

East Gippsland

Housing and Settlement Strategy 2022

Feedback & Analysis

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- 3.6.4 Develop and implement a Conservation Action Plan¹ for Point Fullarton Gippsland Lakes Reserve using the Adaptation Pathway Approach.
- 3.6.5 Undertake timely, data-driven planning scheme amendments to protect coastal habitat linkages, and reflect sea level rise, coastal hazard, and other relevant projections related to climate change.
- 3.6.6 Expand state and federal partnerships to facilitate strategic planning and implementation funding necessary to execute the strategies and plans to build climate resilience.
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- 3.6.9 Expand the use of VPO, SLO and ESO planning controls in all areas with significant environmental, cultural heritage and landscape values (especially in Rural Living Zones); to prevent further fragmentation of habitat, protect riparian zones, rainforests, mature trees, wetlands and all coastal and lake foreshore areas.
- 3.6.10 Assess the impact of natural hazard risks on significant environmental, cultural and landscape values using the year 2100 as the benchmark for impact analysis.

¹ DEECA (2022) *Marine & Coastal Strategy*, p.11

- 3.6.11 Adopt an adaptive management approach that incorporates all relevant scientific data, with input from traditional owners, historians, citizen scientists and experts (such as biologists, archaeologists and landscape ecologists) to ensure environmental and landscape values are protected across a variety of temporal and spatial scales.
- 3.6.12 Protect all environmental sites of regional, national and international significance, with *greater* protection measures (such as wider setbacks or buffers) afforded to the most significant sites.
- 3.6.13 Embed long-term adaptation into planning and management, and build the Council's capacity to respond to climate change impacts in a timely and cost-effective way.²
- 3.6.14 Infill developments should enhance neighbourhood character
- 3.6.15 Help ensure water authorities can fully treat additional sewage generated from housing growth to protect the water quality of our waterways, especially the Gippsland Lakes.

1.0 Introduction

The rationale underpinning the East Gippsland Housing and Settlement Strategy is commendable. There is an urgent need for strategic guidance on the location and form of future housing and settlement growth in East Gippsland to support sustainable population growth to 2041. It's important to note however, that the planning legacy and outcomes of this strategy will be felt well beyond 2041, with its impacts affecting generations to come. It's imperative we address the *long term* implications of climate change on our communities and the natural environment which sustains them.

Ecologically Sustainable Development - 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 into the future, can be increased. (National Strategy for Ecologically Sustainable Development, 1992)

The strategy set forth in the discussion paper acknowledges the need for ecologically sustainable development and responding appropriately to the enormous challenges of climate change, both of which are reflected in the state and local planning and policy framework.³ Some aspects of the draft strategy mirror to varying degrees, many of the East Gippsland Planning Scheme's clauses that support sound environmental and social policy objectives; such as promoting sustainable growth and development, protecting and conserving biodiversity, minimising the impacts of natural hazards and climate change, protecting natural resources, and facilitating housing to meet community needs.

1.1 Key points of this submission

Where the current strategy falls short is in comprehensively *integrating* these important planning policies, principles and objectives in response to climate change. The strategy does not sufficiently balance certain conflicting objectives in favour of net community benefit and sustainable development for the benefit of present and future generations. Moreover, the draft strategy lacks a comprehensive and integrated strategy to achieve *climate resilience*. Climate resilience is achieved by responding to the challenge of climate change through a combination of *adaptation and mitigation strategies*. According to NASA, "mitigation" – refers to reducing the flow of greenhouse gases into the atmosphere; while "adaptation" – means learning to live with, and adapt to, the climate change that has already been set in motion.⁴

The draft housing strategy does not adequately evaluate the Shire's climate change risks and vulnerabilities, nor develop adequate mitigation and adaptation measures to manage both the short-and long-term effects of climate change on East Gippsland's most vulnerable towns, ecosystems, cultural heritage, landscapes and communities. Comprehensive and targeted strategies and plans for adapting to the impacts of climate change on human *and* natural systems are essential to protect both lives and property, and sustain our region's rich biodiversity values. It's important that we more closely align our long-term housing and settlement plans with comprehensive climate change adaptation and mitigation strategies, especially when there is a long term risk of inter-generational liability that can and should be avoided.

2.0 Submission outline

The strategy seeks feedback on five key planning principles that will shape future housing outcomes. Disappointingly, protecting areas of high environmental value is not one of the strategy's five guiding principles. Instead, environmental protection is bundled rather awkwardly under the principle of managing development in areas prone to natural hazards to reduce risk to human life. Protecting environmental values and managing natural hazards to preserve human

³ East Gippsland Shire Council (2022) *East Gippsland: Housing and Settlement Strategy: Discussion Paper*, p.21

⁴ <https://climate.nasa.gov/faq/16/is-it-too-late-to-prevent-climate-change/>

life are two quite distinct planning objectives, that can, but not always overlap. Given the strategy emphatically declares “that accommodating growth in East Gippsland requires consideration and preservation of unique natural and cultural features, including ...environmental values”⁵, it stands to reason that protecting environmental values ought to also be a key guiding principle of the strategy and should be applicable to all town types and settlement roles.

The strategy paper's ambit claim that 83% of East Gippsland has been identified and protected as National Park, State Forest or other Crown land ignores the vast areas of state forest within General Management, and to a lesser extent, Special Management Zones. These zones permit extractive industries (such as logging and mining) which have considerable impacts on environmental, cultural heritage and landscape values. This figure also greatly overstates the area of crown land genuinely protected within the shire. Setting aside this ambit claim, the main thrust of the draft strategy is the desire to protect many of East Gippsland's inlets, lakes, rivers and sites of environmental and landscape significance primarily through the creation of more 'compact' towns (through urban infill to minimise urban sprawl, intensifying development within existing rural living zones, prioritising greenfield development closer to towns, and generally avoiding development in areas subject to environmental risk constraints (with an emphasis on bushfire, flood and steep slope erosion risks). The draft strategy discusses, rather vaguely, using a mix of rezoning and overlay controls to achieve these goals. This submission will examine the *appropriateness* and *efficacy* of the draft strategy's key principles, objectives and planning controls to achieve *climate resilience*; with a focus on coastal service towns, and Paynesville in particular.

2.1 Direct future population and housing development in accordance with the settlement roles and futures

2.1.1 Identifying areas where some change is necessary to support sustainable growth, while recognising the local character and *unique environment of different places across East Gippsland* [italicised text added].

Environmental features, such as unique habitats, landscapes, and areas rich in biodiversity are critically important aspects of the local character of many places across East Gippsland. Protecting and enhancing these environmental features and values is necessary to achieve sustainable growth.

2.1.2 Prioritising future infrastructure investment by Council and other government agencies in the regional centre of Bairnsdale

Focusing housing growth predominantly in the regional centre of Bairnsdale makes economic, social and environmental sense, and is an appropriate planning principle. Bairnsdale has a large, diverse population, employment and housing base with all essential services provided. Greater Bairnsdale faces far fewer *environmental constraints* (being an extensively modified semi-rural landscape) and is less exposed to *natural hazard risks* compared to Service Towns, Townships and Rural Towns in coastal and forested areas. The main environmental constraints for wider Bairnsdale are ensuring a large buffer is maintained around the Macleod Morass (Ramsar wetland and significant bird site) and other high biodiversity sites. Care should be taken to ensure any runoff from housing and industrial developments does not pollute the iconic Mitchell River; and other permanent and ephemeral waterways, such as creeks, intermittent streams and seasonal wetlands.

2.1.3 Acknowledging the very significant environmental constraints of coastal service towns

Service Towns however, particularly those situated along the Gippsland Lakes (Paynesville and Lakes Entrance) are less suitable locations for population growth and residential

5 East Gippsland Shire Council (2022) *East Gippsland: Housing and Settlement Strategy: Discussion Paper*, p.24

development. As recognised Key Biodiversity Areas, they present significant environmental constraints to development, such as vast Ramsar wetlands and waterways, along with migratory and non-migratory bird sites that need to be adequately buffered from housing development (refer to figures 1 and 2). In addition to these significant environmental constraints, Lakes Entrance also contains federally listed littoral rainforest; including several rainforest sites of significance, in very close proximity to the town.

