

Central Coast Council

Natural Disaster Resilience Strategy

May 2025

Central Coast Council



Acknowledgment of Country

We acknowledge the Traditional Custodians of the land on which we live, work and play.

We pay our respects to Darkinjung country, and Elders past and present.

We recognise the continued connection to these lands and waterways and extend this acknowledgement to the homelands and stories of those who also call this place home.

We recognise our future leaders and the shared responsibility to care for and protect our place and people.

Foreword



The Central Coast is a region of remarkable natural beauty, diverse landscapes, and vibrant communities with a strong sense of connection. However, by the very nature of its location and geography it also exposes us to a range of natural hazards — including bushfires, floods, storms, and coastal erosion. As these risks continue to grow in frequency and intensity, so must our collective capacity to prepare and adapt.

As Mayor of the Central Coast, I'm proud to present the Central Coast Natural Disaster Resilience Strategy, a forward-looking strategy that sets out how we'll work together — as a Council, with our partners, and with our community — to build a safer, more prepared, and more resilient region.

The Central Coast Natural Disaster Resilience Strategy provides a clear strategic direction for embedding and managing natural disaster risks across the Central Coast. It represents Council's long-term commitment to reducing disaster risk, strengthening community resilience, and protecting both our people and our places.

This Strategy has been developed in close partnership with combat agencies, government departments, non-government organisations, and local stakeholders. These partnerships are essential — because resilience is not built in isolation. It requires collaboration, trust, shared knowledge, and a shared responsibility.

The Strategy is grounded in the knowledge that resilience is not built in the moment of crisis, but through consistent, proactive investment in planning, preparedness, and community partnerships. It reflects our commitment to supporting vulnerable populations, strengthening our emergency management capacity, and integrating resilience into everyday decision-making — from infrastructure design to community education.

On behalf of Central Coast Council, I extend my thanks to everyone who contributed their expertise, insights, and local knowledge to the development of this important Strategy. Together, we are laying the foundation for a better prepared and more disaster-resilient Central Coast.

Mayor
Lawrie McKinna

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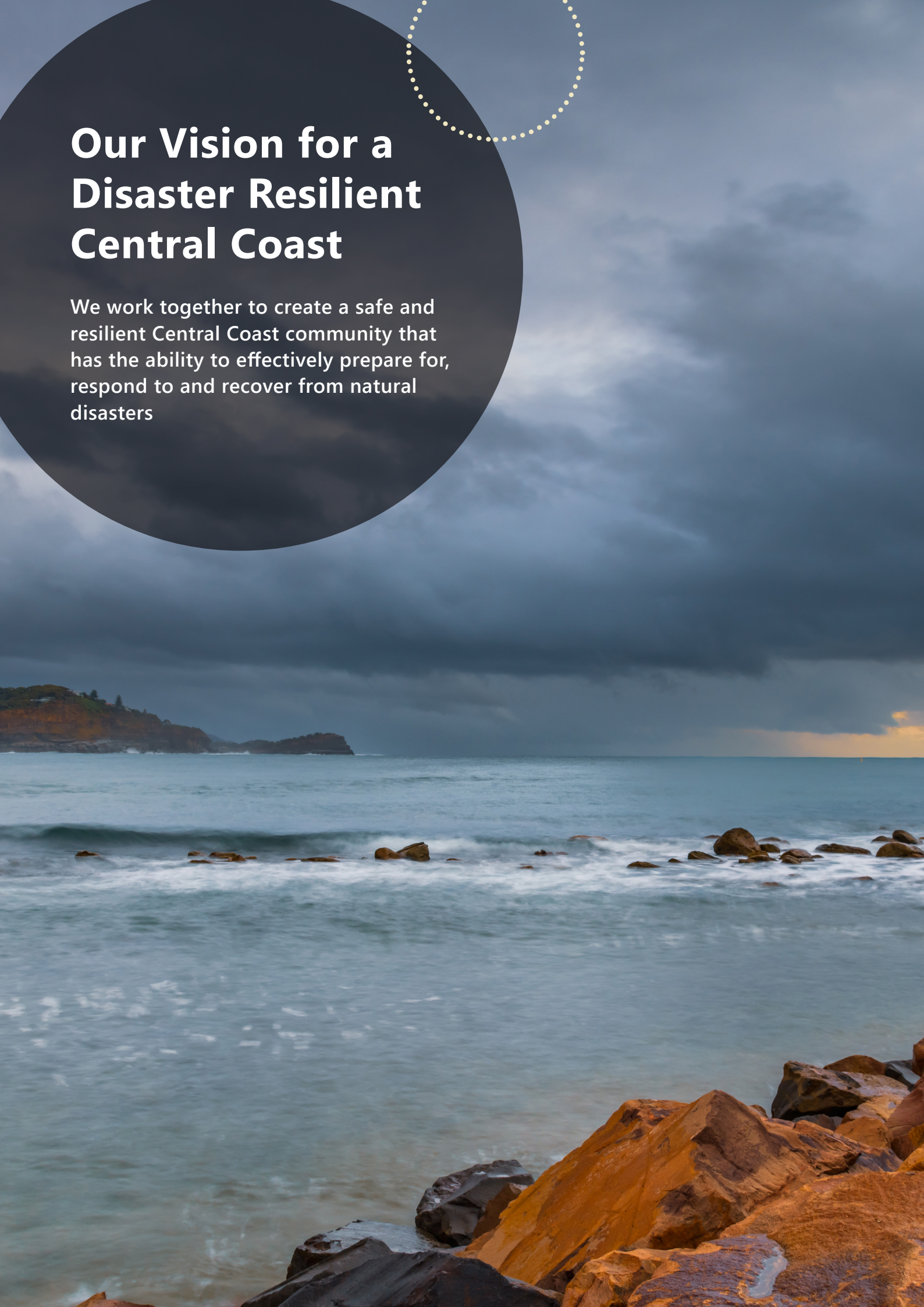
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Our Vision for a Disaster Resilient Central Coast

