WARATAH-WYNYARD COUNCIL

INTEGRATED COUNCIL ENVIRONMENTAL PLAN (iCEP) 2020-2030

iCEP

WARATAH WYNYARD COUNCIL

ACKNOWLEDGEMENTS

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GLOSSARY

ADAPTATION	In human systems, the process of adjustment to actual or expected climate and its effects, in order to moderate harm or exploit beneficial opportunities. In natural systems, the process of adjustment to actual climate and its effects. (IPCC)
ADAPTIVE CAPACITY	The ability of systems, institutions, humans and other organisms to adjust to potential damage, to take advantage of opportunities, or to respond to consequences. (IPCC)
BIODIVERSITY	The variability among living organisms from all sources including terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems. (UN)
BIOSECURITY	A strategic and integrated approach to analysing and managing relevant risks to human, animal and plant life and health and associated risks to the environment. (UN Food and Agriculture Organisation)
BLUE CARBON	The carbon captured by living organisms in coastal (e.g. mangroves, salt marshes, seagrasses) and marine ecosystems, and stored in biomass and sediments. (IPCC)
BUSINESS AS USUAL/ BASELINE SCENARIO	Scenarios based on the assumption that no mitigation policies or measures will be implemented beyond those that are already in force and/or legislated or planned to be adopted. (IPCC)
CARBON FOOTPRINT	The total set of greenhouse gas emissions caused directly and indirectly by an individual, event, organisation or product, expressed as carbon dioxide equivalent. (Adapted from Carbon Trust, UK)
CARBON OFFSET	An emissions reduction which has been sold to compensate for emissions elsewhere. (Adapted from Carbon Trust, UK)
CARBON SEQUESTRATION	The process of storing carbon in a carbon pool. (IPCC)
CLIMATE	The average weather over a period of time, usually calculated over a 30-year period. The relevant quantities are most often surface variables such as temperature, precipitation and wind. (Adapted from IPCC)
CLIMATE ACTION	Efforts to reduce greenhouse gas emissions and strengthen resilience and adaptive capacity to climate-induced impacts (UN Development Programme).
CLIMATE CHANGE	A change in the state of the climate that can be identified by changes in the mean and/or the variability of its properties and that persists for an extended period, typically decades or longer. (IPCC)
COMMUNITY-BASED ADPATATION (CBA)	Local, community-driven adaptation. Community-based adaptation focuses attention on empowering and promoting the adaptive capacity of communities. It is an approach that takes context, culture, knowledge, agency and preferences of community as strengths. (IPCC)
DROUGHT	Acute water shortage. Drought declaration is the responsibility of State and Federal Governments which must consider other factors apart from rainfall. The Bureau of Meteorology's Drought Statement assists by providing rainfall information to all interested parties. (Bureau of Meteorology, Australia).

ECOSYSTEM	A functional unit consisting of living organisms, their non-living environment and the interactions within and between them. (IPCC)
EMERGENCY MANAGMENT	A range of measures to manage risks to communities and the environment; the organisation and management of resources for dealing with all aspects of emergencies. Emergency management involves the plans, structures and arrangements which are established to bring together the normal endeavours of government, voluntary and private agencies in a comprehensive and coordinated way to deal with the whole spectrum of emergency needs including prevention, response and recovery. (Australian Institute for Disaster Resilience)
EMISSION SCENARIO	A plausible representation of the future development of emissions of substances, often used as an input to a climate model and to compute climate projections. (IPCC)
ENVIRONMENTAL HEALTH	Environmental health addresses all the physical, chemical, and biological factors external to a person, and all the related factors that can potentially affect health. It is targeted towards preventing disease and creating health-supportive environments. (Australian Dept of Health)
ENVIRONMENTAL MANAGEMENT	See Natural Resource Management.
EXTREME WEATHER EVENT	A weather event that is rare at a particular place and time of year. By definition, the characteristics of what is called extreme weather may vary from place to place in absolute sense. (Adapted from IPCC)
FOOD SECURITY	A situation that exists when all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life. (UN Food and Agriculture Organisation)
FOSSIL FUELS	Carbon-based fuels from fossil hydrocarbon deposits, including coal, oil and natural gas. (IPCC)
GLOBAL WARMING	An increase in the global mean surface temperature averaged over a 30-year period, relative to 1850-1900 unless otherwise specified. (IPCC)
GREENHOUSE GAS	Gases in the atmosphere, both natural and human-made, that absorb and emit radiation at specific wavelengths. This property causes the greenhouse effect, in which the Earth's surface temperature and troposphere warm in response. (Adapted from IPCC)
IMPACTS (OF CLIMATE)	The consequences of realised risks on natural and human systems, where risks result from the interactions of climate-related hazards (including extreme weather and climate events), exposure and vulnerability. Impacts generally refer to effects on lives; livelihoods' health and wellbeing; ecosystems and species; economic, social and cultural assets; services (including ecosystem services); and infrastructure. Impacts may be referred to as consequences or outcomes, and can be adverse or beneficial. (IPCC)
INDIGENOUS KNOWLEDGE	The understandings, skills and philosophies developed by societies with long histories of interaction with their natural surroundings. Indigenous communities are being increasingly recognized as important source of knowledge for climate change assessment and adaptation. (Adapted from UNESCO)
INTEGRATED PLANNING	In the context of the iCEP, integrated planning means taking a strategic and whole-of-council approach to decision making, in which diverse elements of

	Waratah-Wynyard life (e.g. social, economic, environmental, infrastructure and the built environment, Council governance) are considered as parts of an interrelated system.
INTERGENERATIONAL EQUITY	Equity between generations that acknowledges that the effects of past and present emissions, vulnerabilities and policies impose costs and benefits for people in the future and of different age groups. (IPCC)
INUNDATION	To inundate is to cover with water. Inundation risk is the likelihood of exceeding a given level of tide, surge and flood height over a particular time horizon. (Adapted from Dept Climate Change, Australia)
INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE (IPCC)	The United Nations body for assessing the science related to climate change. (IPCC)
KYOTO PROTOCOL	An international treaty that commits industrialised countries (including Australia) to limit and reduce greenhouse gas emissions in accordance with agreed individual targets (UN Climate Change)
LAND-USE PLANNING	The process by which a society, through its institutions, decides where different socioeconomic activities such as agriculture, housing, industry, recreation and commerce should take place. This includes protecting well-defined areas from development due to environmental, cultural, historical, or similar reasons, and establishing provisions that control the nature of development activities. (Adapted from World Bank Group)
LOCAL KNOWLEDGE	The understandings and skills developed by individuals and populations, specific to the places where they live. (Adapted from UNESCO)
MITIGATION (OF CLIMATE CHANGE)	A human intervention to reduce emissions or enhance the sinks of greenhouse gases. In climate policy, mitigation measures are technologies, processes or practices that contribute to mitigation. (IPCC)
NATURAL RESOURCE MANAGEMENT (NRM)	The management of all activities that use, develop and/or conserve air, water, land, plants, animals, micro-organisms, and the ecosystems they form. (Waratah-Wynyard Council)
PARIS AGREEMENT	An international agreement to keep global temperature rise this century well below 2 degrees Celsius above pre-industrial levels and to pursue efforts to limit the temperature increase even further to 1.5 degrees Celsius. The agreement requires all parties (including Australia) to put forward their best efforts through 'nationally determined contributions'. (UN Climate Change)
PROJECTION (CLIMATE)	A climate projection is the simulated response of the climate system to a scenario of future emission or concentration of greenhouse gases and aerosols, generally derived using climate models. (IPCC)
RESILIENCE	The capacity of social, economic and environmental systems to cope with a hazardous event or trend or disturbance, responding or reorganising in ways that maintain their essential function, identify and structure, while also maintaining the capacity for adaptation, learning and transformation. (Artic Council/IPCC)
RISK	The potential for adverse consequences where something of value is at stake and where the occurrence and degree of an outcome is uncertain. Climate-related risk results from the interaction of vulnerability (of the affected system), its exposure over time (to the hazard), as well as the (climate-related) hazard and the likelihood of its occurrence. (Adapted from IPCC).

RISK MANAGEMENT	Plans, strategies or policies to reduce the likelihood and/or consequences of risks or to respond to consequences. (IPCC)
SOCIAL LICENCE (TO OPERATE)	The acceptance granted to a company or organisation by the community. The social licence to operate consists of legitimacy, credibility and trust. (Adapted from The Ethics Centre, Australia)
STORM SURGE	Elevated sea level at the coast caused by the combined influence of low pressure and high winds associated with a severe storm. Includes wave run-up and wave set-up. (Dept Climate Change, Australia)
SUSTAINABILITY	Development that meets the needs of the present without compromising the ability of future generations to meet their own needs. (Dept Climate Change, Australia)
THERMOHALINE CIRCULATION	Also referred to as the ocean's 'conveyor belt', thermohaline circulation links major surface and deep-water currents in the Atlantic, Indian, Pacific, and Southern Oceans. Plays an important role in supplying heat to the polar regions and influencing the rate of sea ice formation near the poles, which in turn affects other aspects of the climate system. (Adapted from UCAR Centre for Science Education)
WELLBEING	A state of existence that fulfils various human needs, including material living conditions and quality of life, as well as the ability to pursue one's own goals, to thrive, and feel satisfied with one's life. Ecosystem wellbeing refers to the ability of ecosystems to maintain their diversity and quality. (IPCC)

MESSAGE FROM THE MAYOR

Council's vision for Waratah-Wynyard is a place where 'blue meets green', where the natural environment is shared and enhanced. A place where infrastructure is built to last and fit for purpose; and where a sustainable economy delivers long-term regional and local benefits. A place where all people are supported to enjoy improved health and wellbeing.

Today, climate change poses one of the most significant challenges to that collective vision. In June 2019, Waratah-Wynyard Council joined with many other local governments around Australia to develop a strategic response to climate change. Our goal was to show leadership in reducing the risks associated with climate change to help 'future proof' a range of local social, economic and environmental values.

The result of that work is the Waratah-Wynyard Integrated Council Environmental Plan 2020-2030—or iCEP. The iCEP is:

- A shared vision for the future
- An evidence-based integrated strategy
- A platform for future policy development

The iCEP sets out our key priorities across five areas of Council and community life—Council-led sustainability; community adaptation and resilience; future-ready infrastructure; financial and economic sustainability; and environmental stewardship—so that our residents, workers and visitors alike can enjoy the benefits of a more secure future.

We believe that by addressing these elements in an integrated way, we will have greater success in achieving our priorities.

We also recognise the limitations of the iCEP. The iCEP does not create new enforcement powers, nor does it change state or federal policies. But it does provide us with a platform for taking local action, for facilitating partnerships, and for advocating in the interests of the local and global community.

Most importantly, the iCEP is not a standalone strategic document. Rather, the iCEP is intended to support more sustainable decision-making across our organisation and beyond. The long-term success of the iCEP will depend on the strength of our collaboration with diverse stakeholders and community members.

All of us at Waratah-Wynyard are proud to present the inaugural iCEP. We look forward to working with our community to implement the iCEP over the coming months and years.

Cr Robert (Robby) Walsh
Mayor, Waratah-Wynyard Council

1. INTRODUCING THE ICEP

WARATAH-WYNYARD'S ENVIRONMENT

The natural environment is one of Waratah-Wynyard's most important assets. It is central to our local identity, and it is a key element of our visitor economy. Our woodlands, heaths, wetlands and coastlines together support a rich level of animal and plant biodiversity. The natural environment is also highly valued by our community for its role in supporting recreation, health and wellbeing.

Alongside the natural environment are our productive and developed environments: the places where agriculture, aquaculture, forestry, light industry and business operate; and where communities and residences are located. Sometimes, there can be friction between the needs and impacts of our natural, productive and built environments. Council is committed to getting the balance right, both for the current community and for future generations.

A CHANGING CONTEXT

At the same time, Council recognises that Waratah-Wynyard is facing unprecedented challenges, as the impacts of global climate change are felt by ecosystems and communities.

Tasmanian Government projections[1] show that under a high-emissions[a] scenario, Waratah-Wynyard will experience warmer average temperatures throughout the 21st Century[b], with a rise of between 2.6 to 3.3 degrees Celsius. This means that Waratah-Wynyard will experience an increase in summer days over 25 degrees from less than 10 days a year to more than 20 days of year.

An increase in warmer weather can have flow-on effects for communities and environments. Heat can negatively impact manual workers and older adults. Hotter summer days can lead to increased energy use for air-conditioning. Warmer temperatures may produce a more conducive environment for weed growth and the establishment of new weed species.

The changing global climate is also contributing to rising sea levels. A global sea level rise of 0.82m is predicted by 2100 under the high-emissions scenario. This means, for example, that in nearby Burnie, by the end of the century the 100-year inundation event in is projected to be close to 2.5 metres; and what is currently defined as a 100-year inundation event in will occur more frequently than once every four years.

Rainfall in Waratah-Wynyard is projected to decrease in summer and autumn, and to increase in winter and spring. Importantly, the intensity of this rain will change—we will see fewer days of rain, but falls will be heavier. Drought frequency and severity may stay similar to that of the 20th century. However, pan evaporation is projected to increase by up to 19% by 2100.

OUR OBLIGATION TO RESPOND

Waratah-Wynyard Council accepts the science behind these climate change projections. Council also recognises that as the level of government closest to the community, it has an obligation to respond in a proactive way to the scientific data to help ensure that Waratah-Wynyard plays its part in global efforts to combat climate change and can meet the challenges to come.

The Waratah-Wynyard iCEP represents a significant step towards fulfilling this obligation.

[a] The IPCC has issued climate projections based on two scenarios: one in which global emissions plateau and fall, and another in which high emissions are sustained. Recent research on Greenland ice melt rates shows evidence that the world is on track for the high emissions scenario.

[b] Important note: These IPPC scenarios do not include the consequences of potential climate 'tipping points' such as the collapse of Greenland and Antarctic ice sheets; disruption of thermohaline circulation; sudden release of methane; or failure of oceanic uptake of carbon.

2. CONTEXT

The Waratah-Wynyard iCEP exists within a context of climate and environmental policy, strategy and legislation that spans the global to the local.

Some of the key documents that intersect with the iCEP include:

LOCAL

The **Waratah-Wynyard Council 10-Year Corporate Strategic Plan** commits Council to supporting community connectedness and wellbeing; enhancing economic prosperity; and sustaining an environment 'where green meets blue'.

The **Waratah-Wynyard Council Environmental Policy** promotes the sustainable development of natural and physical resources, and the maintenance of ecological processes and genetic diversity.

The **Waratah-Wynyard and Circular Head Councils Community Health and Wellbeing Plan** embraces a social-ecological model of health, in which environmental conditions play an important role in wellbeing.

REGIONAL

The strategic and spatial principles of the **Sustainable Murchison 2040 Community Plan** include natural resource management that balances development, production and conservation values.

The **Cradle Coast NRM Strategy** sets out a vision for the north west of Tasmania (Cradle Coast region) in which a sustainable future is achieved through proactive, vibrant communities protecting and advocating for environmental, social and economic progress.

STATE

Climate Action 21: Tasmania's Climate Change Action Plan prioritises understanding Tasmania's future climate; advancing renewable energy capability; reducing transport emissions; growing a climate-ready economy; building climate resilience; and supporting community action.

Tasmania's NRM activities are guided by the **Tasmanian Natural Resource Management Framework** and the **Natural Resource Management Act 2002**, which promotes the sustainable development of natural and physical resources and the maintenance of ecological processes and genetic diversity.

NATIONAL

The **National Climate Resilience and Adaptation Strategy** aims to support prosperity and wellbeing in Australia and beyond by building the resilience of communities, the economy and the environment to a variable and changing climate.

Australia's **National Emissions Target** is to reduce emissions by to below 2005 levels by 2030.

Australia's **Renewable Energy Target** is designed to ensure at least 33,000 gigawatt-hours of Australia's electricity comes from renewable sources by 2020, with extensions in place to 2030.

INTERNATIONAL

The **Paris Agreement**, to which Australia is a signatory, aims to keep the increase in global average temperatures to 2 degrees Celsius or less.

3. DEVELOPING THE ICEP

STEP 1: ESTABLISH PROJECT GOVERNANCE

Work on the iCEP began on World Environment Day, 2019. Development was overseen by Waratah Wynyard Council Project Manager, Dana Hicks. Emily Neal, Project Officer, provided high-level support throughout the project, particularly during the engagement and document review phases.

The project was also supported by an internal iCEP Steering Committee. Members were Cr Andrea Courtney; Cr Darren Fairbrother; Cr Allie House; Daniel Summers (Director Infrastructure and Development Services); Bill Walker (Natural Resource Management Officer); Benji Krom (Strategic Planner); and Murray Jamieson (Manager Digital Innovation).