Key Biodiversity Areas in and around Lakes Entrance

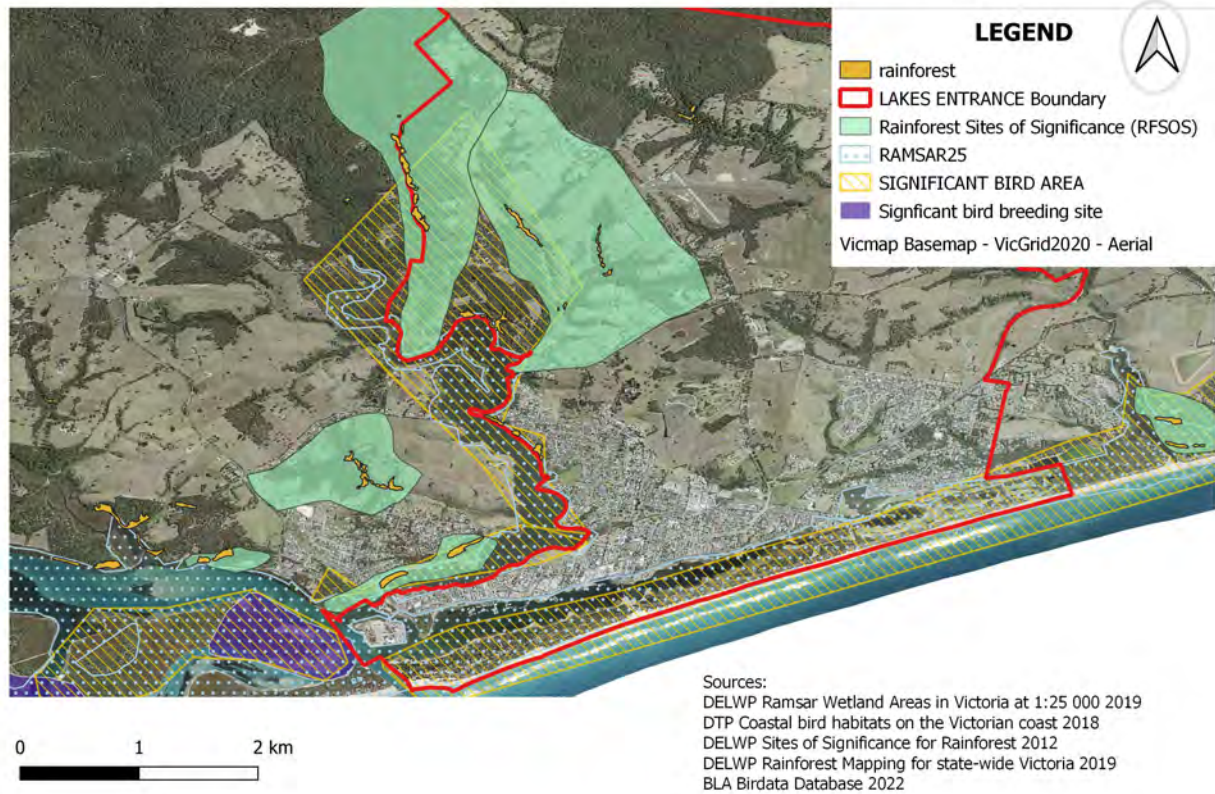


Figure 1 – Key Biodiversity Areas in and around Lakes Entrance

Key Biodiversity Areas around Paynesville

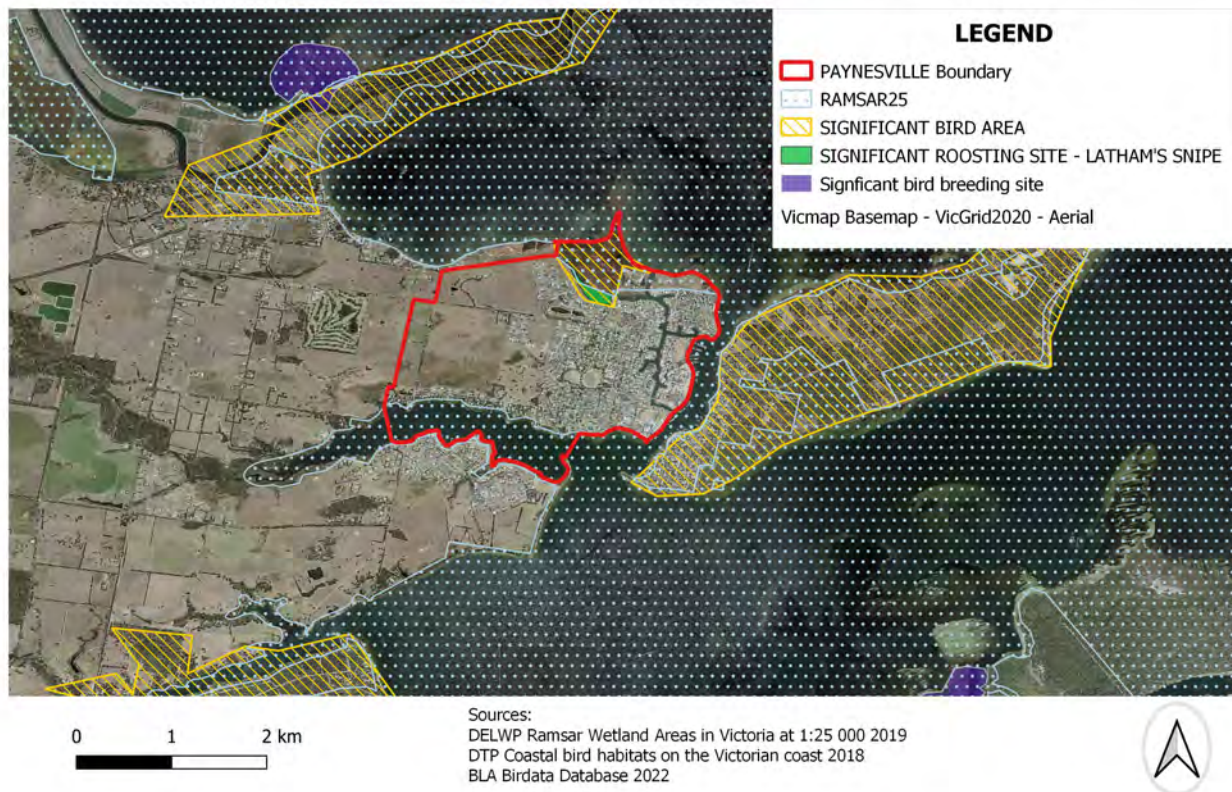


Figure 2. Key Biodiversity in and around Paynesville

2.1.4 Acknowledging the greater natural hazard risks and vulnerabilities of *coastal* service towns

All coastal towns are to varying degrees, vulnerable to coastal hazard risks; primarily sea level rise, coastal inundation, extreme natural events (storms, bushfire, tidal surge, floods, drought) and shoreline erosion and retreat. The service towns of Paynesville and Lakes Entrance both face acute coastal hazard risks that are projected to progressively worsen over time (see Figure 3 and 4). Conversely, the inland service towns of Orbost and Omeo, face fewer natural hazard risks (primarily related to bushfire and drought) and environmental constraints, than towns along the coast. The draft strategy does not acknowledge the varying degrees of natural hazard and environmental risk among service towns. Supporting greater population growth and housing development in the inland service towns of Orbost and Omeo is much more feasible, given these towns are less vulnerable to inundation and sea level rise risks compared to coastal service towns.

2.1.5 Extreme coastal hazard risks

The main roads connecting Paynesville to Bairnsdale, and Bairnsdale to Lakes Entrance, are vulnerable to flooding. Both these coastal service towns are threatened by extreme coastal inundation and loss of foreshore area due to projected sea level rise and accelerated coastal erosion and retreat. Almost the entire low-lying esplanade of Lakes Entrance is at risk of major inundation and erosion from sea level rise, storm and tidal surges. The forest-covered hills north and north east of Lakes Entrance also bring elevated fire risks during prolonged drought periods. Extreme natural events like drought, storms and bushfires will occur more frequently because of climate-change, as the strategy discussion paper itself acknowledges.⁶ In Paynesville, the unique northern wetland lake frontages of Point Fullarton and the eastern marina district, will bear the brunt of sea level rise and severe foreshore erosion. Point Fullarton's internationally significant wetlands are likely to be lost to sea level rise and coastal erosion, radically altering the landscape from a pointed peninsula to a concave bay.

2.1.6 Making climate change adaptation planning a priority in coastal towns

Given limited resources, time constraints and the elevated natural hazard risks of these coastal service towns, planners ought to prioritise working with other government bodies to develop comprehensive *climate change mitigation and adaptation strategies and plans* as a matter of urgency. It's a positive sign that planners acknowledge some of the natural hazard risks (bushfire and flooding) in the housing strategy. However, the strategy offers little detail on how these coastal service towns will respond to the full gambit of natural hazard risks and vulnerabilities (especially sea level rise, coastal erosion, and storm and tidal surges). With 2040 rapidly approaching, building up our *climate resilience* needs to be a key priority for achieving the housing strategy's sustainable development and community safety goals.

Paynesville Natural Hazard Risks 2040 to 2100

Projected impacts of Sea Level Rise (SLR) of 20cm by 2040 and 83cm by 2100 including storm & tidal surges



Figure 3 – Paynesville - Natural Hazard Risks

Lakes Entrance Natural Hazard Risks 2040 to 2100

Projected impacts of Sea Level Rise (SLR) of 20cm by 2040 and 83cm by 2100 including storm & tidal surges

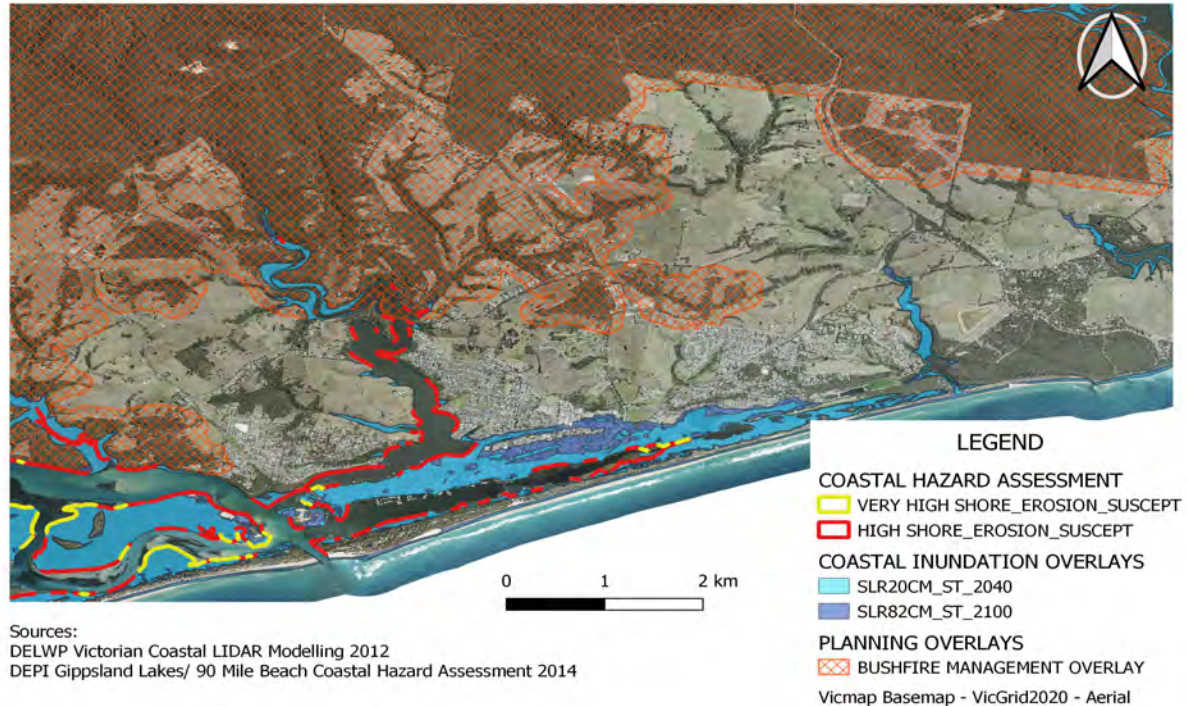


Figure 4: Lakes Entrance - Natural Hazard Risks

2.2 Support housing development that creates *sustainable* compact towns and settlements and enables the efficient use of land and infrastructure

[italicised text added].

Reducing urban sprawl through high quality infill development is an important social and environmental goal, that reduces car-dependency, encourages walking and cycling and can foster healthier, more connected communities. Compact towns alone however, are not necessarily more sustainable. If the dwellings being built on existing lots rely on mandated minimum energy ratings then they will have a relatively larger ongoing carbon footprint than more sustainable homes built to higher standards. Furthermore, compact towns that lack the capacity to fully treat sewage to minimum standards, and rely on EPA exemptions to regularly release partially treated sewage into our waterways, are clearly not sustainable.

2.2.1 Avoiding *preventable* natural hazard risks

Moreover, even the most compact towns with large numbers of diverse, energy efficient homes located in areas subject to specific natural hazard risks and/or too close to environmentally sensitive areas, are not an efficient (nor sustainable) use of land and infrastructure; and ultimately represent an inadequate response to climate change. It's imperative that the location of future dwellings are situated well away from all projected and *preventable* natural hazard risks and environmentally sensitive areas. Though we cannot prevent natural hazards occurring, we can control where development occurs to avoid locations known to be vulnerable to these natural hazard risks.

2.2.2 Buffering environmental sensitive areas

In addition, environmentally sensitive areas need to be adequately buffered from housing developments, for example along the highly vulnerable coastal foreshore of the Gippsland Lakes or in Rural Living Zones with significant remnant bushland, mature tree stands, rainforest or riparian vegetation. Many threatened species and habitats are sensitive to human disturbance, such as noise, water and light pollution, and invasive plant and animal species. Sensitive environmental areas greatly benefit from buffers that can reduce the severity and frequency of

human disturbance, which stress wildlife and can interfere with the breeding, feeding, migration or resting behaviour of threatened species.⁷

2.2.3 Infill developments should enhance neighbourhood character

As partly acknowledged in the strategy paper, planners should ensure any infill development contributes or enhances neighbourhood character and amenity⁸. Existing residents would generally appreciate infill developments that avoid overcrowding, overshadowing and/or the loss of visual and landscape amenity values. These are important elements of a neighbourhood's character, valued by many residents, and should not be treated in any assessment of statutory planning processes as “undue barriers” to infill development.

2.2.4 Taking a long term view: climate adaptation and mitigation

Taking a very long term view is crucial if the Shire is genuinely concerned about how best to respond to climate change. Guidance around preferred areas for urban infill and greenfield development in and around coastal towns like Lakes Entrance and Paynesville, needs to be mindful of avoiding areas projected to be inundated by rising sea levels well beyond the 2041 time frame of the strategy. Taking a long term view that extends beyond our lifetimes, is a critical element of climate adaptation and mitigation strategies. Given the potential risks to life and property arising from poor planning decisions which *underestimate* future climate change events; it's absolutely imperative the strategy utilises the most up-to-date, long term projected sea level rise and storm/tide overlays in determining preferred infill areas and greenfield sites.

2.2.5 The Council has a *duty of care* to future generations

The Shire has a recognised *duty of care* and obligation to future generations of residents, as the effects of planning decisions taken now will be felt well beyond the decision maker's own lifetimes. With such long time frames in mind, inter-generational equity should loom large in the minds of decision makers, with the precautionary principle used to guide decision making, especially when dealing with the complexities and uncertainties inherent to climate change adaptation and mitigation.

This notion of precaution is based upon the assumption that in certain cases, scientific certainty, to the extent that it is obtainable with regard to environmental issues, may be achieved too late to provide effective responses to environmental threats. (OECD 2002, p. 6)

The precautionary principle was conceived as a means to ensure that decision makers would take into account uncertain but potentially serious and/or irreversible threats of harm, and is directly applicable to planning for climate change mitigation and building the climate resilience of neighbourhoods, towns and regions alike.

