidential by the Chief Executive Officer pursuant to sections 3(1) and 66(5) of the Local Government Act 2020, the information contained in this report is confidential because it contains Council business information being information that would prejudice the Council's position in commercial negotiations. This section is applicable because of the sensitive and varied nature of the information received and considered by the Audit & Risk Committee from time-to-time which can pertain to external stakeholders also.

Carried

CLOSE OF MEETING

Cr Asher moved, Cr Hathway seconded -

That the meeting be closed to the public.

Carried

The meeting was closed to the public at 8.46pm

Cr Mason moved, Cr Kontelj seconded -

That the meeting be re-opened to the public.

Carried

The meeting was re-opened to the public at 8.51pm

As there was no further business the meeting closed at 8.51pm on Tuesday 25 July 2023.

Signed: _____

Cr Trent Sullivan (Mayor)

Date: _____