The iCEP Steering Committee provided input to the project at key milestones via regular face-to-face meetings, participation in workshops and via email. Their work has been critical to the success of the iCEP project.

STEP 2: UNDERSTAND THE DATA

Rapid evidence reviews were undertaken for each of the five themes of the iCEP. These reviews surveyed existing data from 'open' or publicly accessible sources.

Sources included but were not limited to: documents provided by Waratah-Wynyard Council; academic and technical research; government reports, discussion papers and position papers; demographic data; local and state government strategies and policies; risk maps; and climate projections data. The focus of the data review was informed by feedback from the iCEP Steering Committee.

STEP 3: UNDERSTAND COMMUNITY AND STAKEHOLDER VIEWS

Consultation for development of the iCEP was undertaken between 1st October and 15th November 2019. The objectives of the community and stakeholder consultation were to understand:

- how the community values the Waratah-Wynyard environment;
- community concerns about the future;
- the preferred role of Council; and
- community hopes for the future.

Consultation opportunities were publicised on social media, ABC radio, *The Advocate*, Council's website (homepage and YourSay page), posters, in person, and at postcard drop-boxes distributed at various locations throughout Waratah-Wynyard local government area.

Consultation was undertaken via the following methods.:

- an online survey—140 completed;
- postcards—88 completed;
- a consultative workshop—attended by 11 iCEP 'ambassadors' and two Councillors; and
- written submissions—15 formal submissions received from the 77 invited local, regional and state-level stakeholders. A further five unsolicited community submissions were received.

The full report on the community and stakeholder consultation may be accessed via the Council website: (Council > Strategies and Plans > search 'iCEP')
https://www.warwyn.tas.gov.au/

STEP 4: REVIEW GOOD PRACTICE

Waratah-Wynyard Council was keen to learn from and build on the work already being done by other Australian local governments in relation to climate change adaptation, sustainability and environmental management.

A review of good practice in local government was conducted during January and February 2020. Plans and strategies were selected for their relevance to the iCEP. Examples were drawn from local governments that exhibited one or more of the following characteristics: regional/rural; fire-prone; coastal; Tasmanian; progressive/leading; similar population characteristics and/or similar economic characteristics.

We would especially like to acknowledge the climate and environmental strategies of the following Councils: Bayside, Benalla, Burnside, Cairns, Central Coast (NSW), Darebin, Geelong, Glen Eira, Greater Dandenong, Hobart, Joondalup, Kingborough, Kingston, Ku-ring-gai, Macedon Ranges, Melbourne, Monash, Nillumbik, Onkaparinga, Parramatta, Queenscliffe, Wyndham and Yarra, as well as the ACT.

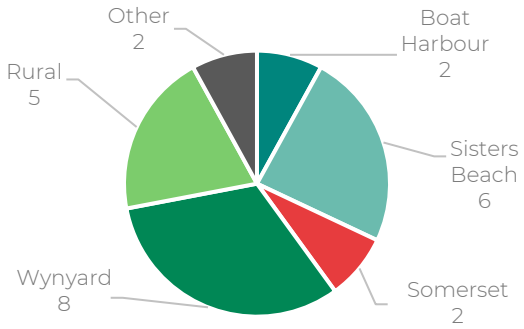
STEP 5: DEVELOP AND SELECT ACTIONS

A suite of potential priorities and actions was identified for each iCEP theme. These priorities and actions reflected the issues emerging from the research evidence and from community and stakeholder consultation. They were also informed by Waratah-Wynyard Council policy, existing good practice in local government, and the relevant commitments of regional and Tasmanian Government agencies.

In February 2020, a participatory planning workshop was convened with both the iCEP Steering Committee and a broad cross-section of Council staff. Participants in this workshop reviewed the identified potential priorities and actions, and identified key inclusions for the iCEP. This draft selection of was reviewed by the iCEP Steering Committee and was further refined in consultation with Council's Executive Management Senior Management Teams.

STEP 6: OBTAIN FEEDBACK ON THE DRAFT ICEP

The Draft iCEP was published on the Council website. Feedback was invited between 5th and 26th June, 2020. Council received 25 submissions from across the Waratah-Wynyard area.



Common themes were as follows:

- The iCEP is comprehensive, thorough and well researched.
- Emphasis should be placed on building community capacity, health and wellbeing.
- Preference for a more concise document.
- Resourcing the iCEP and alternate NRM models should be considered by Council.
- Preference for commitment to targets, definitive goals and timelines.
- Biodiversity should have a stronger focus.
- The iCEP clearly demonstrates Council's leadership role.

Production of the final iCEP has reflected this community feedback.

4. COMMUNITY VIEWS

Development of the iCEP attracted a high level of community participation. The full consultation report may be accessed via the Council website: (Council > Strategies and Plans > search 'iCEP') https://www.warwyn.tas.gov.au/

Key consultation findings included the following:

- A majority of survey respondents rated as 'very important' the following environmental elements:
    - Aboriginal heritage sites; beaches and coastal areas;
    - rivers and wetlands; native bushlands and grasslands;
    - productive landscapes (including farms and forests);
    - plant and animal biodiversity;
    - clean air;
    - open spaces for recreation (including parks and pathways);
    - and Waratah-Wynyard's 'clean and green' image in the eyes of tourists and visitors.
- A majority of survey respondents said they believed climate change was occurring, and a majority said Waratah-Wynyard is being impacted by climate change right now.
- Only a minority said Waratah-Wynyard Council was currently doing enough to prepare for the impacts of climate change.
- Respondents to the consultation were very concerned about coastal erosion and the threat of inundation, most notably at Sisters Beach.
- Other matters of concern included: insufficient government and stakeholder action; a perceived lack of Council focus on Somerset; the impacts of development and population increase; threats to vegetation; threats to plant and animal biodiversity; biosecurity risks; extreme weather events and bushfires and the impacts of these on infrastructure; the effects of pollution and waste; the impacts of climate change on agriculture; and potential financial impacts.
- Respondents said they valued the accessibility of natural spaces; low population and development; street trees in urban areas; the beauty, diversity and uniqueness of Waratah-Wynyard; the transition between built and natural environments; the natural environment's contribution to wellbeing; opportunities to contribute environmental values; and high levels of community participation.
- Respondents to the consultation said they wanted Council to demonstrate strong leadership, but to do so in partnership with other stakeholders and the community. They emphasised that the iCEP should be an evidence-based plan and should be implemented at the operational level, not simply remain a high-level policy document.
- Respondents said Council could do more to mitigate coastal erosion; ensure careful land-use planning, development and building; help residents and industry to be more sustainable; demonstrate corporate sustainability; manage waste and pollution; prevent the loss of trees and wildlife habitat; manage biosecurity; and mitigate risks to infrastructure.

INSTRUCTIONS—Using words and/or pictures, please use the space below to tell us your concerns or hopes for the future of Waratah-Wynyard in a changing climate:
HOPE
That grassroots community citizens movements will be supported as we face the complex issues around our environment!
LEARNING! ACTION!
EMBRACING CHALLENGES
OPTIONAL: Please initial this box if you permit Council to reprint your postcard in the iCEP. Mailed/hand-delivered cards only.
INSTRUCTIONS—Using words and/or pictures, please use the space below to tell us your concerns or hopes for the future of Waratah-Wynyard in a changing climate:
Our beach front and the erosion of the sand dune should be a Wynyard-Waratah council concern. Together with Parks + Wildlife it should be a project for the future to make sure we keep our beach looking its best. Climate change has been a big impact on this.
OPTIONAL: Please initial this box if you permit Council to reprint your postcard in the iCEP. Mailed/hand-delivered cards only.
INSTRUCTIONS—Using words and/or pictures, please use the space below to tell us your concerns or hopes for the future of Waratah-Wynyard in a changing climate:
Support our natural spaces
Biodiversity
OPTIONAL: Please initial this box if you permit Council to reprint your postcard in the iCEP. Mailed/hand-delivered cards only.

5. OUR PRINCIPLES

Design of the iCEP has embraced the four principles of **mitigation, management, adaptation** and **integration:**

MITIGATION

Mitigation describes human actions—technologies, processes, behaviours and decisions—that intervene in the processes of climate change, for example, by reducing emissions or enhancing carbon storage. Mitigation is about recognising that if human action has contributed to the problem of climate change, then human action can be part of the solution.

Waratah-Wynyard Council has three main roles to play in mitigation. The first is by demonstrating corporate responsibility—reducing Council's carbon footprint and leading by example. The second is at a municipal scale, supporting the Waratah-Wynyard community to reduce its emissions and to live more sustainably. The third is by partnering with others at the regional and State level to lobby for more effective mitigation measures.

MANAGEMENT

The Waratah-Wynyard area is rich in natural values that contribute strongly to the community's sense of place as well as to Waratah-Wynyard's identity and reputation. Diverse forms of land use—including residential, agricultural and industrial—intersect with Waratah-Wynyard's natural values in complex ways.

Although local governments are not accorded specific NRM responsibilities under NRM legislation, Council's role in enforcing various related State laws—as well as its day-to-day responsibilities in managing public land and strategic land-use planning—means it is already playing a strong role in managing Waratah-Wynyard's natural environment.

Effective environmental management at the local government level can help preserve biodiversity, enhance community health and wellbeing, enable economic development, contribute to local identity and reputation, enable natural and human adaptation and support biosecurity.

ADAPTATION

Even with current mitigation efforts, the effects of climate change are likely to be with us for the foreseeable future. Where it is not possible to prevent the impacts of climate change, adaptation will be required.

For humans, adaptation is the process of adjustment to the actual or expected climate and its effects. Adaptation can mean avoiding the harms of change, and it can also include benefiting from new opportunities. Within natural systems, adaptation also describes the process of adjustment to a changing climate.

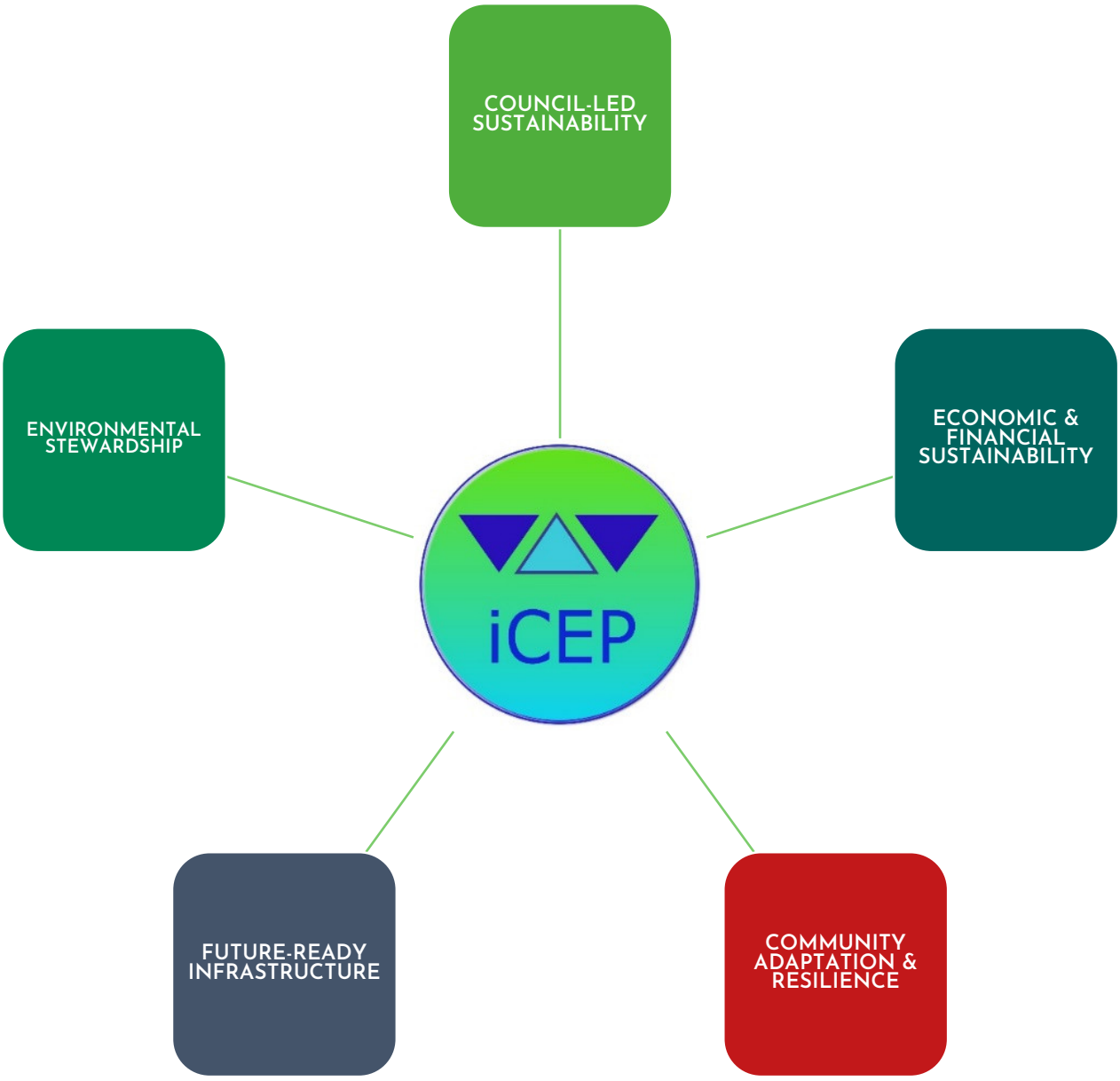
The ability of people to adapt to climate change (their 'adaptive capacity') varies within and across populations. Adaptation responses can be incremental; but sometimes larger-scale, transformative adaptations are needed, even when uncertainties remain about the long term[2].

Council recognises that the Waratah-Wynyard community has its own unique vulnerabilities and strengths when it comes to climate change adaptation and resilience.

INTEGRATION

At Waratah-Wynyard, we recognise that climate change mitigation, adaptation and environmental management are 'whole-of-Council' issues. We also recognise that each element of community life is closely tied to all others.

By designing the iCEP to address the five themes of: (i) Council-led sustainability; (ii) community adaptation and resilience; (iii) future-ready infrastructure; (iv) economic and financial sustainability; and (v) environmental stewardship; we hope to ensure our actions for and with our community will deliver more meaningful and impactful results.



6. MONITORING

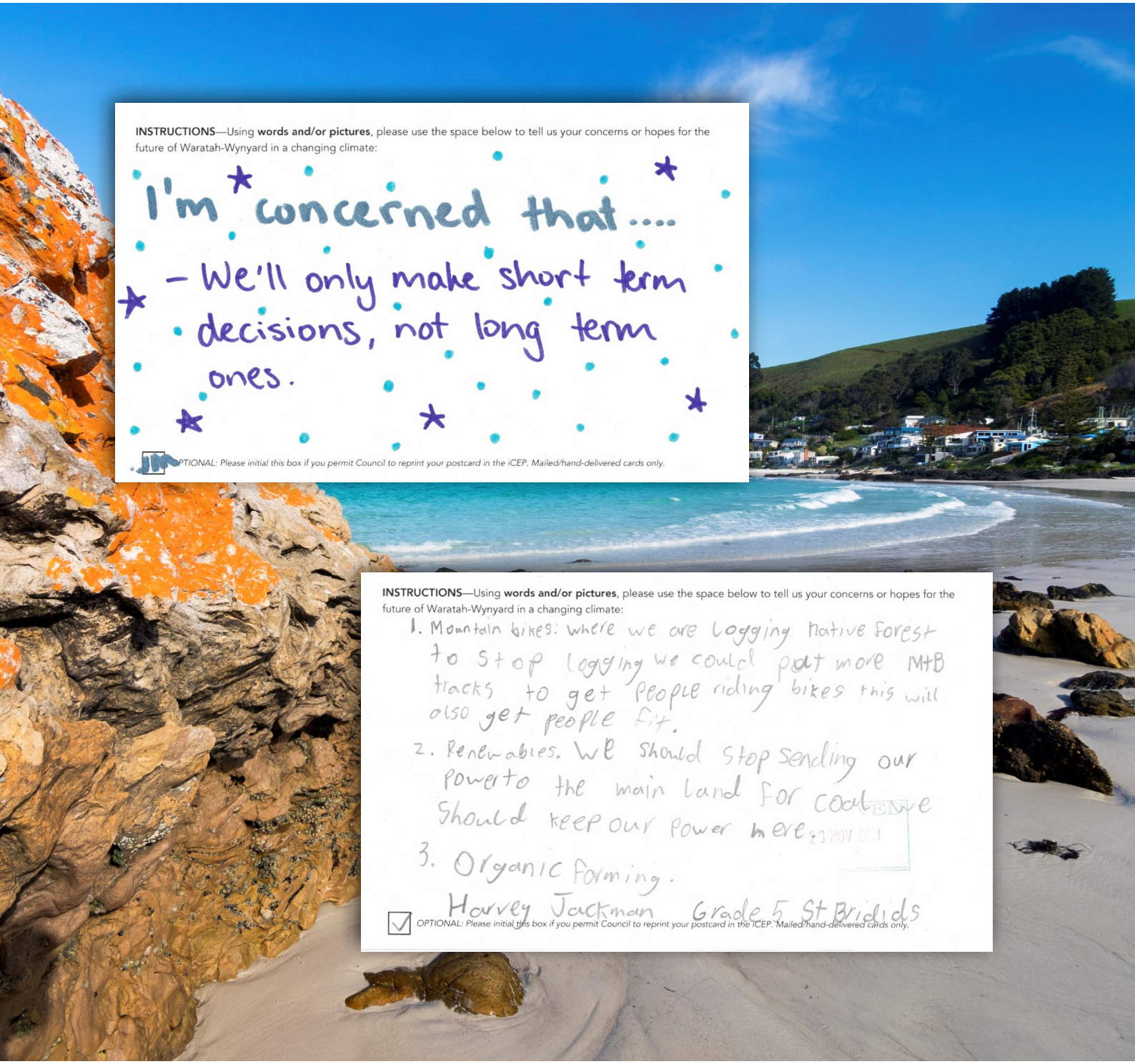
Waratah-Wynyard Council recognises that the path to achieving climate change adaptation and mitigation, and a sustainable local environment, is complex and challenging. In developing our integrated response to these challenges, we have drawn on community input and the best available data and evidence.