2.2.6 Greenfield rezoning and development

The housing strategy gives emphasis on protecting the region's agricultural base from greenfield developments by preserving productive farmland and minimising urban sprawl. Though this is an important policy goal, the protection of land of *high conservation value* from greenfield development is equally important. Given that the protection of environmental values and landscape character are also significant state - local planning and policy goals that are potentially undermined by inappropriate greenfield development; they deserve greater emphasis in this section of the Shire's housing and settlement strategy. Moreover, the strategy states:

⁷ Commonwealth of Australia, 2013 *Matters of National Environmental Significance: Significant impact guidelines 1.1* EPBC Act 1999; p.12

⁸ East Gippsland Shire Council (2022) *East Gippsland: Housing and Settlement Strategy – Discussion Paper*; p.41

Potential greenfield growth should be selected based on:

- Proximity to existing settlements.
- Safety from natural hazards risk (flooding, bushfire, landslip).
- Ease of development.
- Water and sewerage servicing, and
- Potential to accommodate future growth (yield).

The above selection criteria for potential greenfield growth sites, makes no provision for the protection of environmentally significant and/or sensitive areas. Similarly, 'Table 10 – Greenfield Development Opportunities and Constraints' fails to acknowledge the environmental challenges posed by greenfield development, particularly in sensitive coastal areas.⁹ Adding “proximity from environmentally sensitive areas” to the above list of selection criteria would demonstrate the strategy is committed to sustainable development, and is in accordance with the principles and objectives of the broader policy and planning framework.

2.3 Support initiatives that deliver improved affordability, diversity, and innovation in the delivery of *sustainable* housing to provide greater choice and benefits for residents [italicised text added].

2.3.1 Affordable housing that supports *social inclusion*

Equal access to housing is an important basic human right and we commend the Shire for wanting to support initiatives that deliver improved affordability, diversity and innovation in the delivery of housing. Reducing disadvantage through the reduction of housing stress and reduced risk of homelessness fosters greater *social inclusion*, and is an excellent policy goal that benefits the most disadvantaged as well as the wider community. Numerous studies show the link between reduced social and economic disadvantage and greater community safety, improved health and educational outcomes, and enhanced economic and social benefits for the wider community.¹⁰ Similarly, the goal of improving housing diversity by creating the opportunity for people with lower income levels to live and work in the community is also commendable, as it also supports greater social inclusion.

2.3.2 Avoiding the cheap housing estate trap

Unfortunately, too many “affordable” housing estates on the fringe areas of cities and regional towns are of low quality, poorly serviced by public transport, and can serve to entrench *social exclusion*, particularly for the elderly, disabled and single occupant households. These cheap housing estates are built to the absolute minimum standards, are relatively energy inefficient and actually *less affordable* in the long term. The needs of the community are not met by isolated and cheap residential estates, where the low upfront costs of such homes are eclipsed many times over by their ongoing higher energy and transport costs. When taking into account their poor thermal comfort, proximity from services and elevated energy usage (heating/cooling/transport), such homes have a disproportionately large, and ongoing carbon footprint, and represent a poor design and development response to climate change mitigation.

2.3.3 Using local planning regulations to encourage sustainable homes and housing estates

One way in which Council can foster greater innovation, choice and benefits for residents in the delivery of *sustainable* housing, is by using local building codes and regulations to mandate homes with higher energy efficiency ratings, especially for social housing projects funded by state and federal grants. Residential buildings are responsible for around 24% of overall electricity use and 12% of total carbon emissions in Australia.¹¹ Mandating higher energy

⁹ East Gippsland Shire Council (2022) *East Gippsland: Housing and Settlement Strategy – Discussion Paper* p.42

¹⁰ Deloitte Access Economics (2019), *The economic benefits of improving social inclusion A report commissioned by SBS; VicHealth (2005) Social Inclusion as a determinant of mental health and wellbeing.*

¹¹ <https://www.energy.gov.au/government-priorities/buildings/residential-buildings>

efficiency in residential buildings and new housing estates can lower energy bills, improve occupant health and comfort levels, and reduce carbon emissions. Though such a climate change mitigation policy would initially be more costly to implement, the ongoing energy savings associated with more sustainable homes dramatically improves their affordability and over the long term. Energy efficient and compact towns are a vital component of sustainable development and climate change mitigation strategies, possess significantly smaller carbon footprints, and make a positive contribution to tackling climate change.

2.4 **Maintain and enhance the unique local character *and landscapes* of different places across East Gippsland** [italicised text added].

The housing growth strategy pays only cursory attention to the importance of neighbourhood character and to retain what is special about East Gippsland's townships by promoting new development that is high quality, offers good amenity and reflects local identity. It also strives to manage changes brought on by new housing developments to reflect community values and promote high quality design. Adopting energy efficiency provisions at the planning level as part of a climate change mitigation strategy, would go some way in enhancing the unique local character of different places across the shire. This housing strategy could also better reflect community values and promote high quality design. Designing and siting new dwellings to respect neighbourhood character is a fundamental objective of the residential development provisions of the planning scheme. The draft discussion paper defines neighbourhood character as:

the cumulative impact of every property, public place, or piece of infrastructure, whether great or small. It is important to have a reference for the feel of a place, influenced by its buildings and street networks, to ensure that new development in East Gippsland feels like it belongs, reflecting local values and features.¹²

This standard definition is predominantly focused on the the pattern of development of the neighbourhood, the built form, scale and character of surrounding development, architectural styles, and finally, any other notable features or characteristics of the neighbourhood. Describing neighbourhood character is an inherently qualitative procedure involving the exercise of judgement about which features and characteristics determine the neighbourhood character of an area. For many local residents living along the Gippsland coast or in the forested hinterland, it's the notable *landscape features* like our waterways, farmland and native vegetation that set our neighbourhoods apart from the more urban towns and cities dominated by the built form. For this reason, we propose the addition of "and landscapes" to the principle of maintaining and enhancing the unique local character of different places across East Gippsland. Again, this more clearly supports the principles of sustainable development, by explicitly promoting the maintenance and enhancement of both the built and natural forms and features that make many of our neighbourhood's so unique.

2.5 **Manage development in areas prone to natural hazards to reduce the risk to human life *and the environment*** [italicised text added].

The above principle, if integrated carefully and judiciously at the strategic level of the planning process, can be a critical and cost effective way for the Shire to respond to climate change. However, as mentioned earlier, this principle first needs to acknowledge the risk of natural hazards to the natural and built environment *equally*. We propose the addition of "and the environment" to the original statement, to make it better reflect the "sustainable development" goals of the council and the broader policy and planning framework. This is achieved in the subsequent discussion points of principle five of the strategy (p.44) which does make the very important distinction between environmental values and natural hazards, and is the only instance where 'sea level rise' is ever mentioned in the entire discussion paper (reproduced below):

Avoid locating new housing in areas with high environmental values or subject to

¹² East Gippsland Shire Council (2022) *East Gippsland: Housing and Settlement Strategy: Discussion Paper*, p.28

natural hazard risks. This acknowledges;

- The natural environment underpins the East Gippsland economy and requires protection.
- As our climate continues to change, natural hazards are likely to become more severe.
- Increased natural hazards, such as bushfire, flooding and **sea level rise** will restrict our ability to live in some areas of East Gippsland.¹³

The following case study of Paynesville, will serve to illustrate in a practical sense, how the strategy can guide future housing growth and development that builds *climate resilience*, whilst balancing and integrating important economic, social and environmental goals.

3.0 The Paynesville housing & settlement strategy casestudy



Figure 5: The Paynesville Structure Plan

3.1 Overview of study area

Council’s strategic directions for Paynesville (a designated growth area town), informed by clause 11 of the East Gippsland Planning Scheme and the Paynesville Structure Plan, seek to encourage population growth and development on fully serviced residential land, expanding the town westward onto farmland between Waratah Avenue and Grandview Road (see figure 5). The plan also encourages the land adjoining the coast north-west of Paynesville, to be

13 East Gippsland Shire Council (2022) *East Gippsland: Housing and Settlement Strategy: Discussion Paper*, p.45-46

developed for resort development or for urban/residential use. The northern coastal foreshore area of the Paynesville settlement boundary, is comprised of low lying wetlands, much of it protected by the Point Fullarton Gippsland Lakes Reserve, an internationally significant Ramsar wetland and migratory bird area. The land abutting the southern boundary of this reserve was zoned General Residential in 1982, and is currently designated for residential supply in the Paynesville Framework Plan. This prospective broad hectare and major infill site is currently subject to its third planning application attempt with the Shire, for a proposed 59 lot housing estate development. Previous planning applications for this site were rejected by VCAT in 2011 and 2014, citing impacts to visual amenity, landscape and the Ramsar wetlands.

3.2 Environmental, cultural heritage and landscape values

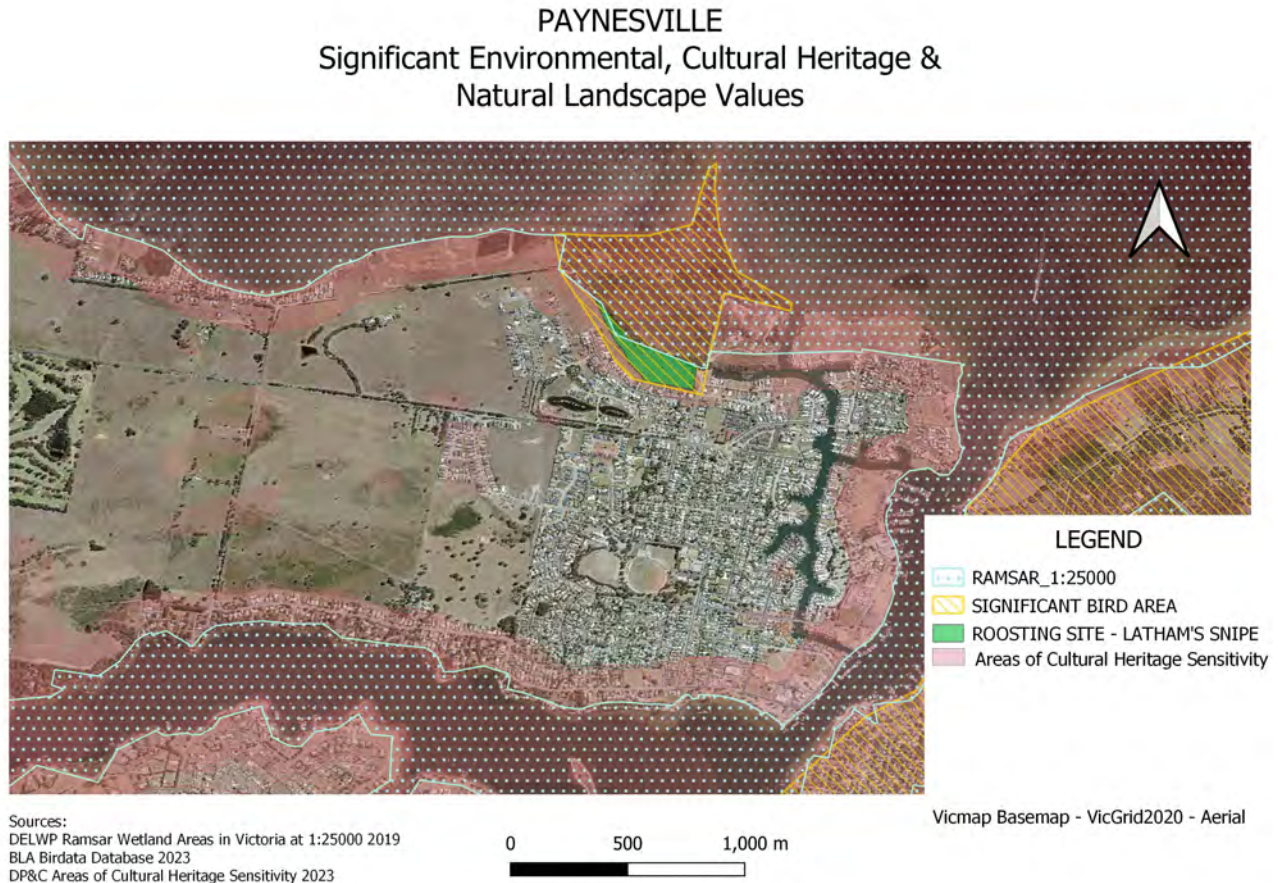


Figure 6: Map of Paynesville's significant environmental, cultural heritage and natural landscape values

3.2.1 Paynesville's significant environmental values

3.2.1.1 Ramsar wetlands

Paynesville possesses several outstanding and interrelated environmental values, centred around the Ramsar-listed Point Fullarton Gippsland Lakes Reserve. The Gippsland Lakes Ramsar site is one of 64 wetland areas in Australia that is listed as a Wetland of International Importance under the Convention on Wetlands of International Importance especially as Waterfowl Habitat or, as it is more commonly referred to, the Ramsar Convention. The site is now seen as meeting six out of the nine Nomination Criteria recognising; its representative wetland habitats at a bioregional level, vulnerable wetland species, support for key ecological life-cycle functions such as waterbird breeding, its importance for supporting waterbird abundance and diversity and its fish nursery and spawning habitats. Though the entire eastern section of Ramsar wetlands have largely been destroyed by previous residential canal development, more than half of the

remaining wetlands appear relatively uncompromised. The more intact sections of the Ramsar site protect a predominantly saltmarsh wetland ecosystem of international significance, which hosts several endangered, rare and/or threatened species.

3.2.1.2 Important Bird Area (IBA)

Over 110 bird species have been recorded in and around the reserve by BirdLife Australia; including the endangered Gang Gang Cockatoo, the vulnerable White-throated Needletail and nationally significant numbers of the near-threatened Latham's Snipe.¹⁴ The Ramsar wetlands and adjacent fields are also an important migratory bird area under the JAMBA treaty. According to the Commonwealth's Wildlife Conservation Plan for Migratory Shorebirds, roosting sites with more than 18 Latham's Snipe (shown in green on map – figure 6) can be considered internationally important.¹⁵ Unlike the Ramsar reserve, this nationally significant roosting site is currently not protected by any planning controls and is subject to a planning application for a multi-lot housing development.

3.2.2 Paynesville's significant natural landscape & cultural heritage values

3.2.2.1 Paynesville's southern lake foreshore

The Gippsland Lakes are a highly significant Aboriginal cultural landscape. Evidence of traditional Indigenous occupation of this unique system of waterways is commonplace and is found in the form of shell middens, flaked stone artefacts, scarred trees and other traditionally significant sites and places. Though extensively modified by farmland and urban development, the Paynesville peninsula still contains several significant natural landscapes of note; all situated along the town's lake foreshore area. The remnant bushland hugging the foreshore just south of Newlands Drive offers a glimpse of the peninsula's previously extensive coastal woodlands. This foreshore landscape and walking track is protected by the current planning scheme as a very narrow Public Park and Recreation Zone, and is noteworthy as a significant semi-natural or modified coastal landscape, with its foreshore forming part of the wider Gippsland Lakes Ramsar site. The long narrow bay that emerges from the mouth of Forge Creek, between Newlands Arm and Paynesville, is an intrinsically significant natural and cultural heritage landscape, as well as a very popular boating area. Though lying outside the Paynesville boundary, the estuarine habitat at the mouth of Forge Creek meanders inland to form another important natural riparian landscape of significant environmental and cultural heritage value. Neither the coastal estuary or riparian habitat along Forge Creek is currently recognised as significant by the planning scheme.

3.2.2.2 Point Fullarton

The most significant, extensive, and ecologically complex natural and cultural heritage landscape in Paynesville is the Point Fullarton Ramsar wetlands. Comprised of predominantly saltmarsh wetlands on vast mud flats, the site also includes remnant patches of Plains Grassy woodlands, and estuarine scrub vegetation along its southern boundary. The crown land of Point Fullarton is by far the single largest tract of natural vegetation left in Paynesville, most of which is protected by the Point Fullarton Gippsland Lakes Reserve. The reserve also provides public access to the Lake King foreshore area along the popular Eagle Point – Paynesville walking track.

3.2.2.3 Wetlands - nature's shock absorbers

Perhaps the least understood but especially significant landscape value of Point Fullarton's world renowned wetlands, is their ability to protect the lake foreshore from natural coastal hazards and extreme weather events like storms and tidal inundation. Coastal wetlands, such as mangroves, saltmarshes, and seagrass beds act like *shock absorbers*. They reduce the intensity of waves and storm surges, shielding the coastline

¹⁴ BirdLife Australia (2023) *Birddata database*

¹⁵ Commonwealth of Australia (2015) *Wildlife Conservation Plan for Migratory Shorebirds*,; p.13

from flooding, property damage and loss of life. Waves and storm surges lose energy as they enter these areas, resulting in reduced damage to coastal settlements.¹⁶ The roots of wetland plants also stabilise shorelines and help reduce coastal erosion and foreshore retreat. This popular area, also provides Paynesville's residents and visitors alike, the opportunity to engage in nature-based recreational activities.

3.3 Natural hazard risks on environmental, cultural heritage and landscape values

The housing strategy broadly acknowledges climate change is likely to pose a significant threat to the health, wellbeing, and liveability of East Gippsland's natural environment, people and communities.¹⁷ However, the strategy paper offers little detail on how the impacts of climate change will affect environmental, cultural heritage and landscape values. Instead, Figure 16 of the strategy, identifies three main environmental constraints to development; bushfire risk, inundation risk and steep slopes. Only the first two of these natural hazards (bushfire and inundation risk) relate to climate change. Steep slopes do pose major erosion risks, but these topographic features are inherently geomorphological in nature and cannot be attributed to the changing climate. Coastal erosion however is a climate related natural hazard risk, which is completely overlooked by the draft strategy paper. Excluding shoreline erosion is somewhat incongruent, given that the vast majority of housing development occurs close to coastal areas, well away from the steep slopes of the high country.

This section of the case study will examine each of the five major climate change-related natural hazard risks: bushfires, flooding, sea level rise, coastal inundation and erosion; and assess their impacts on Paynesville's significant environmental, cultural heritage and natural landscape values.

3.3.1 Bushfire risks

Due to a lack of tree cover, Paynesville's environmental, cultural heritage and natural landscape values face minimal bushfire risks. These values do however face some level of risk from grass fires due to the substantial farmland and grasslands in close proximity to residential areas. Interestingly, the saltmarsh wetlands of Point Fullarton Reserve pose little fire risk, as wetland ecosystems are landforms that are inherently non-flammable. In a world facing more frequent and intense extreme natural events (fires, floods, storms etc), such landforms and vegetation enhance community safety.

3.3.2 Flooding risks

When applying the 'Land Subject to Inundation' (LSIO) layer over Paynesville, it becomes very clear just how exposed the low-lying parts of Paynesville are to flooding. Setting aside momentarily the considerable risks to life and property posed by more frequent and intense flooding, many of Paynesville's significant environmental, cultural heritage and landscape values are also threatened by more regular and persistent flooding (refer to Figure 7). Almost all the terrestrial Ramsar area is at risk, particularly at Point Fullarton, which will be almost completely inundated by heavy flooding. Prolonged and regular flood events can alter the hydrology and salinity throughout a wetland estuary as freshwater inflows influence the tidal processes and geomorphology. This in turn can impact the wetland ecology through altered water quality (nutrient delivery and sediments) and changes to the frequency and magnitude of freshwater flows.¹⁸ Paynesville's culturally sensitive landscapes are also facing elevated risks of inundation, potentially disturbing and/or destroying significant cultural heritage sites. Similarly, almost all the natural features reserves around Paynesville's shoreline risk being inundated more regularly. As the strategy paper acknowledges, flooding is expected to

16 <https://www.dcceew.gov.au/water/wetlands/climate-change-resources>

17 East Gippsland Shire Council (2022) *East Gippsland: Housing and Settlement Strategy: Discussion Paper*, p.24

18 Glamore, W. C., D. S. Rayner, and P. F. Rahman, 2016: *Estuaries and climate change. Technical Monograph prepared for the National Climate Change Adaptation Research Facility. Water Research Laboratory of the School of Civil and Environmental Engineering, UNSW. p.12*

become more frequent and severe from climate change-induced extreme weather events. It's important to note however, that the LSIO layer greatly *underestimates* future inundation risks, for it does not show the impact of coastal inundation due to sea level rise, storm and tidal surges. It's vital that Council use all available inundation layers when assessing inundation risks given how increasingly out-dated the LSIO layer will become as climate change accelerates over time.