This evidence-based approach will remain essential to implementation. To facilitate ongoing data collection and monitoring, Council will develop a suite of indicators relating to key aspects of the iCEP. These will be situated outside the iCEP document and alongside Council's other high-level KPIs to ensure an integrated, whole-of-Council approach to evaluating progress.

7. ICEP AT A GLANCE

Based on the available evidence, emerging good practice in local government, and feedback from community and stakeholders, we have developed a suite of priorities for action across each of our five themes.

The following pages provide a summary of these themes and priorities, for the iCEP 'at a glance'.



OUR THEMES:

COUNCIL-LED SUSTAINABILITY

Our priorities:

Maintaining a high-quality knowledge base.

Embedding climate and environmental concerns in Council decision-making.

Establish mechanisms for partnering with the Waratah-Wynyard community on environmental management and climate action.

Reducing Council's resource consumption and carbon footprint.

Managing waste sustainably.

Assisting the Waratah-Wynyard community to reduce its resource consumption and carbon footprint.

Embedding climate risk information in Council's emergency planning.

Aligning Council's purchasing with principles of sustainability.

Tracking outcomes, evaluating progress and sharing results.

Contributing to regional, state, national and international climate initiatives.

Advocating for effective environmental management and adaptation resources.

COMMUNITY ADAPTATION & RESILIENCE

Facilitating community access to accurate, timely and practical information.

Supporting localised community-led Community Based Adaptation (CBA) initiatives.

Reducing the impacts of heatwaves for people in their homes, workplaces, schools and care facilities.

Reducing the impacts of bushfire smoke and poor air quality for people in their homes, workplaces, schools and care facilities.

Anticipating and helping people to reduce the impacts of the changing allergen profile.

Enhancing community food security.

Supporting psychological adaptation.

Helping ensure current and future housing stock meets the demands of a changing climate.

Supporting a climate-ready community sector.

Continuing to emphasise community resilience as an essential aspect of emergency management.

FUTURE-READY INFRASTRUCTURE

Applying a risk-management approach to strategic land-use planning and population change.

Acknowledging and planning for the impacts of coastal erosion.

Encouraging sustainable building practices.

Lessening risks to Council assets.

Anticipating and planning for potential climate impacts on stormwater and drainage.

Supporting owners to decrease physical risks to private property.

Working with other levels of government to minimise risks to public assets.

FINANCIAL & ECONOMIC SUSTAINABILITY

Reducing risks to Council's financial assets and investments.

Helping property owners to understand and plan for financial risks associated with climate change.

Encouraging the agricultural sector to transition to more sustainable operations

Supporting opportunity identification in new agricultural products and markets.

Encouraging forestry operators to transition to more sustainable operations.

Supporting opportunity identification in the carbon market.

Encouraging tourism operators to understand risks and opportunities.

Supporting local businesses to transition to more sustainable operations and to identify risks and opportunities.

ENVIRONMENTAL STEWARDSHIP

Planning for change in the physical environment.

Protecting, enhancing and recovering biodiversity.

Anticipating and mitigating biosecurity risks.

Working with relevant stakeholders to protect Aboriginal heritage values in the landscape.

Managing water sustainably.

Monitoring pollution and environmental health.

8. ABOUT OUR PRIORITIES

The following section provides additional background to each of the iCEP's priorities. Our final selection of priorities was based on a combination of community and stakeholder views, evidence from research, good practice in local government, Council policy and responsibilities, and the local knowledge and expertise held by Council staff and elected representatives.

COUNCIL-LED SUSTAINABILITY

Not only are councils the level of government closest to the community, where the effects of climate change will be keenly felt; they are also corporate entities with the capacity to lead by example through positive environmental and sustainability practices.

The Australian Local Government Association (ALGA) states that local government is committed to playing its part to meet the challenges and opportunities of reducing emissions and adapting to climate change.

The Local Government Association of Tasmania (LGAT) has developed the following Guiding Principles on Climate Change for Local Government[3]:

- Combining mitigation and adaptation strategies at all levels of government and industry.
- Commitment to long-term and strategic consideration of climate change across local government functions.
- Leadership within the local community in understanding and acting on climate change.
- Flexibility and resilience within local government processes to adapt to climate change impacts upon human and natural environments.
- Recognition of shared responsibility and collaboration across all levels of government, industry and community.

MAINTAINING A HIGH-QUALITY KNOWLEDGE BASE.

Why is this important?

Respondents to our community and stakeholder consultation told us that Council decision-making should take a long-term view of sustainability. They told us Council decision-making should be evidence-based and not distorted by pressure from vested interests.

Research conducted for development of this iCEP has highlighted the quickly changing nature of data concerning climate and the environment. Effective planning and decision-making will need to keep up with this data landscape. In the context of climate change, the Australian Local Government Association (ALGA) has named as a key priority improved access to information and scalable data to inform council policy development planning and community engagement[4]:

Similarly, Action 5.2 of Tasmania's Climate Action 21[5] is to: 'Develop online resources to help communities understand their exposure to natural hazards.'

EMBEDDING CLIMATE AND ENVIRONMENTAL CONCERNS IN COUNCIL DECISION-MAKING.

Why is this important?

Respondents to WWC's community and stakeholder consultation told us they were concerned about a lack of government response to climate and environmental issues. Only a minority (17%) of respondents felt Waratah-Wynyard Council was doing enough to prepare for the impacts of climate change. Respondents said they wanted Council to demonstrate strong leadership around sustainability, environmental management and climate change adaptation. They said an ideal Waratah-Wynyard is a place where Council decision-making applies an environmental 'lens'.

This position is reflected in the policy context. The Australian Intergovernmental Agreement on the Environment (1992)[6] commits to the integration of environmental considerations into all levels of Government decision-making. The Agreement recognises that local government:

- has a responsibility for the development and implementation of locally relevant and applicable environmental policies within its jurisdiction in co-operation with other levels of Government and the local community;
- has an interest in the environment of their localities and in the environments to which they are linked; and
- has an interest in the development and implementation of regional, Statewide and national policies, programs and mechanisms which affect more than one Local Government unit.

Action 5.3 of Tasmania's Climate Action 21[7] is to: 'Work with local government and regional bodies to embed climate change adaptation into strategic and financial decision making.'

ESTABLISH MECHANISMS FOR PARTNERING WITH THE WARATAH-WYNYARD COMMUNITY ON ENVIRONMENTAL MANAGEMENT AND CLIMATE ACTION.

Why is this important?

The Intergovernmental Panel on Climate Change (IPCC) has emphasised the link between resilience to climate change impacts

and the quality of local governance. It notes that government's capacity and willingness to listen to, work with, support and serve those who lack resilience is fundamental to adaptation[8].

Respondents to WWC's community and stakeholder consultation told us that an ideal Waratah-Wynyard was a place where a forward-thinking Council works in partnership with an engaged community. They said that Council should not, and cannot, act alone, and that Council's role should foster collaboration with multiple stakeholders.

Australia's National Climate Resilience and Adaptation Strategy[9] states, 'There are significant benefits when local councils engage in a partnership approach, by bringing in other local councils and/or businesses and community groups. Working together, local councils can achieve economies of scale, share information and pool resources'.

REDUCING COUNCIL'S RESOURCE CONSUMPTION AND CARBON FOOTPRINT

Why is this important?

Australia is a signatory to the 2015 Paris Agreement. This commits Australia to helping keep the global temperature rise this century to below 2 degrees Celsius above pre-industrial levels, with a preferred limit of 1.5 degrees. Signatories agree to rapidly reduce emissions to limit further warming[10].

Local governments own and manage a range of facilities and equipment that offer opportunities for improved energy efficiency and use of renewable energy. Respondents to WWC's community and stakeholder consultation told us there was an opportunity for Council to demonstrate leadership in corporate sustainability and energy alternatives.

A national survey of local governments in Australia found that reducing emissions creates mutual benefits across the community and council. Positive outcomes include cost savings, environmental benefits and increased profile. Action at the local level contributes to meeting the Paris Agreement and helps prepare communities for a changing climate[11].

MANAGING WASTE SUSTAINABLY

Why is this important?

Australia's National Waste Policy states that 2.7 tonnes of waste per capita is generated each year in Australia. While the net amount of waste continues to grow due to an increasing population, Australian attitudes towards waste and resource management have shifted towards a desire to see resources captured and recirculated. The policy notes that better management of waste (including moving to a more circular economy) can deliver financial, economic and environmental benefits. At present, waste is responsible for approximately two percent of Australia's emissions, via methane emitted from the decay of organic material in landfill[12].

In 2018/19, Waratah-Wynyard recorded a total of 5,149 tonnes to landfill. Respondents to WWC's community and stakeholder consultation told us that an ideal Waratah-Wynyard was a place in which people are helped to compost their green waste and to repair, recycle and re-use. Respondents highlighted more sustainable waste management practices as an area for Council action, such as reducing impacts from non-recyclable waste; incentivising sustainable choices; encouraging and supporting

recycling for households and in public spaces; the collection and reuse of green waste.

Cohesive waste management is a priority for all levels of government in Australia. Local governments are accountable for providing waste services to local households and businesses, managing landfill sites and delivery education and awareness campaigns. In Tasmania, these activities are shaped by the National Waste Policy and the Tasmanian Waste and Resource Management Strategy.

WWC aims to continually improve the way it manages waste. Council's strategic objectives for waste management objectives include diverting waste from landfill by partnering with business and the community; building awareness around individual roles in value creation and facilitating community awareness; complying with relevant environmental legislation; and providing a waste service that is both valued by, and affordable for, the local community.[13]

A recent assessment on the state of markets for recycled materials found that the local and global markets for recyclables—paper and cardboard, plastics, glass—were all volatile in 2019. This was largely due to regulatory restrictions on the import of recycled material into China, and then into some Asian nations. The market security and pricing for recyclables is strongly linked to the available of markets back into the new product, either as packaging or durable goods. It is unlikely that Australia will have the same opportunities to explore recyclable materials in either the quantity or quality that existed previously. There is a recognition that governments and major brands have a role in procuring recycled content product in order to create the market for a healthy circular outcome[14].

Waratah-Wynyard's Waste and Resource Recovery Strategy 2019-2024[15] aims to ensure Council is suitably prepared and resourced to address the challenges and opportunities of a changing environment. The strategy commits to achieving a 50% diversion of waste from landfill by 2024 as well as continuous improvement in the way Council manages community-generated waste. Key priorities of the strategy include materials recovery, community education, environmental compliance and value-for-money.

ALGA strongly supports programs to recycle, reduce and reuse waste. ALGA also supports product stewardship programs in which manufacturers accept responsibility for managing the end-of-life impact of their products[16].

ASSISTING THE WARATAH-WYNYARD COMMUNITY TO REDUCE ITS RESOURCE CONSUMPTION AND CARBON FOOTPRINT

Why is this important?

A national climate review in 2018 found that community emissions reduction targets and actions were not uniformly supported by local government. It found that strong community support can be harnessed to reduce council and community emissions, and that reducing emissions creates mutual benefit across the community and council.[17]

Respondents to WWC's community and stakeholder consultation told us Council could do more to assist residents to live sustainably and have a smaller carbon footprint. Key issues of concern included saving energy, planning for reduced water availability, mitigating the effects of pollution and waste, reducing impacts from non-recyclable waste, incentivising sustainable choices and the collection and reuse of green waste.

EMBEDDING CLIMATE RISK INFORMATION IN COUNCIL'S EMERGENCY PLANNING

Why is this important?

Australian local governments have a central role in coordinating and facilitating a range of emergency management activities for all hazards, as well as for resourcing specific council responsibilities for emergency management. Waratah-Wynyard Council's role in emergency management is detailed in the Western Emergency Management Plan[18], which designates responsibilities against a list of identified hazards. 'Preparedness' is managed collaboratively between the State Government, councils and their emergency management partners.

The emergency management sector is at the frontline of dealing with climate change. Many emergency sector agencies are already feeling the impact of climate change. In a recent open statement[19] to the Prime Minister and all State and Territory Governments, the Emergency Leaders for Climate Action group stated that human-driven climate change is worsening the risks of fires, floods and storms in Australia. Further, climate change is reducing opportunities for risk mitigation (such as hazard reduction burns) and traditional responses (such as seasonal resource-sharing).

ALIGNING COUNCIL'S PURCHASING WITH PRINCIPLES OF SUSTAINABILITY

Why is this important?

The total annual expenditure of the Australian local government sector in 2016-17 was $35.9 billion. As major procurers, local governments can use their purchasing power to buy sustainably. Potential benefits of sustainable procurement include reduced costs, the ability to serve as a role model to other major procurers, and the achievement of environmental and social benefits throughout the supply chain.

The Australian Government states that sustainable procurement 'looks beyond the up-front cost to make purchasing decisions based on the entire life cycle of the goods and services, taking into account associated costs, environmental and social risks and benefits, and broader social and environmental implications'[20].

TRACKING OUTCOMES, EVALUATING PROGRESS AND SHARING RESULTS

Why is this important?

Many Australian councils have adopted a triple bottom line (TBL) approach to track their progress towards social, environmental and economic sustainability. Put another way, the triple bottom line accounts for 'people, planet and profit'. Reported benefits of TBL include[21]:

- Embedding sound corporate governance and ethics systems throughout all levels of an organisation, i.e. a values-driven culture is integrated at all levels.
- Improved risk management due to enhanced management systems and performance monitoring, potentially leading to better resource allocation decisions and business planning.
- Formalising and enhancing communication with key stakeholders.
- Attracting and retaining competent staff by demonstrating an organisation is focused on values and its long-term viability.

- Ability to benchmark performance within and across industries.

Respondents to WWC's community and stakeholder consultation affirmed that local government actions on climate and sustainability should include monitoring and reporting on environmental matters, and should keep the community informed.

CONTRIBUTING TO REGIONAL, STATE, NATIONAL AND INTERNATIONAL CLIMATE INITIATIVES

Why is this important?

When asked who should lead action on the causes and effects of climate change, the top three responses from respondents to WWC's community and stakeholder consultation were: the Federal Government; state/territory governments; and local governments.

Respondents affirmed that local government action on climate and sustainability should include partnering with others on environmental initiatives. Several Australian councils have escalated the importance of municipal sustainability and climate change action in response to perceived gaps at the national or state policy level.

In 2016, Australia ratified the Paris Agreement and the Doha Amendment to the Kyoto Protocol, reinforcing Australia's commitment to joining international action on climate change. Australian national policy is set out in the National Climate Resilience and Adaptation Strategy.

At the State level, Climate Action 21 sets the Tasmanian Government's agenda for action on climate change through to 2021. The plan names local government as a key partner for both the development of Climate Action 21 as well as delivery of specific actions.

The first government body in the world to declare a climate emergency, Darebin City Council (Victoria, Australia) has argued that councils cannot take climate action alone. Rather, state, federal and global efforts will have the most powerful impact. Darebin advises that collaborative campaigns—involving partners such as other councils, educational institutions, industry groups and community organisations—must advocate for effective action and significant changes to policy, legislation and funding.[22]

ADVOCATING FOR EFFECTIVE ENVIRONMENTAL MANAGEMENT AND ADAPTATION RESOURCES.

Why is this important?