PAYNESVILLE
SIGNIFICANT VALUES SUBJECT TO INUNDATION RISKS

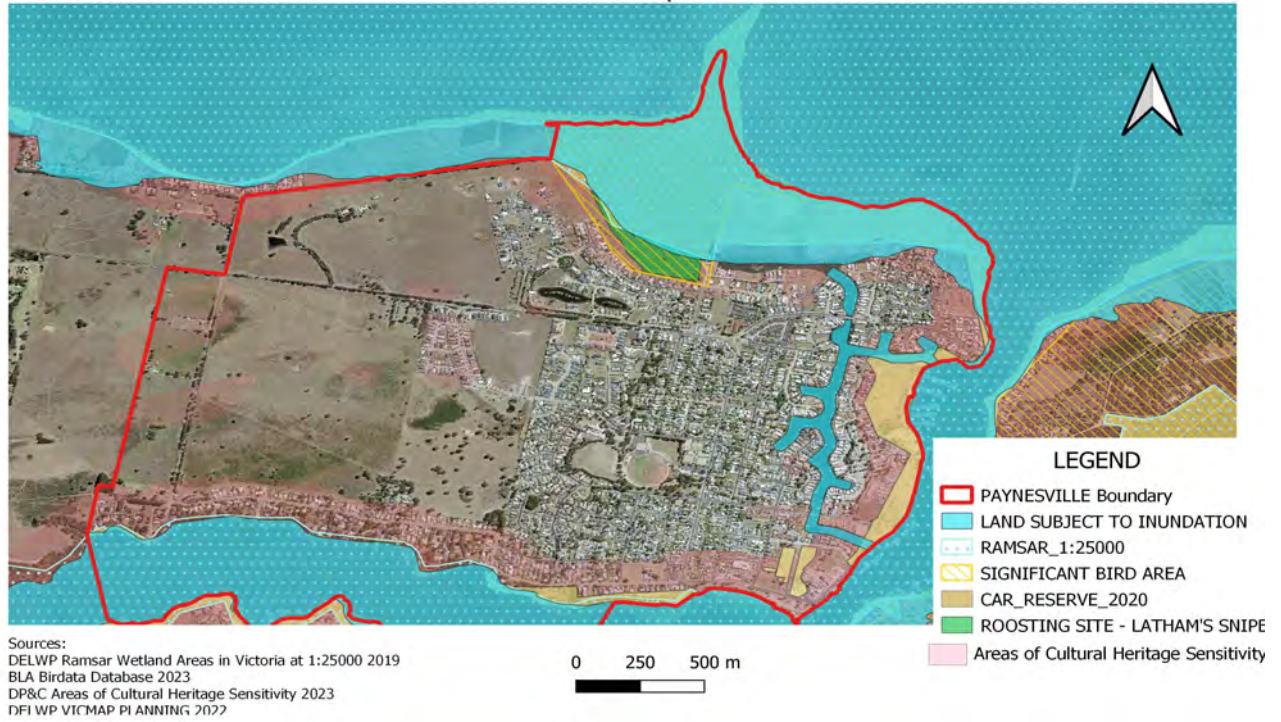


Figure 7: Significant values at risk from flooding in Paynesville

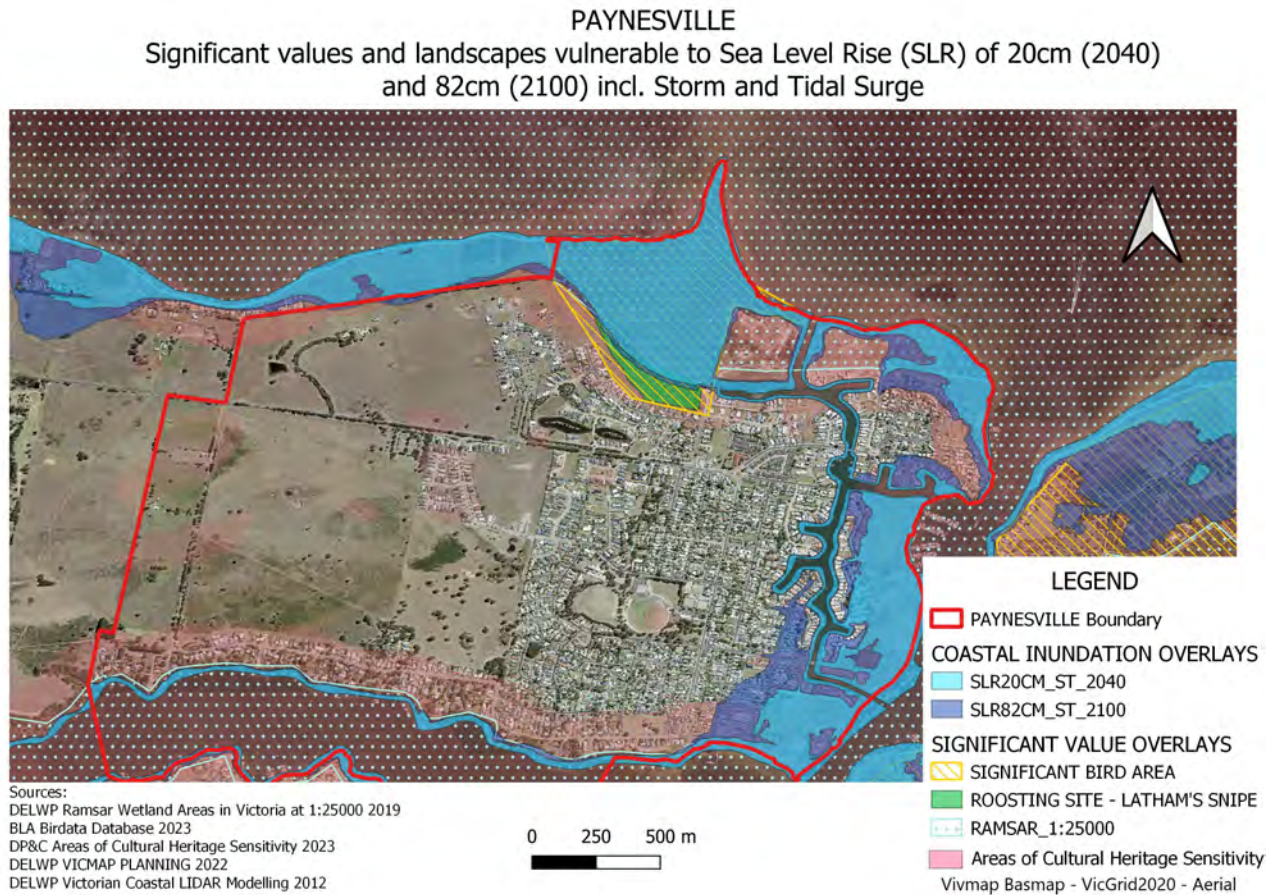


Figure 8: Significant values at risk from Sea Level Rise (SLR) and Storm / Tide Surge in Paynesville

3.3.3 Sea level rise risks

The impacts of climate change are complex, difficult to predict, yet too far-reaching to ignore. It is now widely accepted that sea-level rise will be one of the major effects of climate change, and arguably, sea level rise represents the single greatest natural hazard risk for Paynesville. Rising sea levels will make many areas of Paynesville vulnerable to *permanent* flooding. Unlike flooding from extreme weather events, where water levels eventually subside, permanent sea level rise represents an *existential threat* to many of the town's residential and commercial properties, key coastal infrastructure and significant environmental and culturally sensitive landscapes. The areas expected to be most impacted by sea level rise are the low-laying wetlands of Point Fullarton, and the east and south easterly marina, commercial and residential districts of Paynesville (refer to figures 9 & 10).

Point Fullarton Coastal Indundation Map

Showing impacts of 20cm Sea Level Rise (2040) and 82cm Sea Level Rise (2100) incl. Storm & Tidal Surge

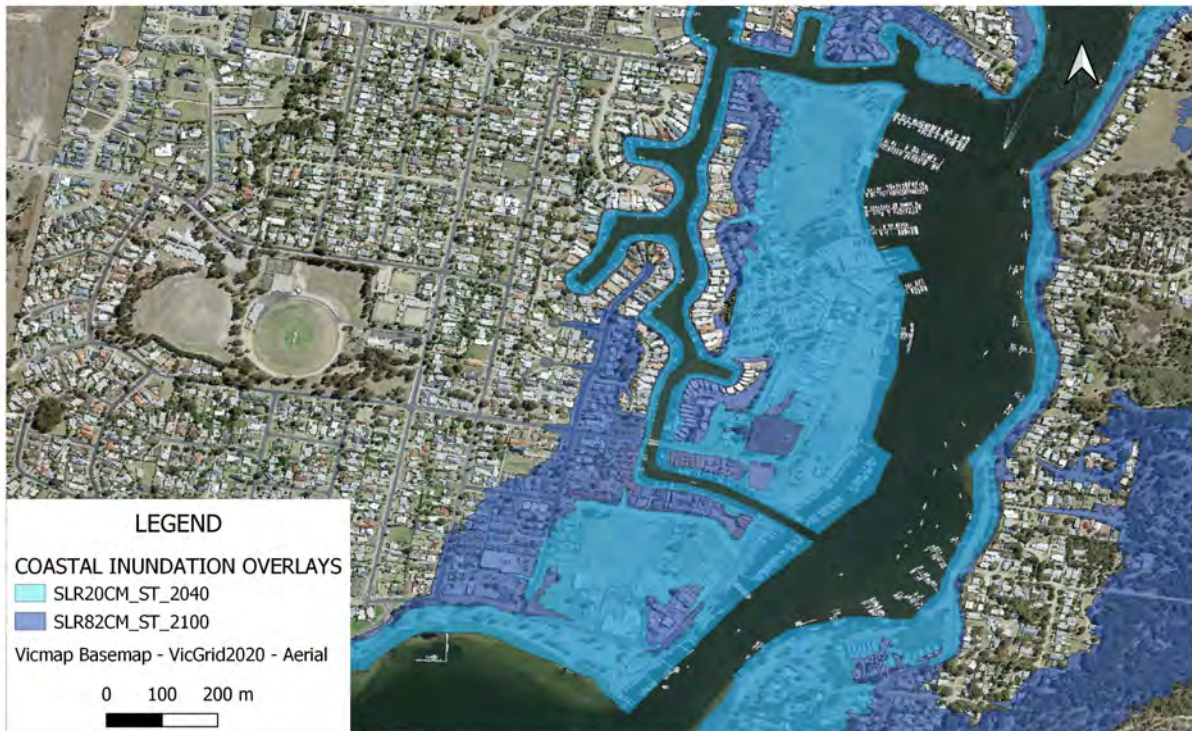


Source: DELWP Victorian Coastal LIDAR Modelling 2012

Figure 9: Coastal inundation from Sea Level Rise of 20cm (2040) & 82cm (2100) incl. Storm and Tide Surge

Paynesville Coastal Indundation Map

Showing impacts of 20cm Sea Level Rise (2040) and 82cm Sea Level Rise (2100) incl. Storm & Tidal Surge



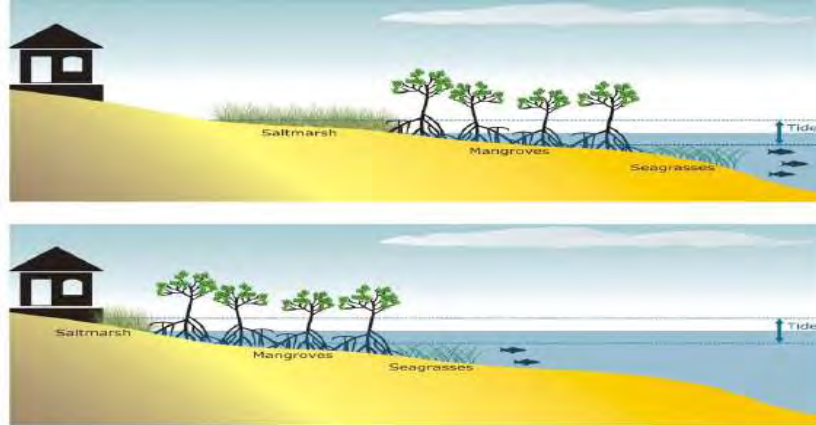
Source: DELWP Victorian Coastal LIDAR Modelling 2012

Figure 10: Coastal inundation from Sea Level Rise of 20cm (2040) & 82cm (2100) incl. Storm and Tide Surge

3.3.3.1 Point Fullarton wetlands and adjacent migratory bird areas

The direct impacts of sea level rise on Point Fullarton's landscape of extensive mudflats and saltmarsh wetlands are compound, and include;

- a) Inundation of intertidal habitats (like saltmarsh) potentially leading to coastal squeeze (see Figure 11 below).



Source: UNSW (2016) Estuaries and Climate Change¹⁹

Figure 11: Coastal squeeze of saltmarsh habitat due to sea level rise.

- b) Changes to connectivity of intertidal areas
 c) Altered heat exposure regimes
 d) Changes in light penetration
 e) Altered scour and mobilisation of bed sediments
 f) Changes to temperature and salinity stratification of enclosed waters
 g) Impacts on benthic ecology
 h) Impacts on fish habitat
 i) Impacts on primary production (at the base of the food web)
 j) Changes to processes influencing bivalves and filter feeders (e.g. oysters)
 k) Potential shifts in salinity gradients and freshwater tidal pools

According to DELWP's Coastal Climate Change Risk Assessment (2015) the East Gippsland Lakes area was assessed as HIGH RISK of loss of terrestrial Crown land;

Crown land along the coast would be **permanently inundated** due to sea level rise, or **lost via erosion and storm surge**. Public land foreshores provide important habitat for coastal flora and fauna, and loss of this land could lead to a squeeze and eventual loss of rare and endangered coastal habitats. The foreshore also provides significant open space for local communities and is the natural buffer that allows coastal processes to occur without impacting on private land. Less foreshore means less access to the coast and subsequent social and health impacts to communities.²⁰

The DELWP Coastal Climate Change Risk Assessments (2015) go on to explain that;

The consequences of this risk on Ramsar wetlands includes: loss of foreshore reserves, loss of public access to the coast, subsequent privatisation of the terrestrial coastal land, changes to the biodiversity of the Gippsland Lakes leading to loss of importance ratings associated with Ramsar and Heritage listings, damage to and eventual

¹⁹ Glamore, W. C., D. S. Rayner, and P. F. Rahman, 2016: *Estuaries and climate change*. Technical Monograph prepared for the National Climate Change Adaptation Research Facility. Water Research Laboratory of the School of Civil and Environmental Engineering, UNSW. p.19

²⁰ DELWP (2015) *Coastal Climate Change Risk Assessments – Volume 1* p.5

loss of protective and maritime infrastructure leading to loss of tourism particularly regarding water-based activities.²¹

3.3.3.2 'Coastal squeeze'

Existing DELWP data shows the land currently earmarked for residential supply in the Paynesville Framework Plan will be at risk of losing most, if not all, of the protective Ramsar wetlands to coastal inundation by 2040 (see figure 9). This outcome is at odds with Coastal Action Plan for Gippsland, which directs local government to “*retain and where possible enhance coastal and foreshore native vegetation as part of coastal development proposals*”.²² As sea level rise accelerates and land development intensifies along coastlines, tidal wetlands will become increasingly threatened by **coastal squeeze**. Barriers such as swales and retention dams that reduce tidal flows, and impermeable surfaces such as roads and housing lots, prevent wetland migration to adjacent uplands. As vegetation succumbs to submergence by rising sea levels on the seaward edge of a wetland, those wetlands prevented from inland migration will decrease in area, if not disappear completely.

3.3.3.3 Wetland migration

Coastal areas are unstable landforms, meaning, for example, the position of a wetland may change dramatically due to vegetation loss in a storm or a rise in sea level. To enable coastal species to survive these changes the coastline needs to be able to 'move' e.g. species need to be able to move inland during severe erosion or inundation events.²³ Maintaining wetland networks and corridors will help wetland-dependent plants and animals to adapt by moving to new areas in response to changing climatic conditions and avoid being impacted by coastal squeeze. It is imperative that the Shire protect and enhance the overall extent and condition of valuable wetland habitats, and maintain species diversity distributions across public and private land in the marine and coastal environment as part of their strategic response to climate change and coastal squeeze. Fortunately, of all wetland types, coastal wetlands (whose primary water source is the sea) have the greatest opportunity to adapt to climate change through migration.²⁴ Coastal wetlands will be lost through inundation, but where opportunities for landward migration exist (as is the case at Point Fullarton), wetlands will re-establish at a new elevation relative to the new sea level.

3.3.3.4 Adaptation planning for significant threatened sites

When referring to the DELWP projected sea level rise and storm/tidal surge overlays, it's immediately apparent the entire Point Fullarton Ramsar reserve is under threat from climate change induced sea level rise from as early as 2040 (refer to figure 9). According to the Australian Ramsar Administrative Authority, appropriate adaptation planning for Ramsar wetlands is vital to maintain the ecological character of a listed site. The shire's draft housing strategy currently has no adaptation plan to protect Point Fullarton's Ramsar wetlands from coastal squeeze. Much of the low lying land currently earmarked for residential supply in the Paynesville Framework Plan (adjacent to Point Fullarton) is critical for the protection of the ecological character of the Ramsar wetlands, and the nationally significant Latham's Snipe roosting site nearby. Without an adaptation plan to enable the migration of the Ramsar wetlands to more elevated land, the internationally significant wetlands and migratory bird roosting habitat of Point Fullarton are unlikely to survive coastal squeeze from inappropriate housing developments; and the related coastal hazard risks of the area. Moreover, protecting and enhancing the Ramsar wetlands, and promoting their resilience to climate change, are both important objectives of the Marine and Coastal Act 2018, and should be

21 DELWP (2015), *Coastal Climate Change Risk Assessments – Volume 1* (2015) p.39

22 Gippsland Coastal Board (2002) *Integrated coastal planning for Gippsland : coastal action plan*. p. 24

23 EGCMA, *Draft East Gippsland Regional Catchment Strategy 2021-2027*, Climate Change; p.93,

24 Department of Sustainability and Environment (2013). *Indicative Assessment of Climate Change Vulnerability for Wetlands in Victoria*. p.6

reflected in the housing strategy.²⁵

3.3.4 Coastal erosion risks

The muddy intertidal flats of the Point Fullarton wetlands are extremely erodible, with the Department of Environment Primary Industries assigning them the maximum Erosion Susceptibility Score of 5.²⁶ These highly erodible soils serve to further compound the climate change risks to the wetlands, with the Point Fullarton's shoreline scoring a **Very High Shoreline Erosion Susceptibility** rating, the highest possible.²⁷ As the existing mudflats gradually erode and disappear under the sea, any development infrastructure (such as swales and retention dams) will reduce tidal flows, and impede future wetland migration to adjacent higher ground. As vegetation succumbs to submergence by rising sea levels on the seaward edge of the wetlands, the foreshore wetlands prevented from inland migration will decrease in area, if not disappear completely, possibly as early as 2040. Given that the more elevated eastern portion of the site has already been compromised by acidic soils dumped during the construction of the nearby canals, only a slither of land suitable for wetland recolonisation or migration remains *within* the existing Ramsar reserve boundaries. The best wetland migration pathway will therefore be to retreat south of the Ramsar site, onto private land currently proposed for housing development.

3.4 Paynesville planning controls

Paynesville Planning Zones

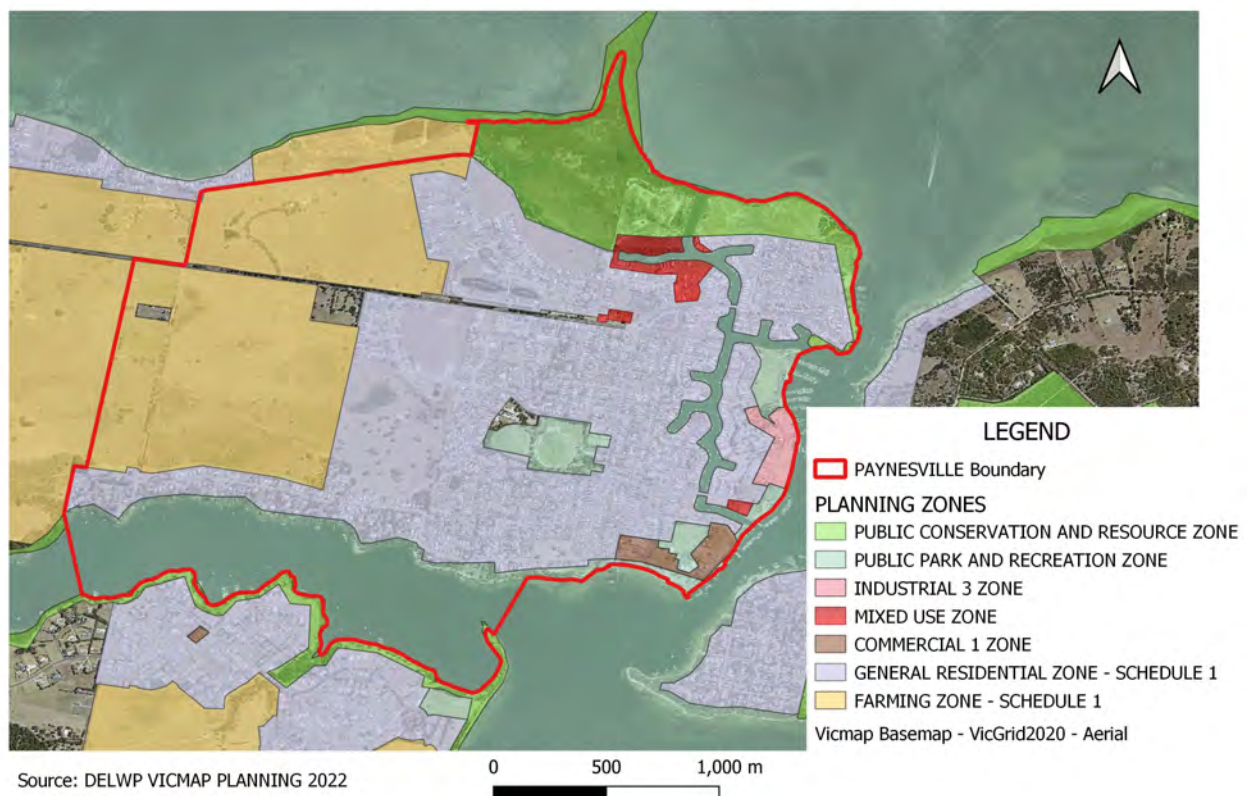


Figure 12: Paynesville's Planning Zones

25 DELWP (2018) *Marine & Coastal Policy 2020*, p.20

26 DEPI (2014) *Gippsland Lakes/90 Mile Beach Coastal Hazard Assessment Project – Lake Shoreline* p.21

27 DEPI (2014) *Gippsland Lakes/90 Mile Beach Coastal Hazard Assessment Project – Summary* p.29

3.4.1 Relevant planning zones

By area, Paynesville's predominant zoning is; General Residential- Schedule 1 (GRZ1), Farming- Schedule 1 (FZ1), Public Conservation & Resource Zone (PCRZ), with a small areas zoned for Industrial (IN3Z), Commercial (C1Z), and Mixed Use (MUZ) either adjacent to the lake foreshore area or along the artificial canals. In addition, the entire lake surrounding Paynesville and a few small parks along the foreshore (and one sports field further inland) are zoned as Public Park & Recreation Zone (PPRZ).

The General Residential Zone -Schedule 1 (**GRZ1**) is normally applied in new or established residential areas where there are *minimal constraints* to residential development. GRZ1 areas are generally most suitable to infill and greenfield development. However, this is not an appropriate zoning for land that is subject to major Natural Hazard Risks; contains recognised cultural heritage and natural landscape values; is environmentally significant, and/or in an environmentally sensitive area. Any proposed rezoning of farmland as part of the Paynesville Structure Plan needs to ensure the protection of all significant values from development and natural hazard risks; and maintain public access to the foreshore, preferably via substantial Public Conservation & Resource Zones, and/or Public Parks & Recreation Zones. It's important the housing strategy considers the potential shape and extent of Paynesville's foreshore in 2100 and beyond, or risk the inadvertent privatisation of future foreshore areas.

3.4.2 Impact of sea level rise on Paynesville's planning zones

The impact of an 82cm sea level rise on Paynesville's entire Industrial, Commercial, Public Conservation, and the foreshore Public Parks & Recreational Zones will be severe. Similarly, much of the eastern General Residential Zoned land and some Mixed Use zoned land will be significantly impacted by coastal inundation. This potential coastal inundation scenario needs to frame the housing strategy, as inundated zones are not suitable locations for expanding residential infill nor greenfield development. Furthermore, consideration needs to be given to creating new General Residential, Industrial, Commercial, Public Conservation & Resource, Multiple Use, and Public Park & Recreation Zones that are less likely to be threatened by permanent inundation from sea level rise.

Impact of 82cm Sea Leve Rise (SLR) incl. Storm / Tide Surge on
Paynesville Planning Zones