Many adaptation and environmental management measures require input on a scale that exceeds local government capacity. As the tier of government closest to the community, local councils are ideally placed to understand community perspectives and experiences and to advocate for community needs.

Respondents to WWC's community and stakeholder consultation told us that Council's role should include lobbying other levels of government for more local energy options, on climate action, and for additional resources for adaptation.

COMMUNITY ADAPTATION & RESILIENCE

Adaptation is the process of adjustment to actual or expected climate change and its effects. Ideally, adaptation measures will also deliver benefits for climate change mitigation and sustainability. The Intergovernmental Panel on Climate Change (IPCC) notes that local government is increasingly recognised as critical to progress in adaptation due to its role in managing risk information and in scaling up adaptation[23].

Adaptation is considered well-suited to a collaborative approach. This is because of the long timeframes and wide geographic areas involved, and because successful outcomes depend on stakeholder engagement and a wide range of expertise[24].

In this iCEP, community adaptation refers to the process of adjustment made by and with our residents, workers and visitors. It complements other types of adaptation, for example in the local economy or in specific business or industry sectors.

Resilience is the ability to bounce back from, or cope with, adversity or trauma. At a community level, resilience is a community's ability to overcome crises. Resilience is considered a major protective factor in enabling individuals and communities to cope with stress[25].

Effective leadership—such as that provided by local government—is an essential component of community resilience[26]. Social, institutional, economic, infrastructure and community capacities are all important for community resilience[27], and some of these factors are addressed in other sections of the iCEP.

Adaptive capacity can vary between and within communities. People who live in rural and regional communities, in coastal areas and with high levels of socio-economic disadvantage are considered especially vulnerable to the impacts of climate change.

Disadvantaged households also find it more difficult to cope with extreme weather events

than households without disadvantages; and households with multiple disadvantages are especially likely find heat and floods to be challenging[28]. In 2016 the median weekly personal income for people aged 15 years and over in Waratah-Wynyard was lower than both the Tasmanian and national average, and socio-economic disadvantage was higher than the national average[29]. Having fewer financial resources makes it more difficult to cope with extreme weather events, to evacuate or relocate, to adapt to higher costs of food[30].

FACILITATING COMMUNITY ACCESS TO ACCURATE, TIMELY AND PRACTICAL INFORMATION

Why is this important?

Good decisions depend on access to high-quality information. Communication and information-sharing for the purposes of community resilience has three key functions: (i) to assist in prevention, preparation and risk mitigation; (ii) to facilitate an emergency response; and (iii) to support the recovery process. At the same time, climate change projections are constantly being reviewed, updated with fresh data, and disseminated through a variety of channels. This can make it more difficult for the everyday citizen to have reliable information at their fingertips.

Community resilience is likely to be higher when municipal information provision is tailored to the community's needs[31]. At the same time, information provision alone should not be regarded as automatically conferring resilience and preparedness, and ideally should be integrated with community development[32]. Ideally, communities will not just 'receive' information but be empowered to meet their own information needs through a two-way dialogue[33].

Respondents to WWC's community and stakeholder consultation told us Council should educate, consult, involve and engage the community. They said information-sharing could help residents to anticipate change and live more sustainably, and could support the sustainability of local industry.

SUPPORTING LOCALISED COMMUNITY-LED COMMUNITY BASED ADAPTATION (CBA) INITIATIVES

Why is this important?

Australia's Climate Resilience and Adaptation Strategy emphasises shared responsibility for managing climate risks, as well as the importance of making collaborative, values-based choices to address climate change at the local level rather than a one-size-fits-all approach.

Waratah-Wynyard is a home to diverse communities, each with their own social networks, resources and environmental strengths and challenges. Respondents to our community and stakeholder consultation affirmed that Council should help communities adapt. However, they also told us that an ideal Waratah-Wynyard is one in which Council works in partnership with its community, supporting and empowering local people to adapt and make sustainable choices.

Community-based adaptation (CBA) is considered a cost-effective way to help de-risk environmental change on a wider scale[34]. CBA is a 'community-led process, based on communities' priorities, needs, knowledge and capacities, which should empower people to plan for and cope with the impacts of change'[35]. CBA typically involves:

- focusing on communities most vulnerable to climate change;
- identifying development activities at the local level that bolster adaptive capacity;
- involving local stakeholders in developing strategies; and
- integrating cultural norms and addressing the root causes of vulnerability[36].

REDUCING THE IMPACTS OF HEATWAVES FOR PEOPLE IN THEIR HOMES, WORKPLACES, SCHOOLS AND CARE FACILITIES

Why is this important?

Under a high emissions scenario[37], by the end of this century Waratah-Wynyard is projected to experience an increase in summer days over 25 degrees from less than 10 days a year to more than 20 days. The temperature of very hot days will increase by 3-4 degrees in some locations in some seasons.

Extreme heat and heatwaves present serious health risks for older adults, babies, young children, pregnant women and those with a chronic health condition. Risks of exposure include dehydration, heatstroke, heat exhaustion, the exacerbation of heart and kidney conditions, and death[38].

In Australia, excessive heat has been shown to have an equivalent mental health effect to that of unemployment[39]. Over the last century, heatwaves have been responsible for more deaths in Australia than any other natural event.[40] In 2016, compared with other regions in Tasmania, people living in the north west were significantly less likely to use air conditioning at home (36.5%) and were significantly more likely not to use any cooling method[41]. This means homes in the north west may be less well equipped to cope with days of high heat.

REDUCING THE IMPACTS OF BUSHFIRE SMOKE AND POOR AIR QUALITY FOR PEOPLE IN THEIR HOMES, WORKPLACES, SCHOOLS AND CARE FACILITIES

Why is this important?

Bushfires can dramatically worsen air quality for populations, even for those not in direct proximity to the fire. This effect was seen in the 2019-20 bushfire season, in which smoke impacted air quality in the cities of Sydney, Canberra and Melbourne as well as settlements on the north west coast of Tasmania.

Exposure to smoke, most notably particulate matter of 2.5 micrometres (PM2.5μm) or less, has been linked with increased mortality. People with a chronic disease—particularly a heart problem or a lung condition, such as asthma, chronic bronchitis and emphysema—are more susceptible to smoke's health effects[42]. In addition to people with chronic disease, people at higher risk from smoke include babies, young children, the elderly, and those who are socially and economically marginalised and who may not have access to air conditioning or air purifiers[43]. Emerging research indicates that there may be no safe level of PM2.5μm pollution[44].

Hourly averages for airborne particulates (PM2.5μm and PM10μm) are currently reported by Tasmania's Environmental Protection Authority (EPA).

ANTICIPATING AND HELPING PEOPLE TO REDUCE THE IMPACTS OF THE CHANGING ALLERGEN PROFILE

Why is this important?

Allergic rhinitis ('hayfever') and asthma are significant chronic diseases in Australia, and the two conditions often occur together. Almost 1 in 5 Australians had allergic rhinitis in 2017-18[45]. Grass pollen is a major trigger for allergic rhinitis. Increases in atmospheric concentration of grass pollen have been associated with significant increases in hospital emergency department visits and admissions for asthma[46].

In the context of climate change, warmer temperatures are expected to lead to an increase in allergens, such as plant pollens and fungal spores[1]. While there is much international research on climate change on allergens and allergic diseases, there is currently little research specific to Australia, a country considered to be especially vulnerable to this issue due to the high prevalence of allergic disease[47].

Access to information about current and forecast pollen levels is likely to give people with allergic rhinitis and allergic asthma a greater sense of empowerment and control over their symptoms, which may lead to improved use of preventative medication and better health outcomes[48].

ENHANCING COMMUNITY FOOD SECURITY

Why is this important?

Climate change is already adversely affecting the price, quality and seasonal availability of many foods in Australia[49]. Future climate change is likely to negatively impact food security through direct damage to crops, lowered crop viability, a reduction in food's nutritional quality (due to increased carbon dioxide), and the rising cost of fresh food[50]. At the time of preparing this report, the price of vegetables and some fruits in Australia was significantly higher than in previous years due to drought and bushfires[51,52].

Insufficient healthy food is linked to several chronic conditions and diseases, including malnutrition, obesity, heart disease, diabetes and some cancers. Insufficient healthy food can also impede development and learning in children and can lead to social avoidance and isolation. Low food insecurity and poor nutritional status are also associated with worse mental health[53].

Shortages of locally available fresh produce may worsen the north west region's already low rates of consumption of fresh food. In 2016, most residents in Waratah-Wynyard did not meet the guidelines for fruit and vegetable consumption[54]. Compared to the Tasmanian average, Waratah-Wynyard residents also paid more for a standard basket of healthy foods when utilising a minor supermarket or general/convenience shop in 2014[55]. In the North West region in 2016, more than one in twenty (6.4%) of people reported that some time in the past 12 months they had run out of food and had been unable to afford to buy more[56].

Respondents to WWC's community and stakeholder consultation told us they were concerned about the impacts of climate change on agriculture. This concern extended to the issue of food security and the need to balance food production with other types of vegetation. Respondents said that an ideal Waratah-Wynyard was a place where food security and access to organic produce was

enhanced, supported in part by community gardens and edible landscapes.

Tasmania's agricultural sector feeds not just the local community, but also those on mainland Australia and beyond. This implicates the north west in the food security of other regions.

SUPPORTING PSYCHOLOGICAL ADAPTATION

Why is this important?

Anxiety around threats to the natural environment has been dubbed 'eco-anxiety'. Many respondents to WWC's community and stakeholder consultation told us they felt 'worried' and/or 'concerned' in relation to the changing climate and loss of environmental values.

In addition to generating concerns about the future, environmental change is associated with worse mental wellbeing through such factors as climate-driven unemployment, the rising cost of living, increased pressure on health services (especially in rural/regional areas), resource-use conflicts, and conflicts between newcomers and host communities in the context of climate-driven migration[57]. For rural and regional populations, mental stress from the impacts of extreme weather on agricultural production and viability is also a factor[58]. In addition, trauma events from fires and extreme weather events have negative effects on psychological wellbeing.[59]

Mental health—especially with regards to anxiety, depression and trauma—is already a priority wellbeing issue for the Waratah-Wynyard community. Between 2009 and 2016, the north west region experienced a significant increase in the prevalence of depression/anxiety.[60] In 2016 just over one in ten (11.7%) north west respondents reported that they had experienced high/very high psychological distress at some time over the past four weeks[61].

HELPING ENSURE CURRENT AND FUTURE HOUSING STOCK MEETS THE DEMANDS OF A CHANGING CLIMATE

Why is this important?

Respondents to WWC's community and stakeholder consultation told us they felt more could be done to ensure the sustainability of local housing.

Climate change is expected to affect the physical structure of houses and other buildings in three main ways. The first is the impact of changing weather patterns (increased temperature and rainfall) on building materials and foundations; the second is damage from sea level rise; and the third is direct damage or destruction from extreme events[62].

A lack of home insulation means that people living in low-quality housing tend to be more vulnerable to extreme heat events, with their risk factors for heat-related morbidity twice as prevalent than in mid- to high-income households.[63] Older houses in Australia tend to be poorly sealed against airflow (leaking around windows, doors and where fixed ventilation grilles are installed), making residents of these houses more susceptible to heat loss in the colder months as well as ingress by smoke pollution from bushfires. Cities with a high proportion of older homes, such as Hobart, have worse scores for air tightness[64].

People experiencing homelessness are particularly vulnerable to extreme climate events, such as heatwaves or flooding[65]. The

total number of Tasmanians experiencing homelessness in 2016 was 1,622, with 20% of Tasmania's homeless people located in the west and north west regions.

SUPPORTING A CLIMATE-READY COMMUNITY SECTOR

Why is this important?

Community service organisations act as 'shock absorbers' for vulnerable communities facing the impacts of climate change, both in terms of assisting people to navigate crises and supporting communities to recover from extreme events[66]. This is because community organisations have a close knowledge of the strengths and vulnerabilities of people in their communities, and possess skills in crisis management, outreach and information referral[67].

Research indicates the Australian community sector may not be uniformly well-prepared to respond to climate change, with sectoral adaptation impeded by factors such as inadequate financial resources, a lack of knowledge and skills for adaptation, and the belief that climate change adaptation is not core business[68].

Respondents to WWC's community and stakeholder consultation told us they wanted to see strong integration and collaboration between local government and local community and environmental organisations.

CONTINUING TO EMPHASISE COMMUNITY RESILIENCE AS AN ESSENTIAL ASPECT OF EMERGENCY MANAGEMENT

Why is this important?

The Australian Disaster Resilience Knowledge Hub defines resilience as 'The ability of a system, community or society exposed to hazards to resist, absorb, accommodate, adapt to, transform and recover from the effects of a hazard in a timely and efficient manner, including through the preservation and restoration of its essential basic structures and functions through risk management'[69]. The emergency management sector has become increasingly focused on the importance of building community resilience, both for pre-disaster strengthening and for improving the long-term psycho-social outcomes of communities in the wake of disasters[70].

Waratah-Wynyard Council maintains a Municipal Risk Management Project through its Emergency Management Planning Committee, and it is a party to the Western Emergency Management Plan. This plan states that responsibilities for recovery rest primarily with Council. It defines recovery as a coordinated process of supporting emergency-affected communities in the reconstruction of physical infrastructure and the restoration of emotional, social economic and physical wellbeing. It notes that individual resilience may be enhanced through psychosocial supports[71].

FUTURE-READY INFRASTRUCTURE

Built infrastructure is vulnerable to both climate-related wear-and-tear and major damage from extreme events. Infrastructure at risk includes facilities under local or state government management and privately owned property.

Australia's 560 Local Governments manage land and fixed assets with a total replacement cost of around $426 billion. A high proportion of this infrastructure is deemed to be in poor condition, which means the local government sector is moving into a major renewal phase over the next two decades. As of 2018, an estimated $30 billion was required to renew and replace ageing infrastructure[72].

While local government is already under pressure to manage and maintain assets within existing budgetary constraints, this challenge is likely to be exacerbated by climate change and extreme weather events[73].

Waratah-Wynyard Council is responsible for assets worth in excess of $207 million. These include roads, bridges, stormwater drainage, buildings, open space and recreation, footpaths and associated operating assets. Identified risks for these assets include the impact of climate change on development and maintenance of infrastructure in coastal areas. Climate change is also identified as driver of demand for Council services[74].

Failures of public infrastructure can affect supply chains and result in additional costs for reconstruction and increased insurance premiums[75].

Respondents to WWC's community and stakeholder consultation expressed concern about the potential impacts of climate change on infrastructure. They noted that infrastructure is vulnerable to the impacts of both fire and inundation. Respondents highlighted the need to mitigate risk to infrastructure through reinforcement and relocation, and through planning for potential infrastructure failures.

APPLYING A RISK-MANAGEMENT APPROACH TO STRATEGIC LAND-USE PLANNING AND POPULATION CHANGE

Why is this important?

Respondents to our community and stakeholder consultation told us they were concerned about the potential for both overdevelopment and inappropriate development. This was especially so in regard to the potential economic and social impacts of building in high-risk locations (e.g. from bushfire, flooding, coastal inundation); the impacts of increased development on water and other resources; maintaining recreation and transport links; keeping the existing small-town amenity; and impacting the quality and extent of natural environments.

Respondents said that careful land-use planning, development and building practices were all potential means to facilitate sustainability, environmental management and climate-change preparedness. Respondents felt that planning, development and building should be undertaken strategically, with a view to preserving the natural environment, encouraging greenery, facilitating energy and water efficiency, and mitigating risk from bushfire and inundation.

In addition, respondents told us that an ideal Waratah-Wynyard was a place in which there is balance between the needs of natural, productive and built environments, where people enjoy nature and greenery within and beyond townships, and where people enjoy good access to natural spaces and national parks. They said they felt Council could to more to support revegetation on both private and public land, including provision of street trees.

Respondents valued Waratah-Wynyard's open spaces for recreation, including parks and pathways. The natural environment was seen as contributing to the beauty of the area as well as to people's physical and psychological wellbeing.

Waratah-Wynyard's *Open Space, Sport and Recreation Plan 2017-2027* acknowledges an increasing environmental awareness in the local community, including expectations and demand for the pristine environmental settings the region provides. The principle of sustainability—including design, development and management—is embedded within the Plan as a means to deliver open space and recreation opportunities that enhance 'the liveability, health and wellbeing of all residents'[76].

The position of the national peak body for land-use planning, the Planning Institute of Australia (PIA), is that planners working for different levels of government 'have a responsibility to integrate planning for climate change into their work and be proactive in the development of mitigation and adaptation strategies to avoid harm and negative impacts'[77].