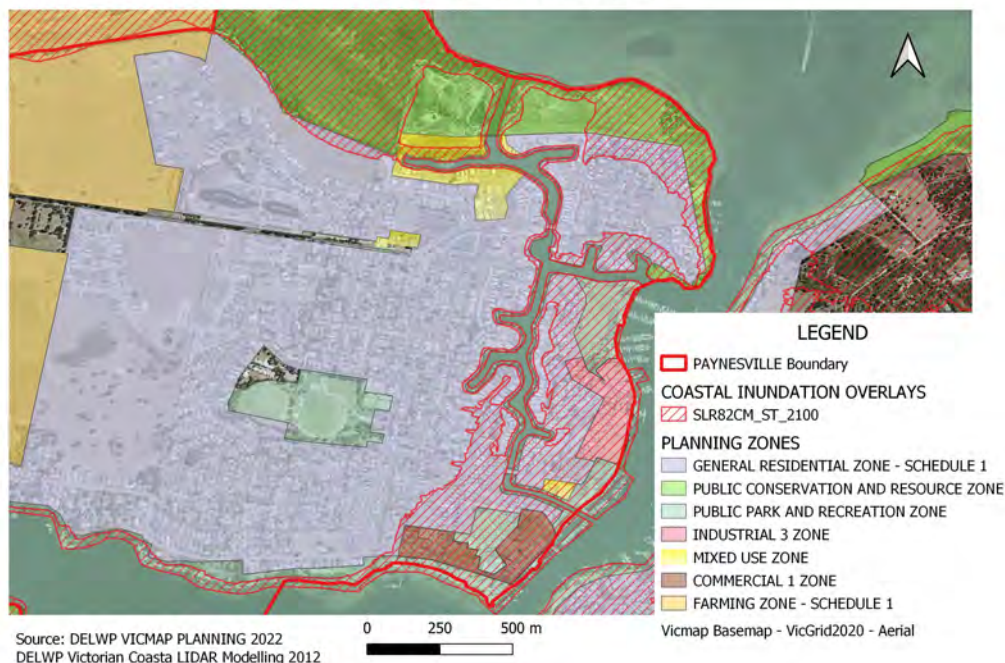


Figure 13: Impact of sea level rise on Paynesville's planning zones

Paynesville Planning Overlays

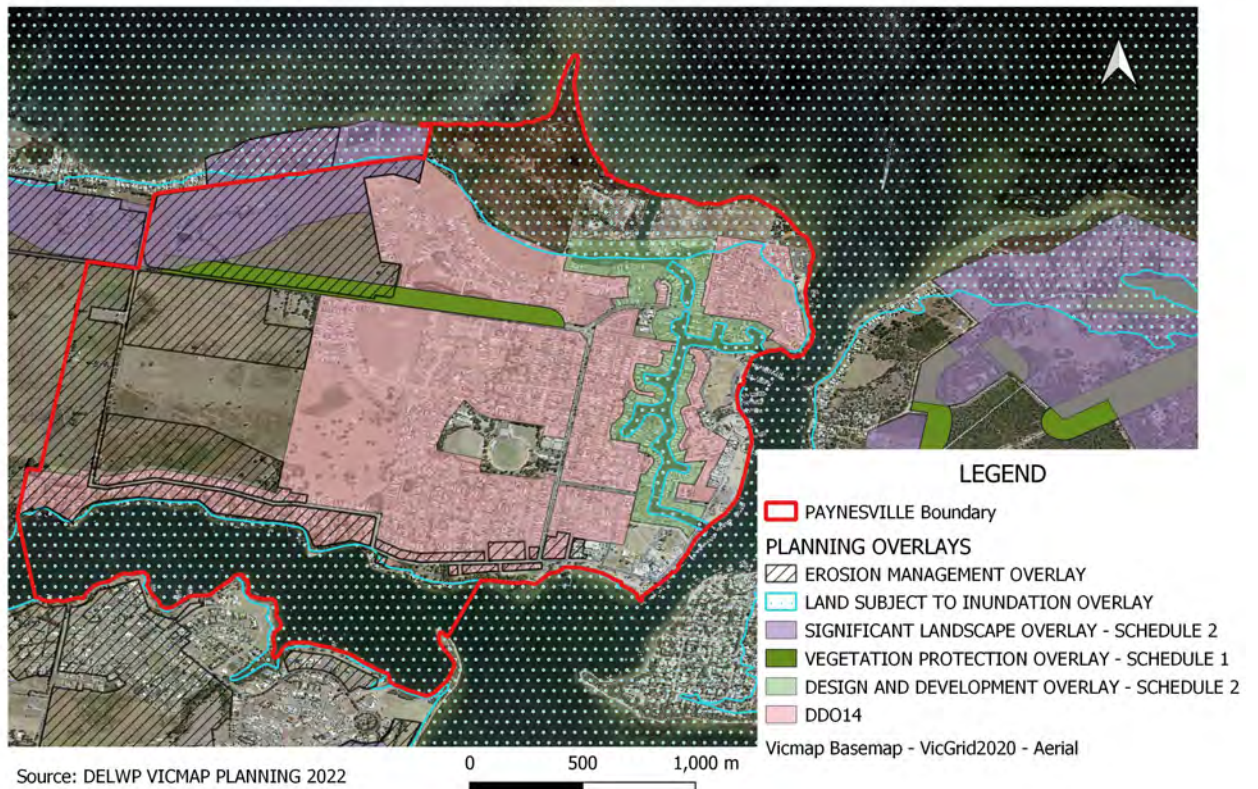


Figure 14: Paynesville Planning overlays

3.4.3 Relevant planning overlays

The dominant overlays (by area coverage) in Paynesville are:

1. Design & Development Overlay – Schedule 14 (DDO14),
2. Erosion Management Overlay (EMO),
3. Land Subject to Inundation Overlay (LSIO),
4. Significant Landscape Overlay – Schedule 2 (SLO2),
5. Design & Development Overlay – Schedule 2 (DDO2),
6. Vegetation Protection Overlay – Schedule 1 (VPO1).

There are *no* **Environmental Significance Overlays** (ESO) inside the Paynesville district boundary, despite formal surveys identifying roosting habitat of national importance for Latham's Snipe inside the GRZ1, situated just below the Point Fullarton Ramsar reserve.

The **DDO14** has substantive design objectives and guidelines. The design objectives generally relate to *visual impacts* on the town character, neighbourhood setting, and the natural landscape. Other objectives aim to protect trees and the vegetated character of the landscape, particularly where it is a dominant visual and environmental feature, and to ensure public access to foreshore areas. Relevant design guidelines include the impact of any new development on adjoining public land, the landscape setting, and are in accordance with those of the Victorian Coastal Council or Gippsland Coastal Board.

The **SLO2** acknowledges the Gippsland Lakes are of state significance as a unique estuarine environment, and a landscape which containing some of the most significant and well known environmental and recreational areas in Victoria. Significantly, the Significant Landscape Overlay -Schedule 2 also cites the Ramsar Convention, which notes this landscape as a wetland system of international significance, and there are a diverse array of flora and fauna, including many endangered species in the region.²⁸ The Landscape Character Objectives of the SLO2 are

28 East Gippsland Planning Scheme, Schedule 2 to Clause 42.03 Significant Landscape Overlay p.496

generally designed to protect the largely natural and unbuilt views of the lake from the lakes' edges and to strengthen the presence of native and indigenous vegetation, particularly adjacent to lakes, rivers roadsides, and in settlements and riparian strips. Other significant character objectives of particular relevance to this casestudy area are to ensure that development in and around existing settlements does not impact on the characteristics of the landscape, particularly the natural and unbuilt character at the edge of the Gippsland Lakes. The SLO2 Design Guidelines seek to minimise any visual amenity impacts of developments, prescribing 100m minimum set backs for the protection of riparian vegetation.

The **DD02** seeks to protect and enhance the residential amenity of land and the visual amenity of public areas within the constructed waterways (canals) district of Paynesville.

The **(EMO)** is designed to protect areas prone to erosion, landslip, other land degradation or coastal processes by minimising land disturbance and inappropriate development. The EMO mandates expert geotechnical risk assessments which assess the suitability of land for development, outline measures to manage geotechnical hazard during the development period, limitations to excavations and fill, soil rehabilitation techniques for disturbed areas, drainage design and capacity recommendations as well as footings and foundation design. Generally speaking, land subject to an EMO can still be developed, though at greater cost and subject to geo-technical limitations. However, EMOs on foreshore land subject to coastal erosion processes, including sea level rise, storm and tidal erosion that causes *foreshore retreat*, would be unlikely to pass a geotechnical risk assessment and thereby not be suitable land for development. Given much of the foreshore around Paynesville is generally comprised of highly erodible soils and particularly vulnerable to Natural Hazard Risks, the future location of foreshore land in 2100 ought to be considered in geotechnical risk assessments. Furthermore, some foreshore land with highly erodible soils is not subject to an EMO (see figure 15).

Paynesville Shoreline Erosion Susceptibility

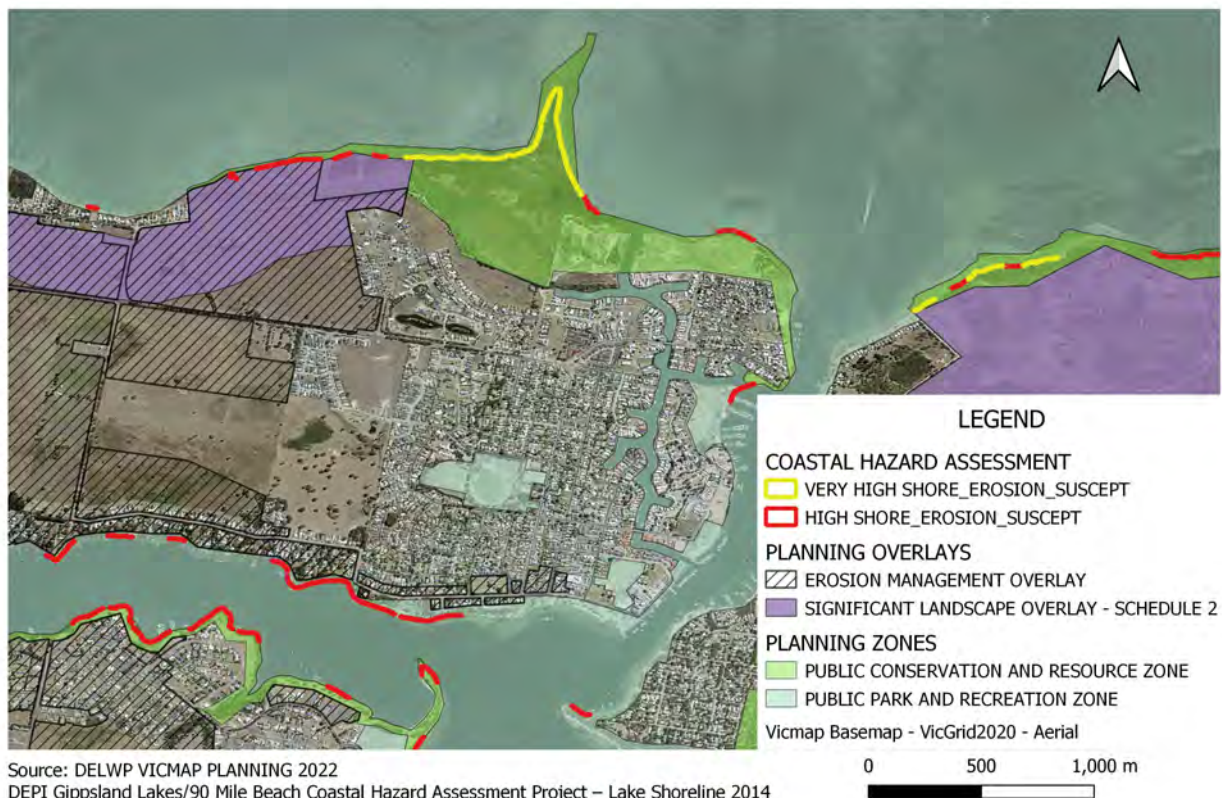


Figure 15: Paynesville Shoreline Erosion Susceptibility

The **(LSIO)** seeks to identify flood prone land in a riverine or coastal area affected by the 1 in 100 (1 per cent Annual Exceedance Probability) year flood or any other area determined by the floodplain management authority. Its purpose is also to ensure that development maintains the free passage and temporary storage of floodwaters, minimises flood damage, responds to the flood hazard and local drainage conditions and will not cause any significant rise in flood level or flow velocity. Significantly, it also seeks to protect water quality and maintain or improve waterway health and condition, including wetlands. As mentioned previously, the LSIO layer *does not* factor sea level rise and future coastal inundation by storm and tide surge.

The **VPO** aims to protect areas of significant vegetation, maintain and enhance habitat and habitat corridors for indigenous fauna, encourage the regeneration of native vegetation. Numerous exemptions exist however, including for instance; extractive industries, fire protection and road safety that allow the removal of protected vegetation without a permit. Only one VPO exists in the locality, protecting a significant native tree corridor along Paynesville Road.

3.4.4 Limitations of Environmental and Landscape overlay controls

An ESO identifies areas where the development of land may be affected by environmental constraints and ensure that any development is compatible with the identified environmental values. It does not exclude development *per se*, instead seeks to balance competing land uses. An ESO offers less environmental protection than land zoned specifically for conservation purposes, such as a dedicated reserve. Similarly, an SLO may offer commensurately less protection to environmental and landscape values than an ESO. The Significant Landscape Overlay is used to both determine landscapes of significance at the municipal level as well as to conserve and control the kind of development that occurs within those landscapes. Landscapes may be deemed significant for a combination of historic, aesthetic, scientific, religious and social reasons - where vegetation is deemed integral to the amenity of the area. Again, they do not exclude development, but rather make it subject to discretionary permit conditions that seek to balance conflicting land uses. The inherent limitations of these planning instruments for conservation purposes should be overtly recognised in the strategy, as overlay controls may not necessarily protect environmental and landscape values *adequately, consistently or proportionately*; especially from the impacts of climate change. As sea level rises, coastlines erode and foreshore landscapes retreat inland, coastal overlay boundaries will need to be adjusted to reflect the changing landscape and environmental conditions. The landscape character and environmental objectives of all foreshore overlays will also need to be revised to better reflect the challenges posed by natural hazard risk. In a rapidly changing world facing multiple and intensifying natural hazard risks, conservation cannot be a static planning concept. We need to take a *long term dynamic approach* to both development and conservation planning in response to climate change.