Consistent with all Tasmanian councils, Waratah-Wynyard is required to transition from its interim planning scheme to the new statewide Tasmanian Planning Scheme. The Tasmanian Government is currently developing a suite of Tasmanian Planning Policies (TPPs) to sit alongside the new scheme. These TPPs 'may relate to: the sustainable use, development, protection or conservation of land; environmental protection; liveability, health and wellbeing of the community; and any other matter that may be included in a planning scheme or a regional land use strategy'[78].

The regional planning framework applicable to Waratah-Wynyard Council is the Cradle Coast Regional Land Use Planning Framework ('Living on the Coast'). Principles of

the framework include improving the liveability and sustainability of communities, ensuring land and resources are consumed at a sustainable rate, and ensuring decisions and choices are informed by science and expert knowledge. The framework also emphasises the importance of considering inter-generational equity on planning and development decisions[79].

ACKNOWLEDGING AND PLANNING FOR THE IMPACTS OF COASTAL EROSION

Why is this important?

Coastal hazards can cause considerable damage to communities, industries and infrastructure. These hazards are expected to be magnified by climate change and sea level rise. Tasmanian Climate Futures project a rise in sea level of 0.82m by 2100 under the IPCC high-emissions scenario[80]. Recent research on the Greenland ice sheet[81] indicates the world is on track for the high emissions scenario, with a potential sea-level rise of between 0.61m and 1.1m by 2100[82].

Respondents to our community and stakeholder consultation told us they were very concerned about coastal erosion and the threat of inundation. Feedback emphasised Sisters Beach, but other at-risk coastal assets included the Somerset foreshore, highway, bridges, coastal reserves, estuaries and Wynyard township. Concerns related both to sea-level rise and storm events. Respondents said that an ideal Waratah-Wynyard was a place in which assets and infrastructure are protected from the effects of coastal erosion.

Mapping of coastal hazards for sea-level rise scenarios in 2016 found that Waratah-Wynyard had a total of 139.5 hectares of land within coastal inundation 'hazard bands', including 43.9 hectares in the low hazard band, 41.5 hectares in the medium hazard band and 52 hectares in the high hazard band[83]. A separate technical report from the same timeframe identified 286 Waratah-Wynyard residential building envelopes within coastal erosion hazard bands. Most of these (51%) were located in Wynyard, with a further 23% in Sisters Beach, 11% in Boat Harbour and 9% in Somerset[84].

As a public land manager, Council faces ongoing decisions regarding the protection and/or retreat of public infrastructure from the threats of coastal erosion. Furthermore, there has been an expectation that all coastal hazard issues within the municipality is the direct responsibility of the Council. The responsibility for protection measures, as outlined by the Department of Primary Industries, Parks, Water and Environment, rests with the landowner. Council does not accept specific future obligations to repair or reduce the impacts of erosion on private property, but will provide a facilitatory role in development of plans to address public infrastructure on council owned and managed land.

ENCOURAGING SUSTAINABLE BUILDING PRACTICES

Why is this important?

Building practices can mitigate risk and contribute to more sustainable and resilient housing. For example, the Build it Back Green guide to home design and construction sets out more than 70 technologies for building to disaster-resilient standards, include building for climate resilience[85]. Green certification programs (such as LEED) may be applied to commercial and residential buildings to determine sustainability.

Waratah-Wynyard Council deems Sisters Beach and Waratah to be at higher risk from

bushfire and/or gorse fire. Boat Harbour is also deemed at risk from flammable vegetation to the west[86]. The National Construction Code (NCC) requires buildings constructed in a designated bushfire prone area to be designed and constructed to reduce the risk of ignition from a bushfire, appropriate to the potential for ignition caused by burning embers, radiant heat or flame generated by a bushfire, and the intensity of the bushfire attack on the building[87].

Building regulations are also applicable to projected flood-prone areas. CSIRO has stated that setting building floor heights in relation to flood levels and declaring areas subject to flooding are likely to be key issues for local governments[88]. In 2016 CSIRO established sea level rise planning allowances for Tasmania based a high emissions scenario[89]. Sea level rise planning allowances for Waratah-Wynyard Council are 0.22m for 2050, and 0.83m for 2100[90].

REDUCING RISKS TO COUNCIL ASSETS

Why is this important?

Buildings are vulnerable to the effects of fire, extreme rainfall, wind, lightning and the combination of storm surge and sea-level rise. Degradation of materials, structures and foundations may also increase maintenance costs and cause structural failure[91]. There is a potential liability for losses (with the exception of pure economic losses) arising out of Council operational decisions where harms have been reasonably foreseeable[92].

Waratah-Wynyard Council's Asset Management Policy[93] commits Council to best practice in asset management. This includes ensuring that assets are planning, created, operated, maintained, renewed and disposed of in accordance with Council's priorities for service delivery. Specific requirements include safeguarding assets by implementing appropriate asset management strategies, and ensuring appropriate risk management processes are considered and implemented.

ANTICIPATING AND PLANNING FOR POTENTIAL CLIMATE IMPACTS ON STORMWATER AND DRAINAGE

Why is this important?

Under both emissions scenarios, rainfall in Waratah-Wynyard is projected to decrease in summer and autumn and increase in winter and spring. Rainfall will be slightly increased at the coast and decreased inland. The area is likely to see fewer rain days with >1mm rain, but heavier rain on these days. In the long term, drought frequency and severity may stay similar to what was experienced in the 20th century. However, pan evaporation is projected to increase by up to 19% by the end of the century. Total water runoff is not projected to change markedly, due to a combined increase in winter and spring and decrease in summer and autumn. Likewise, there will be little change in average river flows (peak flows will reflect changing rainfall patterns) [94].

CSIRO has stated that ongoing drainage management, operations and maintenance is likely to be an issue for local government in the context of climate change. Extreme daily rainfall events may affect the capacity and maintenance of stormwater, drainage and sewer infrastructure. Damage costs and environmental spills may result if water systems are unable to cope with extreme or frequent events. Increased ground movement and groundwater changes may also accelerate material degradation and the structural integrity of water supply, sewer and stormwater pipelines[95].

SUPPORTING OWNERS TO DECREASE PHYSICAL RISKS TO PRIVATE PROPERTY

Why is this important?

CSIRO notes that the building sector has the most diversity of ownership of all infrastructure sectors. This presents challenges with regard to communicating risks to property owners and ensuring that these risks are incorporated into decision-making[96].

The Tasmanian *Mitigating Natural Hazards Through Land Use Planning* (MNHLUP) *Framework* states that ideally residential property owners would be aware of the risks from natural hazards and would make a conscious choice in which the benefits of occupying a property outweigh the costs. However, the framework acknowledges that residents are not always aware of the risks associated with the purchase of a property. In addition, those risks might change over time, and there may be barriers for homeowners seeking to shift their investment to manage their risk exposure[97].

The following principles of the framework have implications for local government in planning for natural hazards[98].

- The private risks associated with natural hazards are the responsibility of individuals and businesses.
- Governments should encourage public and private risks to be factored into investment decisions.
- Governments can support individuals and businesses to understand and manage private risks through the collection of evidence, provision of information and facilitation of collective action.
- Governments should ensure that private investment minimises unacceptable public risk.
- Governments should avoid investment, regulation or policy that gives rise to unacceptable public or private risks.
- Governments should have regard to, and support individuals and businesses to consider, how natural hazards may change in the future, including through climate change.

WORKING WITH OTHER LEVELS OF GOVERNMENT TO MINIMISE RISKS TO PUBLIC ASSETS

Why is this important?

Public assets that may be at risk from the impacts of climate change include transport, power and telecommunications infrastructure. While these assets are not managed by Council, they are essential to the economic and social life of Waratah-Wynyard.

Extreme rainfall may cause flood damage to transport infrastructure. Ports and coastal infrastructure are vulnerable to storm surges combined to sea-level rise; while extreme wind may damage rail, bridges, airports and ports. In addition to the material and structural degradation that may occur through increased ground movement and changes in groundwater, increased temperature and solar radiation may impact road and runway surfaces, steel construction, concrete joins and protective cladding and coatings[99].

The Bass Highway is a major transport route for north west Tasmania. A study of the Bass Highway between Wynyard to Marrawah acknowledges that climate change effects may impact highway mitigation works. The

report notes the need for ongoing monitoring. For example, it identifies a 12km section of the highway between Detention River and Black River as an area that is potentially susceptible to climate change impacts[100]. Separate studies also indicate areas near the Bass highway that may be subject to flood- and erosion-related risk. At the time of preparing this report, no State Government risk assessment for the entirety of the Bass Highway was identified as pending.

Electricity transmission infrastructure and services are vulnerable to damage from extreme weather events. Coastal electricity infrastructure is also potentially at risk from storm surge, wind, flooding, wave events and sea-level rise. Above-ground fixed line transmission infrastructure is vulnerable to damage from wind, lightning and bushfire events, while rainfall events may impact manholes and pits. An increased frequency of outages could lead to an increase in the cost of supply[101].

Increased ground movement and changes in groundwater may degrade materials and the structural integrity of power generation foundations as well as transmission lines and gas and oil pipelines. Heatwave events are likely to increase demand for electricity and to reduce the efficiency of transmission[102]. Tasmania's hydro-electric power supply is also vulnerable to the effects of drought[103].

Buildings are vulnerable to the effects of extreme rainfall, wind, lightning and the combination of storm surge and sea-level rise. Buildings and facilities close to the coast are especially at risk when storm surges are combined with sea-level rise[104]. Industrial facilities and other structures are also at risk from fire events, with several critical industrial infrastructure assets listed within the West Coast Fire Management Area[105].

FINANCIAL & ECONOMIC SUSTAINABILTY

Local government plays an important economic role. It manages physical assets which contribute to local economic growth and stability; it is one of the largest employers in rural and regional areas; it contributes to the total public sector spend; and it implements policies and strategies at the local level to support economic sustainability.

During the year ending June 2019, the gross regional product of the Waratah-Wynyard local area was $716 million. This represents an increase of 2.5% over the previous year, as well as an increase of 2.27% in the contribution of Waratah-Wynyard as a component of Tasmania's gross regional product[106].

Respondents to WWC's community and stakeholder consultation told us that an ideal Waratah-Wynyard was a place in which people enjoyed economic prosperity and sustainable jobs in carbon-neutral industries, and where economic prosperity does not come at the expense of the environment and community wellbeing.

Climate change is now regarded as a key risk to global economic prosperity[107]. The Australian economy is likely to face short-, mid- and long-term challenges from a changing climate. Potential issues for local economies include rising resource costs and competition, the cost of mitigation measures, the potential for reduced transport capacity, lowered production capacities in the agricultural sector, the changing insurance landscape, emissions policies and regulations and the potential for litigation associated with disclosure failings[108].

A sustainable local economy is one in which climate risks are assessed and mitigated, where negative impacts on the natural environment (including emissions and resource consumption) are minimised, and where strategic advantages are identified and leveraged.

REDUCING RISKS TO COUNCIL'S FINANCIAL ASSETS AND INVESTMENTS

Why is this important?

A business-as-usual approach to climate change is expected to have a major impact on the global economy, equivalent to a loss of between 5% to 11% of global gross domestic product annually. This number may be as high as 14% if amplifying feedbacks accelerate change[109].

Nothing in this document constitutes financial advice. The information in this paragraph is of a general nature. Some research indicates that under a 2˚C scenario, investors could see negative returns from developed market equity and private equity, with potential gains in infrastructure, emerging market equity and low-carbon industry sectors. Under a 4˚C scenario, asset classes such as agriculture, timberland, real estate and emerging market equities may be at risk[110].

The Australian Prudential Regulation Authority has highlighted the financial nature of climate change risks to regulated entities. It notes that the awareness of these risks is growing, and as of 2019 a majority of regulated entities surveyed were taking steps to integrate climate risks into risk management frameworks and financial analysis[111].

Investments affected by the market impacts of climate change may include Council mid- and long-term market investments as well as the superannuation of Council staff.

A further financial risk for Council is the changing insurance landscape, with the coastal zone potentially more vulnerable[112]. The Australian Insurance Council has highlighted the link between appropriate mitigation efforts and climate insurability and has noted the importance of information provision to stakeholders about future risks[113].

HELPING PROPERTY OWNERS TO UNDERSTAND AND PLAN FOR FINANCIAL RISKS ASSOCIATED WITH CLIMATE CHANGE

Why is this important?

The property sector in Australia is valued at $6.6 trillion—more than any other industry. At June 2018, Waratah-Wynyard had a median house valuation of $269,846. The value of residential building approvals in Waratah-Wynyard was $14.5 million in the 2018-19 financial year[114].

Australia-wide, climate change and extreme weather are expected to cause damage-related loss in property values of $571 billion by 2030, and $661 billion by 2050, figures that exclude costs associated with disruptions to productivity or replacement costs of buildings[115]. Climate change is also expected to affect property values indirectly, with the value of at-risk homes declining. The converse is also likely to be true. For example, in some parts of the United States, value increases have already been recorded for properties at higher elevations[116].

In addition, the impacts of climate change mean that by 2030, one in 19 property owners in Australia will potentially face unaffordable insurance premiums (i.e. costing 1% or more of the property value annually), as the proportion of properties over the 1% 'risk cost threshold' grows over time. Based on existing Australian housing stock, the impacts of these increased costs will be concentrated on 5-6% of properties (estimated to be 3% in Tasmania). Building new properties in hazardous areas could increase this proportion[117].

The impacts of the changing insurance landscape are already being felt in disaster-prone areas of northern Australia, where premium rises have seen the average rate of

non-insurance grow to 20%, twice the national average[118].

Respondents to WWC's community and stakeholder consultation told us they were concerned about the impacts of overdevelopment and inappropriate development, especially in terms of the potential economic and social impacts of building in high-risk locations. The potential financial impacts of climate change, especially regarding insurance, were also named as a concern.

ENCOURAGING THE AGRICULTURAL SECTOR TO TRANSITION TO MORE SUSTAINABLE OPERATIONS

Why is this important?

Respondents to WWC's community and stakeholder consultation told us they valued Waratah-Wynyard's productive landscapes. Respondents were concerned about the impacts of climate change on agriculture and food security. They said that an ideal Waratah-Wynyard was a place in which agricultural practices support carbon neutrality/negativity; and they valued a balance between the needs of natural, productive and built environments. Respondents wanted Council to support the sustainability of farming through information-sharing and support for innovation.

Waratah-Wynyard's Agriculture, Forestry and Fishing industry sector generated $107.5 million in 2017-8. The majority of this ($87.4 million) was generated by agriculture, followed by support services for agriculture, forestry and fishing; forestry and logging; fishing, hunting and trapping, and aquaculture[119]. In 2017-18, the total value of agricultural output in Waratah-Wynyard was $87 million. Data for 2015-16 shows that the largest agricultural commodity produced was milk, which accounted for 37.9% of Waratah-Wynyard's total agricultural outputs for that year in value terms[120].

Globally, climate change is expected to negatively impact food production and food prices, quality and distribution systems, including crops, livestock and fish production[121]. In north west Tasmania, a business-as-usual approach to agriculture and forestry may expose these industries to the risks of changing temperatures, increased bushfire prevalence and changing rainfall patterns and. Under a high-emissions scenario, by the end of the century Waratah-Wynyard is projected to experience greater frequency of drought[122]. Warmer temperatures will impact on crop types, crop duration (i.e. time to flowering and maturity), crop yields, crop quality, and pest incidence and severity[123].

CSIRO notes that the expected impacts of climate change on agricultural production in Australia are compounded by legacies of farming practices that have resulted in impoverished soils, low soil carbon levels and erosion[124]. Australia-wide, climate change is expected to cause significant economic loss to agricultural heartlands such as the Murray-Darling Basin and the Western Australian wheat belt[125].

Emissions also impact agriculture's 'social licence' to operate. Components of agricultural emissions in Australia include enteric fermentation (methane emitted from animal digestion); manure (methane and sometimes nitrous oxide emissions from decomposition); rice cultivation; agricultural soils (emissions of nitrous oxide from microbial and chemical transformations in the soil, due in part to nitrogen fertilisers); and field burning of agricultural residues[126]. In 2017, Tasmanian agriculture emitted 2.31 megatonnes of CO_2 equivalent, 1% less than in 1990[127].

SUPPORTING OPPORTUNITY IDENTIFICATION IN NEW AGRICULTURAL PRODUCTS AND MARKETS

Why is this important?

Agricultural producers can adapt to climate change in many ways. These include diversifying crops, conditioning soils, implementing technological development, and changing the timing of farm practices[128]. As the major growing regions of the mainland experience warmer conditions and decreased production, there may be an opportunity for north west Tasmania to address this gap, with further opportunities for irrigated production identified[129].

The Cradle Coast region is projected to experience an increase in growing degree days suitable for growing and ripening crops. A warming climate is likely to provide opportunities for agriculture to utilise land at higher altitudes. This is especially so for areas with ferrosols (red soils). In these areas, today's cropping zone of 300m above sea level may extend to 450m by 2030 and above 500m by 2050[130].