3.4.4.1 Limited coverage of overlay controls

Setting aside the overall effectiveness of existing overlay controls, for these controls to protect significant natural values they need to apply *consistently* and *proportionately* across all High Conservation Value (HCV) areas. In addition, their application needs to be *transparent and evidence-based*. However, this is not always the case in practice, with HCV areas on private land sometimes excluded from ESO and/or LSO controls, as is evident in the GRZ1 below Point Fullarton, which contains unprotected migratory bird habitat. Across the Shire, excluded HCV areas include; Ramsar-listed wetlands of international significance, areas protected by bilateral migratory bird agreements (e.g. JAMBA, CAMBA and ROKAMBA) and Rainforest Sites of Significance (RSOS). The exclusion of these HCV areas from planning overlays increases the risks of inappropriate development decisions being made, with the potential to impact adversely on Ramsar wetland values, areas important for listed migratory bird species, and lead to incremental loss of remnant coastal vegetation.²⁹ The protection of significant environmental and landscape values ought to be a high priority in and around coastal settlements, particularly in localities like Paynesville, where what little native vegetation remains, is of high environmental and cultural significance, and highly valued by the community.

3.4.4.2 Difficulty in applying overlay controls

Planning overlay controls do not attempt to *systematically* protect a comprehensive range of significant habitats, nor a representative sample of ecosystems and landforms, as they are designed to *balance* land use conflicts rather than *maximise* conservation outcomes, often resulting in significant environmental values being compromised. The protection of coastal and other environmental values on private land requires that all identified and recorded sites of natural, cultural and landscape significance be included into local government planning overlays, thereby allowing adequate consideration when assessing planning proposals. The inclusion of current and accurate data in decision making frameworks is critical to ensuring ecologically sustainable development along the Gippsland coast.³⁰ However, the process of identification, recording and inclusion of nationally significant habitat on private land into planning overlays is incredibly difficult, relying heavily on volunteer surveys, the goodwill of landowners, a responsive shire, and effective community advocacy. The process is at best a protracted and convoluted one, at worst almost impossible; making the expansion of overlay planning controls a slow and cumbersome instrument for the partial protection of environmental and landscape values.

3.4.4.3 Improving overlay controls

For planning overlay controls to work effectively, an adaptive management approach is warranted, that incorporates all relevant scientific and historical data, with input from traditional owners, citizen scientists and experts (such as biologists, archaeologists and landscape ecologists) to ensure environmental, cultural heritage and landscape values are protected across a variety of temporal and spatial scales. In instances where development is permitted, ongoing monitoring is also necessary to ensure the overlay controls are working effectively to protect and enhance the identified values over time.

Without reference to specific management and conservation plans, climate adaptation and/or recovery plans; overlay controls can offer at best, only limited guidance to planners seeking to protect environmental values and landscape character. It is worth pointing out that the seldom used Vegetation Protection Overlay (VPO) controls can provide greater environmental protection than ESO and SLO controls. Where relevant overlay conservation management plans or strategies don't yet exist, particularly in relation to climate change adaptation to protect and enhance significant threatened ecosystems (such as coastal wetlands and rainforests), the precautionary principle ought to guide planners in applying wider buffers that exclude development in close proximity to these environmentally sensitive areas.

Planning overlays need to also take into account the natural values and management objectives of adjoining or nearby Crown land, with particular emphasis on: likely off-site impacts; likely demand for additional access through sensitive coastal areas; ability for the developer to contribute to restoration of degraded foreshore values; and potential additions to Crown foreshore land.³¹ This is especially important for Crown land that protects environmental sites of regional, national and international significance, with *greater* protection measures (such as wider exclusion buffers) afforded to the most significant sites.

3.5 The Paynesville Climate Change Adaptation Strategy

The housing strategy attempts to take a reasonably long term planning approach to identifying the existing and future role of towns and settlements to ensure a more efficient and sustainable use of land and infrastructure in response to natural hazard risks. However, a clearly articulated and detailed climate change adaptation strategy (and associated adaptation plans) will be essential in responding efficiently and cost-effectively to natural hazard risks.

30 Gippsland Coastal Board (2002) *Integrated coastal planning for Gippsland : coastal action plan*. p. 23

31 Gippsland Coastal Board (2002) *Integrated coastal planning for Gippsland : coastal action plan*, p. 23

The DELWP Coastal Climate Change Risk Assessment (2015) proposes several adaptation strategies which planners can adopt to reduce identified coastal risks, namely;

Planning strategies use the *identification and prioritisation of risks* in the assessments to plan for the future. Planning strategies proposed included adaptation planning, emergency response planning for storm events and statutory planning, e.g. planning scheme provisions and amendments, agreements on land title.

Public and private land management policy strategies are proposed to reduce the likelihood and/or consequence of risks identified on that land. Key amongst these was the consideration of measures *to maintain a stretch of land that is large enough to act as a natural buffer to allow for the dynamics of the coast, provide for coastal ecosystems to exist, and allow public access to the coast*. For instance, options could include the use of Public Acquisition Overlays on private land that may be a future coastline, legislation to maintain a Crown land buffer inland from the coast, and incentives for the management of Crown land values on private land.³²

The future planning scheme provisions and amendments proposed by the housing strategy for Paynesville will need to prioritise long term Natural Hazard Risks; particularly sea level rise, coastal inundation, erosion and foreshore retreat. In accordance with the precautionary principle and numerous government climate adaptation policies, the planning **risk horizon** needs to be sufficiently deep to ensure it captures the long term potential impacts of climate change. Using the year 2100+ as a minimum benchmark for natural hazard risk assessments is strongly advised; given the severity of the consequences if Council gets it wrong. Secondly, Council ought to adopt the Marine and Coastal Strategy (2022) best practice guidelines for managing coastal hazard risk and tackling coastal squeeze, known as the *Adaptation Pathway Approach*.³³ As previously mentioned, this approach primarily stipulates avoiding development within or in close proximity to coastal habitats, followed by nature-based methods of interventions that aim to create or restore coastal habitats as a form of *cost-effective 'nature-based coastal defence'* or a 'living shoreline' for hazard risk reduction. In accordance with the Adaptation Pathway Approach, Council is strongly encouraged to adopt the following **adaptation planning strategies**;

- a) assess the impact of natural hazard risks on major infill and/or greenfield development sites currently zoned for residential development; along with existing farmland proposed for residential development in the Paynesville Structure Plan.
- b) undertake systematic environmental, cultural heritage and significant landscape risk assessments of greenfield development plans and incorporate actions to assist wetland migration when designing and constructing new residential subdivisions, especially those adjacent to environmentally significant and sensitive sites. This is particularly relevant in the context of coastal planning and asset protection.
- c) assess the impact of natural hazard risks on significant environmental, cultural and landscape values using the 2100 risk horizon. Protecting and enhancing Paynesville's only Public Conservation & Resource Zone (i.e. the Point Fullarton Gippsland Lakes Reserve) needs to be a priority. Ensure the reserve continues to act as a 'nature-based coastal defence' asset for hazard risk reduction; and simultaneously safeguard its internationally significant biodiversity values.
- d) assess the impact of natural hazard risks on public access to the future shoreline, particularly with a view to protecting or enhancing both Public Park and Recreation Zones and Public Conservation & Resource Zones. The projected loss of almost all the foreshore parkland, wetlands and walking tracks around Paynesville, will have a major negative impact on the unique local character of the town.

32 DELWP, *Coastal Climate Change Risk Assessments – Volume 1* (2015) p.6

33 DEECA (2022) *Marine & Coastal Strategy*

e) participate in state and federally funded government programs to devise and implement strategic adaptation policies and plans. Planning instruments could include; Public Acquisition Overlays for private land likely to become future shoreline, legislation to maintain a Crown land buffer inland from the coast, and incentives for the management of Crown land values on private land. These policy instruments could apply to the preservation of the Ramsar wetlands at Point Fullarton, the adjacent Lake King wetland foreshore (private land) and other natural hazard impacted foreshore areas.

f) applying fair and equitable economic and policy instruments to incentivise:
 a. the migration of coastal and near-shore habitats across public and private land
 b. adoption of nature-based options for climate change adaptation (such as rehabilitation of wetlands and mangroves, ecological engineering and living shorelines).³⁴

g) participate in a *Victoria's Resilient Coast – Adapting for 2100+* pilot project, that offers funding and technical support to develop place-based, best practice and long-term coastal hazard risk management and adaptation strategies and plans (Round 2 grants close 16 March 2023).

h) enabling protection of existing and expanded habitat linkages that are required for future migration of marine and coastal habitats by:
 a. updating strategic plans
 b. applying statutory controls through planning schemes via data driven updates to planning policy schemes (see Activity 3.10)
 c. supporting permanent protection agreements on private land.³⁵

3.6 Recommendations

3.6.1 Avoid greenfield and infill development near future foreshore areas by mapping coastal retreat due to sea level rise, coastal inundation and erosion.

3.6.2 Direct development away from environmentally and culturally sensitive areas threatened by climate change, particularly in coastal areas.

3.6.3 Rezoning of land earmarked for residential development by a Town Structure Plan needs to consider *future* foreshore retreat to maintain public access to the lake foreshore.

3.6.4 Develop and implement a Conservation Action Plan for Point Fullarton Gippsland Lakes Reserve using the Adaptation Pathway Approach.³⁶ This will facilitate wetland migration and retention as a form of 'nature-based coastal defence' to reduce coastal hazard risks and protect the Ramsar biodiversity values. The plan could use a Public Acquisition Overlay or agreements on land title with land owners to ensure the Public Conservation Reserve is not completely lost due to sea level rise, inundation and erosion. This action is in accordance with Policy 5.3 of the Victorian Government's Marine and Coastal Policy 2020, to consider options to maintain public access and allow for wetland migration.³⁷

3.6.5 Undertake timely, data-driven planning scheme amendment processes to protect coastal habitat linkages, and reflect sea level rise, coastal hazard, and other relevant projections related to climate change.

3.6.6 Expand state and federal partnerships to facilitate strategic planning and implementation funding necessary to execute the strategies and plans to build climate resilience.

³⁴ DEECA (2022) *Marine & Coastal Strategy*, p10

³⁵ DEECA (2022) *Marine & Coastal Strategy*, p.18

³⁶ DEECA (2022) *Marine & Coastal Strategy*, p.11

³⁷ DELWP (2020) *Marine & Coastal Policy*, p.33

- 3.6.7 Support high quality infill development in areas less exposed to natural hazard risks and buffered from sensitive environmental and cultural heritage areas.**
- 3.6.8 Encourage a greater variety of *sustainable* housing within walking distance to shops and services, that are particularly suited to elderly residents, encourages less car dependency and supports a more vibrant shopping district with greater foot traffic.**
- 3.6.9 Expand the use of VPO, SLO and ESO planning controls in all areas with significant environmental, cultural heritage and landscape values, especially in Rural Living Zones to prevent further fragmentation of habitat, to protect riparian zones, rainforests, mature trees, wetlands and all coastal and lake foreshore areas.**
- 3.6.10 Assess the impact of natural hazard risks on significant environmental, cultural and landscape values using the year 2100 as the benchmark for impact analysis.**
- 3.6.11 Adopt an adaptive management approach that incorporates all relevant scientific and historical data, with input from traditional owners, citizen scientists and experts (such as biologists, archaeologists and landscape ecologists) to ensure environmental and landscape values are protected across a variety of temporal and spatial scales.**
- 3.6.12 Protect all environmental sites of regional, national and international significance, with *greater* protection measures (such as wider setbacks or buffers) afforded to the most significant sites.**
- 3.6.13 Embed long-term adaptation into planning and management, and build the Council's capacity to respond to climate change impacts in a timely and cost-effective way.³⁸**
- 3.6.14 Ensure infill developments enhance neighbourhood character**
- 3.6.15 Help ensure water authorities can fully treat additional sewage generated from housing growth to protect the water quality of our waterways, especially the Gippsland Lakes.**