Dryland pasture production is projected to increase in Tasmania over the century, while irrigated drygrass yields are projected to increase to 2040 and then decline, due to hotter summer temperatures[131]. Dairy cattle are susceptible to hot conditions. By the middle of this century and under a mid-range climate scenario, dairy production is projected to decline in all regions of Australia except Tasmania, indicating potential local advantages[132].

Viticulture is a key indicator industry for the impacts of climate change. At present, wine growers all over the world are noting changes due to warming. By 2050, up to 70% of Australia's wine-growing regions with a Mediterranean climate (e.g. Barossa Valley and Margaret River) will see a decline in suitability for grape growing[133]. At the same time, in Tasmania these warming temperatures are expected to create new areas of the state with suitability for viticulture[134]. Modelling has shown that by 2070, northern Tasmania may offer a climate for wine production similar to the Coonawarra region of South Australia[135].

The Cradle Coast Authority has published information about potential adaptation strategies for the following products and sectors:

- Pome fruit
- Stone fruit
- Canola
- Beef and sheep
- Cereal
- Alkaloid poppy
- Potato
- Pyrethrum
- Vegetables
- Dairy
- Horticulture
- Legumes
- Nuts
- Olives
- Viticulture
- Farms and climate readiness

ENCOURAGING FORESTRY OPERATORS TO TRANSITION TO MORE SUSTAINABLE OPERATIONS

Why is this important?

The Tasmanian Climate Change Office cites research indicating that reduced rainfall and increased temperatures are likely to affect the growth rates of forest plantation species. On average, growth rates for radiata pine are projected to decline (against the 2005

baseline growth rates), while blue gum growth rates are projected to increase. It states that increases in atmospheric carbon dioxide may compensate for declines in growth rates by providing a fertilisation effect to some extent. However, these gains may be offset by changes in the distribution, incidence and severity of pests, diseases and invasive species[136].

Adaptation measures to support plantation forests in Australia include[137]:

- Within-rotation silviculture: thinning, fertilising, weed and pest control, fire hazard management, using seasonal climate forecasting to assess risks;
- Climate-ready germplasm, diversification and risk management, new establishment and management procedures; and
- Transformation of land use or distributional change, new products e.g. biofuels, C-forests, new species.

Research on Tasmanian forest adaptation notes that the productivity and protection of forest plantations can be improved by a range of silvicultural and other measures. For example, species that are more tolerant of warmer and drier climatic conditions could be planted as existing strands are harvested, and thinning regimes could be adjusted to reduce competition for water within stands.

A carbon dioxide fertilisation effect may partially or fully offset modelled declines in tree growth with future warmer and drier conditions[138].

Respondents to our community and stakeholder consultation said they valued Waratah-Wynyard's productive landscapes. They told us that an ideal Waratah-Wynyard was a place in which the negative impacts of forestry are minimised; and where forestry practices support carbon neutrality/negativity. Respondents also valued a balance between the needs of natural, productive and built environments.

SUPPORTING OPPORTUNITY IDENTIFICATION IN THE CARBON MARKET

Why is this important?

Carbon sequestration is the capture of carbon dioxide from the air and storing it in plants, soils and oceans. Carbon sinks are long-term stores of carbon, and are important for reducing overall greenhouse gas emissions[139]. The Tasmanian Climate Change Office states that climate change policy may provide some opportunities for the forestry industry to benefit from emerging carbon sequestration markets[140].

As of 2012, the total carbon stock in live vegetation in Tasmania's forests was estimated at 1,400-1,900 million tonnes (Mt) of carbon dioxide equivalent (CO_2e). A further 1,000-1,500 Mt CO_2e was contained in forest debris and dead trees, with 600-900 Mt CO_2e contained in soil (<30cm). The total amount of carbon stored in vegetation, debris and soil of native forests and plantations is estimated to be 3,000-4,400 Mt CO_2e. An estimated 97% of the total carbon is contained in native forests, with hardwood and softwood plantations containing 3%. Carbon densities were highest in the more productive forests in the southern, central, north west and north east regions of the state[141].

A full feasibility study of the potential benefits of the carbon economy to Waratah-Wynyard was beyond the scope of the iCEP. However, a recent Senate inquiry into future employment into regional areas of Australia has heard that carbon storage management could play a role

in replacing declining traditional forestry jobs[142].

Examples of carbon offset projects include reforestation, investing in renewable energy and more efficient agricultural processes. A survey of Tasmanian farmers in 2010 found that farmers had a medium to low level of awareness of carbon storage and greenhouse gas emissions issues on their farm. Carbon storage and emissions were regarded as low priorities. Low levels of engagement were associated with uncertainties about future carbon markets, the low price of carbon and the existing financial challenges of commodity production. At the same time, most respondents had a medium to very high interest in learning more about the carbon economy[143].

In part, progress on increasing carbon sinks will depend on managing the rate of land-clearing. The current Tasmanian legislation offers few controls for preventing landowners from clearing their bushland. Broad scale clearance and conversion of bushland (i.e. more than 20 hectares of native forest in any period for five consecutive years) is not permitted in Tasmania. However, several exemptions exist, including for the construction and maintenance of infrastructure, in the case of routine management activities, facilitating development with a substantial public benefit, or for limited agricultural purposes[144].

Respondents to our community and stakeholder consultation expressed concern about threats to vegetation including form land clearing, removal of native species and failures to adequately revegetate landscapes. Concern was expressed that critically important/older trees were not adequately protected. Respondents said that an ideal Waratah-Wynyard was a place in which revegetation and regeneration of natural bushland are supported.

Respondents felt Council could play a greater role in revegetation and in preventing the loss of trees and wildlife habitat. Respondents felt Council could be doing more through its planning role and via partnerships to ensure habitats and green spaces are preserved and replaced. For respondents, this included achieving a balance between diverse agricultural/horticultural production and forest plantations. It was also felt that Council could do more to support revegetation on both private and public land, including provision of street trees.

Council does not at present have conclusive data around local land-clearing trends. However, publicly available spatial data sourced from time-series analysis of Landsat images characterising forest extent and change suggest that significant forest coverage loss is evident for the 2000-18 period. This loss could be attributed to various factors including forestry activity, private land clearing and fires. The gains represented are likely to be attributed to natural regrowth and forestry activities. Further investigation and data analysis will be needed to establish the exact numbers and causes of these changes.

ENCOURAGING TOURISM OPERATORS TO UNDERSTAND RISKS AND OPPORTUNITIES

Why is this important?

1.26 million visitors travelled to Tasmania in 2017, up 2% from the previous year, with a total visitor expenditure of $2.33 billion[145]. In 2017-18, tourism and hospitality sales in Waratah-Wynyard totalled $9.3 million, with a total value-add of $4.8 million[146].

Respondents to our community and stakeholder consultation told us that an ideal Waratah-Wynyard was a place in which tourism (including ecotourism opportunities)

was managed sustainably. Respondents valued Waratah-Wynyard's 'clean and green' image in the eyes of tourists and visitors. They highlighted the uniqueness of Waratah-Wynyard in a global context.

The Australian tourism industry is considered both the most vulnerable (because of its reliance on nature-based attractions) and the least prepared to manage climate risks. The United Nations has named the Australia/NZ region as one of five Climate Change Vulnerable Hotspots for the global tourism industry. Australia's most significant tourist destinations (including its beaches) are already feeling the effects of climate change[147].

Tourism is vulnerable to extreme events such as bushfires and floods, both in terms of their direct effects and their long-term impacts on how a location is perceived. This was seen in the wake of the 2016 Tasmanian bushfires, when Tourism operators in the Tarkine region experienced a downturn in business[148].

Tourism may also be affected by changes to the cost of travel in the context of emission reduction initiatives and pricing[149]. In addition, the high tourism values of marine and coastal environments are vulnerable to the impacts of inundation. This risk may make it more difficult for tourism operators in shoreline environments to obtain property insurance[150].

At the same time, the Tasmanian Government notes that Tasmania's comparatively mild climate may increase its attractiveness as a tourism destination[151]. In addition, the region may possess untapped opportunities in the ecotourism sector. Tourism Tasmania positions the region surrounding Waratah-Wynyard as a destination rich in natural resources[152]. Community consultation undertaken in 2016 for *Sustainable Murchison 2040* confirmed that the community regards natural resources as the lynchpin of the region's reputation, especially in the eyes of tourists and visitors[153].

The national peak industry body Ecotourism Australia notes that Australia's natural environment is rated as the most important attraction for international visitors in all major source markets, and that ecotourism can be a major economic generator for regional communities[154]. Analysis by the Australian Bureau of Statistics from 2002 found that Tasmania is in a sound position to advance its nature-based tourism sector, with significant growth in participation by the international market an important trend[155]. Recent consultation with the Wynyard community has also identified ecotourism as an opportunity for economic development[156].

SUPPORTING LOCAL BUSINESSES TO TRANSITION TO MORE SUSTAINABLE OPERATIONS AND TO IDENTIFY RISKS AND OPPORTUNITIES

Why is this important?

In 2018, Waratah-Wynyard's businesses were most heavily concentrated in Agriculture, Forestry and Fishing (237 businesses, or 27.7% of all registered businesses in Waratah-Wynyard); Construction (131 businesses, or 15.3%); Rental, Hiring and Real Estate Services (79, or 9.2%); Retail Trade (59, or 6.9%) and Transport, Postal and Warehousing (53, or 6.2%)[157].

Climate change is expected to have variable impacts on Australian business and industry. Businesses with short-term planning cycles will be more affected by climate variability (e.g. flooding of premises, impact on workers from heat stress, interrupted supply chains) as well as compliance with adaptation policy and regulation. Those on longer-term planning cycles (especially those in the infrastructure-

related sector) will be more exposed to risk from long-term climate change[158].

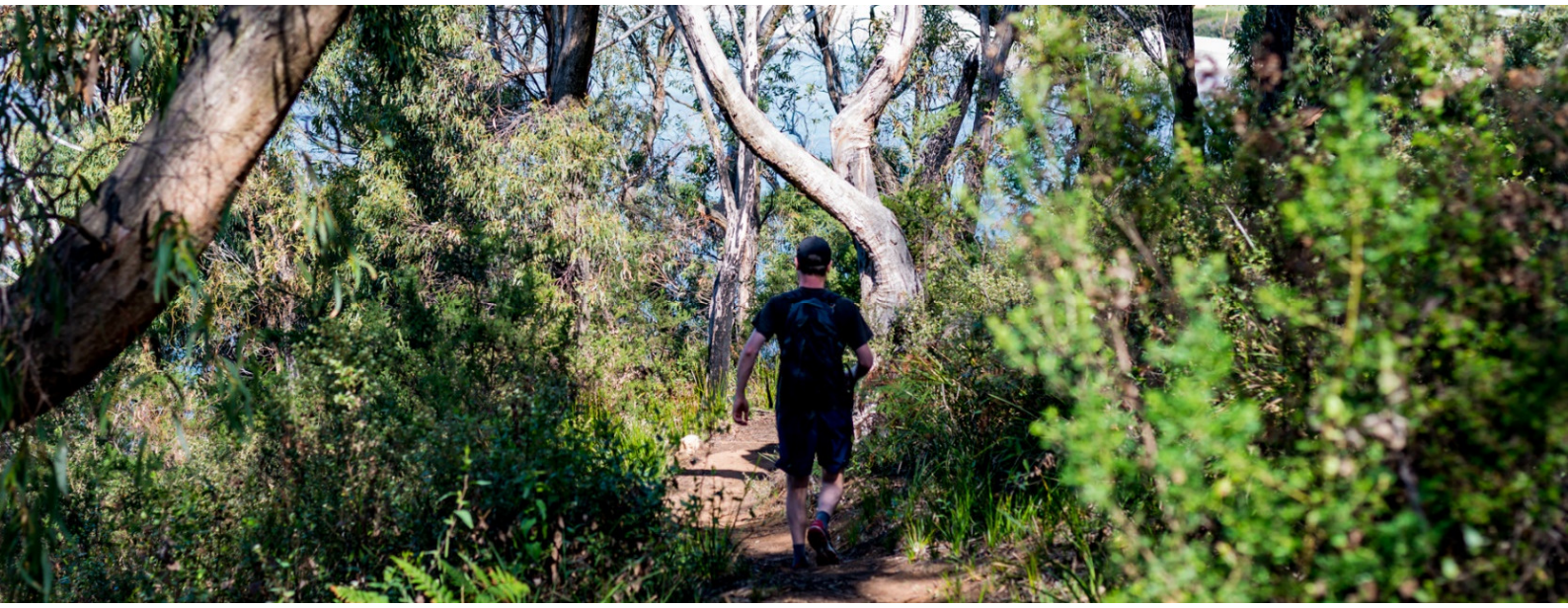
According to the PwC annual CEO survey, business concern about climate change has been escalating since 2016. In 2019, 65% of CEOs saw climate change and environmental damage as a threat to business[159].

ASIC considers climate change a 'foreseeable risk' for Australia's listed companies. It recommends that companies adopt a probative and proactive approach to emerging risks, including climate risk[160].

While the need to mitigate the impacts of climate change is accepted across much of the Australian business community, levels of awareness vary. Protecting business operations in a changing climate requires an assessment of the implications of climate change on business systems and processes (e.g. productivity, resource supply, infrastructure damage, supply chain disruptions), workplace environment (e.g. worker health, long-term liabilities) and external effects (e.g, operational restrictions, government regulation)[161].

Climate change is also relevant to a company's 'social licence' to operate, which refers to community and stakeholder perceptions of a company and reflects a company's record of ethical business conduct, community relationships, workers' rights and safety, and environmental performance. A 'social licence' is not given in law but is necessary for a company's financial survival[162].

ENVIRONMENTAL STEWARDSHIP



Consultation respondents told us that an ideal Waratah-Wynyard was a place in which existing environmental values are maintained and where natural environments are protected from the impacts of development, tourism and pollution. Yet climate change is already impacting Waratah-Wynyard's natural systems and landscapes. This change presents a challenge for natural resource management, including biodiversity conservation and biosecurity.

CSIRO notes that a flexible, iterative approach to natural resource management offers a way to cope with changing conditions and a moving baseline. It recommends that natural resource management planning adopts an 'adaptation lens' in order to: (i) make decisions for multiple possible futures; (ii) employ flexible and adaptive planning processes; (iii) identify and prepare for likely future decisions; and (iv) strengthen the adaptive capacity of people and organisations[163].

Australia takes a regional approach to natural resource management. NRM Cradle Coast is named as the natural resource management division of the Cradle Coast Authority. The Cradle Coast Natural Resource Management Strategy 2015-2020[164] names five priority areas common to each of the three dimensions of land (natural, productive and urban landscapes), water (rivers, wetlands and groundwater) and coasts (including estuaries and oceans). These are:

1. Atmosphere: Our air and climate
2. Biodiversity: Our native plants and animals
3. Community: Our people
4. Cultural heritage: Our history
5. Geology: Our soils and geoheritage

The State Government's *Natural Heritage Strategy for Tasmania (2013-2030)* states that local governments are key stakeholders and partners in natural resource management. Council's legislated responsibilities for natural resource management are set out in a range of legislation, such as the *Weed Management Act 1999*; the *Environmental Management and Pollution Control Act* 1994; and the *Litter Act 2007*.

PLANNING FOR CHANGE IN THE PHYSICAL ENVIRONMENT

Why is this important?

Climate change is projected to have a range of physical impacts on Tasmania's terrestrial, freshwater and marine environments. Geomorphic processes, landforms and soil systems may be affected by both direct and indirect change impacts, with the most severe impacts affecting fluvial (rivers, lakes and wetlands) and coastal/estuarine systems.

Changes to rainfall intensity, vegetation cover, fire frequency and intensity and windstorm intensity may impact soil hydrology, soil organic carbon, salinity, erosion and sedimentation. Highly vulnerable terrestrial ecosystems (especially to fire) are likely to include alpine areas, moorlands and peatlands[165].

In addition to the above, warmer temperatures, increased wind and changing rainfall patterns are likely to impact freshwater ecosystems. Coastal erosion from sea-level rise and storm surge are projected to affect significant areas of Tasmania's coast[166].

PROTECTING, ENHANCING AND RECOVERING BIODIVERSITY

Why is this important?

Waratah-Wynyard is rich in biodiversity. Compared to the rest of Australia, parts of the North West Tasmanian Natural Resource Management region show a high level of richness (i.e. number of different species in a given area) for a range of aquatic (both fish and mammal), insect, mollusc and plant families. Part of the region also show a high level of endemism (i.e. the degree to which species have a small geographic range) for several fish, animal, bird, mollusc, insect and plant families. The north west region is home to five species declared as critically endangered, as well as 26 species declared as endangered and 23 species declared as vulnerable[167].

Respondents to WWC's community and stakeholder consultation told us that an ideal Waratah-Wynyard was a place in which biodiversity and diverse ecologies are protected and enhanced, and where native wildlife and flora are valued and protected within sustainable habitats.

Respondents expressed concern about threats to plant and animal biodiversity through land clearing, habitat loss, increased impacts from humans and dogs/cats, and poor understanding of the value of biodiversity. They were concerned that critically important/older trees (which are more likely to provide habitat) were not adequately protected. Respondents also expressed concern about threats to biodiversity due to the pollution of waterways and species change in marine environments.

Australia is party to international agreements designed to protect global biodiversity. The outlook for Australian biodiversity is considered generally poor, given its current status, deteriorating trends and increasing environmental pressures[168]. Tasmania's commitment to protecting biodiversity is outlined in the *Natural Heritage Strategy for Tasmania 2012-2030*[169].

ANTICIPATING AND MITIGATING BIOSECURITY RISKS

Why is this important?

Biosecurity is the protection of industries, the environment and public wellbeing, health, amenity and safety from the negative effects of pests, diseases and weeds. DPIPWE's Biosecurity Tasmania is responsible for

leading the biosecurity effort in Tasmania in partnership with the community and industry.

A recent report on Australia's biosecurity system highlighted the importance of local government in protecting Australia from pests, weeds and diseases. It noted that this local government role could be exercised by applying disaster management capacities to biosecurity emergency response management; and strengthening citizen awareness and participation in biosecurity[170].

A majority of respondents to our community and stakeholder consultation agreed that climate change was already causing an increase biosecurity hazards. Respondent concerns about biosecurity included the risks of invasive weeds and pests, diseases and disease vectors. Respondents said Council has a role to play in managing biosecurity, including the management of invasive weeds (both by planting alternative native species and by reducing weeds), pests and disease. Respondents were concerned about the potential for roadside management (such as the removal of vegetation) to allow invasive weeds to take hold. They noted that weed management controls can have negative health and environmental impacts.

In Tasmania, biosecurity risks associated with climate change have the potential to impact natural systems, food availability for local communities (e.g. the removal of contaminated produce from stores), and productive enterprises such as agriculture, aquaculture and forestry[171]. Tasmania currently implements an Appropriate Level of Protection that accepts only a 'very low risk' in relation to biosecurity, making it comparatively very conservative[172].

Biosecurity risks and threats have increased in recent years due to the greater global movement of people and goods and as a result of changing environmental conditions[173]. Climate change is expected to impact on introduced and indigenous diseases, parasites, predators and competitors. South eastern Australia has been identified as one of the regions most at risk from invasive weeds[174].

The Cradle Coast Authority notes that preventing the introduction of pests and diseases will be important for preserving Tasmania's biodiversity and productivity in the face of climate change. Other biosecurity measures include eradication and containment, and asset-based protection such as managing spread into alpine areas. Cradle Coast NRM has named the investigation of emerging weed threats under the effects of climate change as a priority action[175].

A key issue for Tasmania is the southward migration of species. For example, warming sea temperatures have already seen the long-spined sea urchin extend its range from NSW into Tasmanian coastal waters. A combination of warming water temperatures and invasive species may adversely impact Tasmania's fisheries industry[176]. On land, cool temperate species such as gorse, broom and blackberry are all expected to expand their range in Tasmania[177].

WORKING WITH RELEVANT STAKEHOLDERS TO PROTECT ABORIGINAL HERITAGE VALUES IN THE LANDSCAPE

Why is this important?

Natural resource management has a potential role to play in facilitating the continuation of Aboriginal land management traditions and in recognising, protecting and managing Tasmania's Aboriginal cultural heritage.

Aboriginal Heritage Tasmania administers the *Aboriginal Heritage Act 1975*[178], which provides for the management and protection of identified sites of heritage significance. Aboriginal cultural heritage includes landscapes with tangible evidence of Aboriginal life pre-dating colonisation (e.g. burials sites, shell middens, rock carvings, rock shelters, hut depressions); intangible places where there may be no physical evidence of past cultural activities, such as places of spiritual or ceremonial significance or trade and travel routes; as well as post-colonisation heritage values such as Aboriginal settlement sites[179].

In the Cradle Coast, the Tasmanian Aboriginal community is represented by several organisations: Tasmanian Aboriginal Centre, Aboriginal Heritage Tasmania, Tasmanian Land and Sea Council, Indigenous Coordination Centre, Aboriginal Land Council of Tasmania, Six Rivers Aboriginal Corporation and Circular Head Aboriginal Corporation. Cradle Coast Authority NRM actively supports their work.

Waratah-Wynyard is home to a relatively high proportion of people who identify as Indigenous. In the 2016 Census, there were 1,033 Aboriginal and/or Torres Strait Islander people living in Waratah-Wynyard, making up 7.6% of the total population. By comparison, the percentage of Aboriginal and/or Torres Strait Islander people in 2016 was 4.6% in Tasmania and 2.85% in Australia[180].

A majority of respondents to our consultation rated Aboriginal heritage sites as 'very important' environmental values. Mapping and protection of Aboriginal heritage sites and places of significance was named as a key focus for action in regional community feedback for coastal priorities in the Cradle Coast NRM Strategy[181].

MANAGING WATER SUSTAINABLY

Why is this important?

Provision of services that support the sustainable use and management of Tasmania's water resources is the responsibility of the Department of Primary Industries, Parks, Water and Environment. These services include the design of policy and regulatory frameworks to ensure the equitable, efficient and sustainable allocation and use of surface and groundwater resources and the safety of dams; monitoring and assessment of the condition of the State's freshwater resources; and supporting the development of new irrigation schemes.

TasWater—owned jointly by Tasmania's 29 local governments—sources, treats and delivers potable water; and provides services for the return of wastewater to the environment. While it does not specify climate-related risks, TasWater's Long Term Strategic Plan states a commitment to managing risk in Tasmania's drinking water systems, from the source waters and catchments to the treatment plants and distribution networks[182].

A little under half of the respondents to our community and stakeholder consultation (49%) agreed climate change was 'likely to cause' water shortages in Waratah-Wynyard's towns. Respondents told us they were concerned about the potential impacts of increased residential development on water, and they said water efficiency should be a consideration in planning and development. They said that an ideal Waratah-Wynyard was one in which air and water quality was maintained.

In Tasmania, water catchments cross and exceed municipal borders. Waratah-Wynyard Council acknowledges that activities at the

municipal level may have downstream impacts on catchment water quality.

MONITORING POLLUTION AND ENVIRONMENTAL HEALTH

Why is this important?

Respondents to WWC's community and stakeholder consultation told us that an ideal Waratah-Wynyard was a place in which air and water quality was maintained and where natural spaces, flora and fauna were free from the impacts of plastics, contamination and other waste.

Respondents named pollution and waste as key concerns, particularly regarding pollution and agricultural run-off into waterways, vehicle emissions, and the impacts of plastics in rivers and marine environments. Respondents also highlighted the need for more sustainable pollution management by Council, including working closely with industry to ensure system compliance.

Waratah-Wynyard Council actions are governed in part by its *Environmental Policy*[183]. The policy has a focus on environmental protection through such means as monitoring, prevention, enforcement, education and risk assessment.

The main organisations with responsibilities under Tasmania's environmental management and pollution control legislation are the Environmental Protection Authority (EPA) and local governments. Local governments assess and manage the impact of activities and developments as part of Tasmania's integrated Resource Management and Planning System. Local government are the environmental regulator for activities not listed as Level 2 activities in Schedule 2 of the *Environmental Management and Pollution Control Act*[184].

9. DELIVERING THE ICEP

The iCEP sets our strategic direction for the next ten years. Council acknowledges that achieving many of the priorities of the iCEP will take much longer. However, our aim was to create a plan that could be fully revised at ten-year intervals to enable us to adapt to emerging data and new challenges.

Each action listed in the following delivery plan has been given a designation of Essential, Important or Desirable. The success of the iCEP depends most heavily on those actions designated as 'Essential'—where resources are limited, our focus will start here. Actions designated as 'Important' will have a major impact on realising the priorities of the iCEP. If these Important actions are not put in place, it will be difficult to realise the iCEP priorities. Actions designated 'Desirable' have benefits to the community and the realisation of the iCEP priorities.

While we acknowledge that achieving many of the priorities will take longer than the proposed ten-year period, we also recognise that the community values clarity on the intended timeframes and resourcing for the actions. Council will consider the actions, timing and funding sources of works during its annual planning and budgeting process. Nominal timing is suggested as follows:

- Essential - Nominally commenced within the first four years of the plan
- Important - Nominally commenced in years five to seven of the plan (or sooner, as resources allow)
- Desirable - Nominally commenced in years seven to ten of the plan (or sooner, as resources allow)

It is our expectation that many of these actions will be undertaken in partnership with our community and other stakeholders, as the realisation of many of the actions contained within the plan is reliant upon community involvement Each action also has a designated leader or leaders within Council. These designations are abbreviated as follows:

ASSET	Asset Services
CHILD	Children's Services
COUNCIL	Elected Representatives
COMM.A.	Community Activation
COMMS	Communications
DEV	Development and Regulatory Services
ENG	Engineering
EMT	Executive Management Team
GOV	Governance
IT	Information Technology
GIS	Geographic Information Systems
NRM	Natural Resource Management
RISK	Risk Management
SMT	Senior Management Team
WORKS	Works and Services

COUNCIL-LED SUSTAINABILITY

PRIORITY	ACTION	LEVEL	LEADERSHIP
1. Maintaining a high-quality knowledge base	1.1 Work with relevant data custodians (e.g. CSIRO, DPIPWE) to ensure Council has access to high quality data related to environmental management and climate change.	Essential	NRM, GIS
	1.2 Continue to capture spatial data relating to land-use and management in Waratah-Wynyard.	Essential	IT, GIS
	1.3 Develop tools and training to help Council staff to increase their understanding and knowledge of the impacts of climate change on Council's assets, services and customers.	Essential	NRM
	1.4 Explore opportunities to create a centralised climate change adaptation risk database and knowledge portal, linked to Council's existing risk management system.	Desirable	IT, RISK
	1.5 Improve local information sharing (e.g. between business owners, farmers, citizen scientists) about effective environmental management and climate change.	Desirable	IT, GIS
2. Embedding climate and environmental concerns in Council decision-making	2.1 Ensure elected members are provided with accurate and up-to-date information on climate and environment when approving policies and strategies	Essential	EMT, SMT
	2.2 Establish a suite of indicators relevant to the iCEP.	Essential	EMT, SMT, Council
	2.3 Progressively review all Council programs and policies (including the 10-Year Strategic Plan) to ensure alignment with the principles and commitments of iCEP.	Essential	EMT, SMT, COUNCIL

	2.4 Acknowledge the risks to the community and environment in failing to address the issues identified in the iCEP.	Important	RISK
3. Establish mechanisms for partnering with the Waratah-Wynyard community on environmental management and climate action	3.1 Establish and support a Waratah-Wynyard Environmental Advisory Committee.	Essential	NRM
	3.2 Enable community members to contribute ideas for ongoing improvements to the iCEP and other relevant environmental initiatives via digital and other platforms.	Essential	NRM, COMMS
	3.3 Coordinate community events and opportunities that enable the community to come together to learn, discuss, plan and provide meaningful input on adaptation measures, Council initiatives and community actions to respond to a changing climate.	Essential	COMM.A.
	3.4 Develop webpage dedicated to informing the community on living sustainably.	Essential	NRM, COMMS
	3.5 Host an annual festival to deliver the message of climate change impacts to wildlife, such as migratory bird species.	Desirable	COMM.A, NRM
4. Reducing Council's resource consumption and carbon footprint	4.1 Develop a Council emissions target to achieve corporate carbon neutrality, in line with Tasmania's existing target of achieving (or maintaining) carbon neutrality by 2050; and in doing so, set interim targets on the pathway to this goal	Essential	NRM
	4.2 Track Council's carbon emissions and conduct energy audits of Council facilities as appropriate to assess opportunities for improvement.	Essential	ASSET
	4.3 Undertake works to minimise energy consumption and maximise energy efficiency in Council buildings as circumstances allow and upgrades are undertaken.	Important	ASSET

	4.4 Continue to transition from fluorescent to LED lighting in all Council buildings.	Important	ASSET
	4.5 Install solar panel system at the Wynyard Council Chambers building.	Important	ASSET
	4.6 Undertake a cost-benefit analysis to assess the viability of installing solar power on Council-owned land, buildings and lighting infrastructure, including through partnerships with other agencies.	Desirable	ASSET
	4.7 Trial electric passenger vehicles in Council fleet.	Desirable	ASSET, WORKS
	4.8 Investigate opportunities for bulk-buying an electric vehicle fleet with other councils.	Desirable	ASSET, WORKS
	4.9 Investigate opportunities to implement additional charging stations in the Waratah-Wynyard area.	Desirable	ASSET
	4.10 Complete a water-saving feasibility study that identifies water saving and non-potable water recommendations for Council's facilities and operations with a view to setting targets; and develop a Sustainable Water Use Plan.	Desirable	WORKS
5. Managing waste sustainably	5.1 Continue to implement the initiatives and recommendations from the Waste and Resource Recovery Strategy 2019-2024.	Essential	ENG, ASSET, WORKS

6. Assisting the Waratah-Wynyard community to reduce its resource consumption and carbon footprint	6.1 Support local action for sustainable consumption and lifestyles by supporting local 'champions'/ project leaders to be more effective, and by identifying partners and funding opportunities.	Essential	NRM
	6.2 Draw on existing communications resources to implement a communication campaign to inform the community, industry and business about energy efficiency and renewable energy.	Important	COMMS
	6.3 To provide opportunities to reduce emissions from transport, deliver shared-use pathways at Cam River and along the coast, and investigate linkages from these pathways to main townships.	Important	ENG
	6.4 Investigate opportunities to encourage schools to transition to solar energy via programs such as the National Solar School Program or 'Solar My School' and/or grant opportunities.	Important	COMM.A.
	6.5 Work with local schools to explore opportunities for, and support the creation of, 'green teams'.	Important	COMM.A.
	6.6 Partner with relevant government departments to identify and promote incentives to reduce carbon emissions	Important	NRM, COMMS
	6.7 Investigate opportunities to promote and support bulk purchasing of sustainable technologies for community and business use.	Desirable	COMM.A.
	6.8 Promote methods to improve water efficiency and harvesting rainwater around the home.	Desirable	COMMS
	6.9 Promote the use of bike paths within the municipality for use as an alternative mode of travel	Desirable	COMMS

7. Embedding climate risk information in Council's emergency planning	7.1 Ensure information on climate change projections and risks are embedded into Emergency Management Plan.	Essential	RISK
	7.2 Proactively engage with secondary agencies and review their capacity to assist Council in collectively responding to climate change risks.	Important	NRM
8. Aligning Council's purchasing with principles of sustainability.	8.1 Develop a Sustainable Purchasing Strategy and/or policy to ensure purchasing decisions consider quality and sustainability (incl. carbon footprint) as well as price.	Essential	GOV
	8.2 Ensure Council contractors are informed about Council's sustainability and climate change commitments and policies, and comply with them.	Important	SMT
	8.3 Through Council's contracting and procurement processes, seek ongoing innovation from suppliers to minimise waste going to landfill.	Desirable	SMT
9. Tracking outcomes, evaluating progress and sharing results	9.1 Report on progress made on the priorities and actions of the iCEP in Council's Annual Reports.	Essential	SMT, NRM
	9.2 Require all Council reports to include a section addressing environmental considerations.	Essential	SMT
	9.3 Continue to monitor waste and emissions from Council operations.	Important	WORKS

10. Contributing to regional, state, national and international climate initiatives	10.1 In the context of existing Council priorities, support implementation of the Tasmanian Climate Change Action Plan (Climate Action 21) and participate in the 'Climate Resilient Councils' project of the Tasmanian Climate Change Office.	Essential	NRM
	10.2 Advocate for and support regional collaborations that increase community resilience, share knowledge, and provide economies of scale for adaptation and mitigation initiatives.	Essential	NRM
	10.3 Consider alternative NRM models employed successfully by other local governments and regions (such as the Tamar NRM model); and if there are demonstrable benefits, prepare transition plans as appropriate	Essential	COUNCIL, NRM
	10.4 Where relevant to local government, reflect the goals and principles of the Paris Climate Agreement within Council decision-making.	Important	SMT
	10.5 Where opportunities arise, and in the context of existing Council priorities, foster partnerships with governments and non-government organisations locally and nationally to promote climate action and increased ambition.	Desirable	NRM
11. Advocating for effective environmental management and adaptation resources	11.1 In partnership with CCA and LGAT, advocate to the Tasmanian Government to clarify roles and responsibilities of state and local governments for climate change adaptation.	Essential	COUNCIL
	11.2 In partnership with CCA and LGAT, identify and pursue external funding opportunities for collaborative adaptation, mitigation and environmental management projects.	Important	NRM

COMMUNITY ADAPTATION & RESILIENCE

PRIORITY	ACTION	LEVEL	LEADERSHIP
12. Facilitating community access to accurate, timely and practical information	12.1 Provide accurate and 'readable' information about climate change and sustainable living in New Residents' Kits.	Important	COMM.A.
	12.2 Continue to partner with parents to implement actions from Warawyn Sustainability Plan	Essential	CHILD.
	12.3 Partner with community groups to assist with the communication of climate change information to members of the community.	Essential	COMM.A.
13. Supporting localised community-led Community Based Adaptation (CBA) initiatives	13.1 Develop place-based climate change action plans in partnership with the community that establish regional targets for mitigation and prioritise local adaptation planning.	Essential	NRM, COMM.A.
	13.2 Continue to support and foster relationships with new and existing Landcare and Wildcare groups.	Essential	NRM
	13.3 Promote participation in localised community-led adaptation initiatives.	Important	COMMS
14. Reducing the impacts of heatwaves for people in their homes, workplaces, schools and care facilities.	14.1 Continue to provide public health information on hydration, air quality keeping cool during extreme heat, including pet care.	Essential	DEV, COMMS
	14.2 Promote existing public spaces for respite from extreme heat.	Important	COMMS

	14.3 Encourage residential aged care facilities and other at-risk groups or organisations to apply the 'Heatwave-Ready' checklist (DHHS).	Desirable	DEV
15. Reducing the impacts of bushfire smoke and poor air quality for people in their homes, workplaces, schools and care facilities.	15.1 Promote existing public spaces for respite from poor air quality.	Essential	DEV
	15.2 Promote awareness of air quality smartphone apps (such as AirRater) and local monitoring.	Important	COMMS, DEV
	15.3 Continue to provide public health information on air quality mitigation strategies.	Desirable	DEV, COMMS
16. Anticipating and helping people to reduce the impacts of the changing allergen profile.	16.1 Continue to provide asthma and anaphylactic first aid training to early childhood educators and parents.	Essential	COMM.A.
	16.2 Promote the use of the Asthma Australia 'Asthma First Aid' smartphone app.	Important	COMMS
17. Enhancing community food security	17.1 Investigate opportunities to develop a food policy and/or strategy to better understand food supply chains and systems; improve access to healthy food; enhance localised food production; reduce the environmental impacts of food production and consumption; and support sustainable food behaviours.	Essential	DEV, NRM
	17.2 Facilitate dialogue between producers, distributors and vulnerable community members to strengthen the local food supply.	Essential	NRM, COMM.A.
	17.3 Promote local participation in community gardens and consumption of local high-quality produce.	Important	COMM.A., COMMS

18. Supporting psychological adaptation	18.1 Continue to implement the community mental health initiatives of the Waratah-Wynyard Community Health and Wellbeing Plan.	Essential	COMM.A.
	18.2 Facilitate individual wellbeing and social connectedness through providing opportunities for volunteers, and by connecting the community with organisations who are seeking volunteers.	Essential	COMM.A., COMMS
19. Helping ensure current and future housing stock meets the demands of a changing climate	19.1 Lobby Tasmanian Government Housing to build or retrofit public housing stock to meet changing climate needs.	Desirable	COUNCIL
	19.2 Continue to provide and promote energy monitoring equipment to the community.	Important	COMM.A.
20. Supporting a climate-ready community sector	20.1 Implement a targeted round/s within Community Activation Grants for climate change adaptation and mitigation.	Essential	COMM.A.
	20.2 Create a World Environment Day award to recognise the work of organisations and individuals in supporting community-based climate change initiatives.	Important	COMM.A., GOV, NRM
21. Continuing to emphasise community resilience as an essential aspect of emergency management.	21.1 Promote emergency management planning to the community and encourage residents and businesses to develop their own emergency management plans.	Important	RISK, COMMS
	21.2 Encourage community members to utilise relevant smartphone apps, such as the Red Cross 'Get Prepared' app and the TasALERT app.	Desirable	RISK, COMMS

FUTURE-READY INFRASTRUCTURE

PRIORITY	ACTION	LEVEL	LEADERSHIP
22. Applying a risk-management approach to strategic land-use planning and population change.	22.1 Ensure all future Council land-use planning policies and strategies consider the relevance of changing environmental factors.	Essential	DEV
	22.2 Continue to ensure Council's planning and development approval processes account for climate-related risks.	Essential	DEV
	22.3 Incorporate State Government policy on climate risk into regional and local policies, including planning schemes.	Essential	DEV
	22.4 Advocate to the State Government to develop land-use planning policies that address climate change.	Essential	COUNCIL
	22.5 Drawing on relevant census data and population projections, develop a settlement strategy and/or policy to clarify Council's position on population growth.	Essential	DEV
	22.6 Develop planning approaches to manage potential conflicts in relation to competing land-use demands for energy production, food production, open space, nature conservation, carbon sequestration and urban development.	Important	NRM, DEV

23. Acknowledging and planning for the impacts of coastal erosion.	23.1 In consultation with the community, develop a long-term plan for management of Council owned and managed land that considers avoiding (e.g. setbacks from the coast), adapting (e.g. raising building and infrastructure floor heights), defending (e.g. beach stabilisation, nourishment, restoration, groynes) and retreat (e.g. shifting development back from the shoreline).	Essential	NRM
	23.2 Review state mapping to understand the potential impacts of coastal erosion on Council assets.	Essential	NRM, WORKS, ENG
	23.3 Communicate Council's approach and responsibilities as to the management of coastal land and the impact of coastal hazards on private properties.	Essential	NRM
	23.4 Investigate opportunities to involve private landowners in the prevention of coastal erosion.	Important	NRM, ENG
	23.5 Continue to liaise with the Tasmanian Coastal Adaptation Pathways project.	Desirable	ENG
24. Encouraging sustainable building practices	24.1 Encourage potential permit applicants and developers to access third-party information on Environmentally Sustainable Design (ESD) principles.	Desirable	DEV
	24.2 Investigate options for designating areas of Waratah-Wynyard for the development and showcasing of sustainable housing examples.	Desirable	ENG, DEV, NRM
	24.3 Advocate for stronger ESD policy and regulations throughout the Tasmanian planning system and building code.	Desirable	DEV

25. Lessening risks to Council assets.	25.1 Continue to develop and implement asset management plans that consider all risks.	Essential	ASSET
	25.2 Account for environmental restraints within infrastructure design.	Important	ENG
26. Anticipating and planning for potential climate impacts on stormwater and drainage	26.1 Assess stormwater infrastructure capacity and potential future capacity requirements under various climate future scenarios to identify vulnerabilities, and incorporate findings into Council's Stormwater Management Plan	Essential	ENG
27. Supporting owners to decrease physical risks to private property.	27.1 Continue fire abatement program.	Essential	DEV
	27.2 Investigate adequacy of current fire hazard reduction practices using modern scientific findings.	Important	DEV
	27.3 Encourage property owners to access third-party information about the potential impacts of climate change on private property, including the risks posed by bushfire and coastal erosion.	Important	DEV
28. Working with other levels of government to minimise risks to public assets.	28.1 Advocate to State and Federal Governments to develop policies, regulations and standards to reflect changing needs to all forms of infrastructure to withstand the impacts of weather extremes.	Desirable	COUNCIL
	28.2 Advocate for a statewide assessment of the vulnerability of Tasmania's key infrastructure to the impacts of climate change.	Desirable	COUNCIL
	28.3 Investigate Commonwealth and State Government funding opportunities to support Council initiatives around sustainable asset management.	Desirable	SMT

FINANCIAL & ECONOMIC SUSTAINABILITY

PRIORITY	ACTION	LEVEL	LEADERSHIP
29. Reducing risks to Council's financial assets and investments.	29.1 Maintain flexibility in budgets and long-term planning for unanticipated events (i.e. extreme weather events).	Essential	COUNCIL, GOV
	29.2 Continue to assess climate and environmental risk within Council's asset management plans.	Essential	SMT, ASSET
30. Helping property owners to understand and plan for financial risks associated with climate change.	30.1 Explore opportunities to work with LGAT to educate property owners on, and provide consistent messaging about, climate risk and the different roles of local government/property owners.	Important	NRM
	30.2 Disseminate information about Council's ongoing actions in relation to risk mitigation.	Desirable	COMMS, RISK
31. Encouraging the agricultural sector to transition to more sustainable operations.	31.1 Facilitate dialogue between local agricultural producers to help minimise the adverse effects of one type of production on another.	Important	COMMS, NRM
	31.2 Support agricultural adaptation summits with information provided by peak industry bodies re. sustainable practices and climate challenges.	Desirable	NRM
32. Supporting opportunity identification in new agricultural products and markets	32.1 Encourage agricultural producers to supply local markets and support local food security.	Essential	GOV, NRM

	32.2 Encourage agricultural producers to access Cradle Coast NRM factsheets and related data on climate change challenges and opportunities for the agricultural sector.	Important	GOV, NRM
	32.3 Explore opportunities to support agricultural industry and facilitate collaboration on climate change adaptation.	Desirable	GOV, NRM
33. Encouraging forestry operators to transition to more sustainable operations.	33.1 Convey community feedback received regarding changes to forestry management practices to the relevant governing bodies	Essential	NRM
	33.2 Encourage and work with forestry operators to shift operations to those that have minimal impact on natural systems and native wildlife.	Desirable	NRM
	33.3 Encourage forestry operators to consider alternative income streams, e.g. carbon credits.	Desirable	NRM
34. Supporting opportunity identification in the carbon market	34.1 Partner with relevant stakeholders to conduct a carbon audit for Waratah-Wynyard, and to identify Waratah-Wynyard's unique advantages for carbon sequestration, including wetlands and blue carbon.	Important	NRM
	34.2 Foster improved data collection about land clearing, and advocate for improved State Government policy and planning controls.	Important	GIS, DEV
	34.3 Develop a strategy that identifies potential locations for carbon offsetting projects that entail minimal conflict with nearby land uses.	Important	NRM

	34.4 Investigate and encourage an integrated process for identifying and maintaining existing carbon sinks that may currently be overlooked (e.g. bushland, pasture, cropping areas, wetlands, etc).	Important	NRM
	34.5 Foster sustainable levels of vegetation systems conversion.	Important	NRM
	34.6 Encourage primary producers to access third-party information about opportunities to practice carbon sequestration.	Desirable	GOV, NRM
35. Encouraging tourism operators to understand risks and opportunities.	35.1 Encourage tourism peak bodies and the Cradle Coast Authority to provide targeted information to assist tourism operators to understand the potential risks of climate change on their business, including factors such as the changing insurance landscape, coastal erosion and extreme weather events.	Essential	NRM
	35.2 Investigate Waratah-Wynyard's natural competitive advantages for eco-tourism.	Desirable	TOURISM
	35.3 In collaboration with operators and tourism peak bodies, identify opportunities and develop plans for specific eco-tourism activities and destinations in Waratah-Wynyard.	Desirable	TOURISM
36. Supporting local businesses to transition to more sustainable operations and to identify risks and opportunities.	36.1 Encourage local/regional business associations and Business Tasmania to provide targeted information to assist local business-owners to understand the potential risks of climate change, including from factors such as the changing insurance landscape, coastal erosion and extreme weather events.	Essential	GOV
	36.2 Continue to attract new business to the area, particularly those that are aligned to Waratah-Wynyard's sustainability goals and its 'clean and green' identity.	Important	GOV, COMMS

	36.3 Facilitate partnerships to deliver business training that includes reviewing risk exposure as a result of climate change.	Desirable	GOV, RISK, NRM
	36.4 Identify opportunities to assist business associations and networks to facilitate adaptation strategies for the business community.	Desirable	GOV, COMM.A.
	36.5 Develop example business cases that demonstrate the benefits of alternative/reduced energy use.	Desirable	ENG, ASSET, COMMS

ENVIRONMENTAL STEWARDSHIP

PRIORITY	ACTION	LEVEL	LEADERSHIP
37. Planning for change in the physical environment	37.1 Identify opportunities to increase resilience of terrestrial and aquatic habitats at risk and implement land management changes and on-ground works with delivery partners.	Essential	NRM
	37.2 Conduct regular staff skills development to promote innovation in land management and protection practices.	Important	SMT
38. Protecting, enhancing and recovering biodiversity	38.1 Assess the extent of Waratah-Wynyard's areas of significant ecological value, and develop biodiversity management plans for high-priority areas not currently addressed by other agencies.	Essential	NRM
	38.2 As opportunities arise, and where relevant within WWC jurisdiction, undertake research and participate in cooperative initiatives to evaluate and monitor natural areas and ecosystems' vulnerability to climate change and other factors.	Essential	NRM
	38.3 Work with appropriate partner agencies to enhance and extend biodiversity corridors throughout Waratah-Wynyard, prioritising those currently at high risk.	Essential	NRM
	38.4 Through providing education and information, work with residents, landowners and community groups to mitigate climate change effects on biodiversity, for both private and public land.	Essential	NRM

	38.5 Encourage community volunteerism and research to further understand natural populations of wildlife, insects and plants, and to provide practice support in conserving natural areas.	Essential	NRM, WORKS
	38.6 Work with the relevant stakeholders to develop and implement natural values management plans, including fire management considerations, for the areas of French's Road Nature Reserve, Fossil Bluff and York Street Reserve	Essential	NRM
	38.7 Investigate options and support viable proposals for reducing the amount of wildlife killed on Waratah-Wynyard's roads.	Essential	ENG, NRM
	38.8 Partner with the Sisters Beach Community Association to source funding for the installation of virtual fencing devices on the Sisters Beach Road for installation prior to Summer 2020	Essential	NRM
	38.9 Increase public awareness about how to appropriately manage problem wildlife.	Essential	DEV, NRM, COMMS
	38.10 Work with landowners to encourage best practice with respect to remnant bush conversion on agricultural land	Important	NRM
	38.11 Take a lead role in the regional policy development for cat management, through registration requirements, limiting breeding, education on de-sexing and the benefits of keeping cats indoors.	Important	NRM
	38.12 Prevent off-leash activity around vulnerable wildlife through education and enforcement.	Important	DEV

	38.13 Consider an appropriate location and prepare plan for the development of an arboretum that contains native plant species, provides protection for birdlife and considers economic opportunities.	Desirable	WORKS, NRM
	38.14 Advocate for revisions to the Tasmanian *Forest Practices Act 1985* and *Policy for Maintaining a Permanent Forest Estate* to re-consider the amount of native forest that can be cleared without a forest practice plan, and to consider limitations to clearing of land for agricultural purposes in certain regions where the retention of native vegetation is a regional priority.	Important	Council, NRM
39. Anticipating and mitigating biosecurity risks	39.1 Continue to work towards eradication of invasive weed species (e.g. gorse and sea spurge).	Essential	NRM
	39.2 Work with relevant agencies to monitor weeds and pests and adjust control and management approaches in response to climate change.	Essential	NRM
	39.3 Regularly review the use of herbicides and minimise the use of harmful chemicals in Council's weed management practices.	Essential	NRM, WORKS
	39.4 Apply landscape restoration methods for the elimination of weeds in terrestrial and riparian environments.	Desirable	NRM
40. Working with relevant stakeholders to protect Aboriginal heritage values in the landscape	40.1 Work with the local Traditional Custodians and the Indigenous community to integrate traditional knowledge into landscape management where relevant.	Desirable	NRM
	40.2 Facilitate Indigenous input into Council's natural resource management practices and policies.	Desirable	NRM

41. Managing water sustainably	41.1 Ensure action plans for water security and quality consider climate change.	Essential	NRM, DEV
	41.2 Encourage a collaborative approach to catchment management by working with neighbouring councils, diverse stakeholders and State Government.	Important	GOV, NRM
	41.3 Pursue an MOU between all governing bodies to support regional catchment management, including riparian management.	Important	GOV, NRM
42. Monitoring pollution and environmental health	42.1 Continue to administer and enforce relevant legislation to the extent of the delegation provided for the prevention of pollution of air, water and soil.	Essential	DEV
	42.2 Work with the community to raise awareness about and prevent litter and plastic pollution on the natural environment, particularly for Waratah-Wynyard's river and coastlines.	Essential	NRM, COMMS
	42.3 Continue to work with the agricultural sector to raise awareness about and prevent contaminated runoff entering river systems.	Important	NRM
	42.4 Ensure planning permit conditions constrain materials on site (avoid soil and material runoff during construction).	Important	DEV, ENG

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