We work together to create a safe and resilient Central Coast community that has the ability to effectively prepare for, respond to and recover from natural disasters



Executive summary

This Disaster Resilience Strategy provides the strategic direction and a framework for embedding and managing natural disaster risks holistically across the Central Coast local government area. Whilst responding to natural disasters is the responsibility of the relevant disaster combat agency, such as the Rural Fire Service or State Emergency Service, Council plays a pivotal role in assisting these agencies and the Local Emergency Operations Controller during a disaster, supporting the NSW Reconstruction Authority during recovery, and assisting local communities to prevent and prepare for the impacts of disasters before they occur.

The Strategy adopts the international Sendai Framework for disaster risk reduction, which provides a clear pathway to enhance both Council and community capacity for disaster resilience. This Strategy is aligned with the four priorities for disaster risk reduction action which are to:

1. Understand the disaster risk profile,
2. Strengthen disaster risk management governance,
3. Invest in disaster risk reduction, and
4. Enhance disaster preparedness.

The Strategy also aligns with the National Strategy for Disaster Resilience, National Disaster Risk Reduction Framework, NSW State Disaster Mitigation Plan, NSW Emergency Management Plan and NSW Recovery Plan.

The approach taken in this Strategy is to:

1. Enhance organisational capacity to understand and embed disaster risks into corporate planning, operational delivery and reporting frameworks and establish a holistic approach towards disaster resilience planning across the Central Coast.
2. Develop relevant plans, instruments and programs to build community and organisational capacity to mitigate and adapt to disaster risks.
3. Embed processes and mechanisms to support effective and timely disaster response and recovery across the Central Coast.
4. Continually improve regional disaster resilience capacity through regular monitoring, evaluation and by drawing from past lived experiences in partnership with local disaster management agencies and communities exposed to disasters.

Introduction

Local government plays a pivotal role in enhancing disaster resilience. Council's role is to support combat agencies and NSW Police during disaster response, support the NSW Reconstruction Authority during disaster recovery, to plan for the region, and to build community capacity to prevent and prepare for the risks posed by natural disasters. This disaster planning should be holistic and involve a multi-hazard, intergenerational approach to current and future disaster risks. This Natural Disaster Resilience Strategy provides strategic direction for a coordinated approach to disaster management and community resilience at the local level.

The Central Coast is the third largest local government area (LGA) (by population) in NSW and the eighth largest in Australia, with an expanding population due to the region's lifestyle and opportunities. Approximately 70% of the region is comprised of wooded vegetation in close proximity to homes, and almost 95% of the population resides along the coastal fringes, with many homes in low-lying flood prone areas, properties impacted by landslip and/or coastal erosion. Increasing risks of natural disasters, particularly related to climate change and population growth, exacerbate regional vulnerabilities. The natural disaster risks are further compounded by the social vulnerabilities of our community, including an ageing population, high unemployment, areas of high disadvantage, unsuitable housing and ageing infrastructure.

Disaster resilience is an ongoing iterative process of building capacity both at the organisational and community scale. Disaster resilience planning requires structure and a consolidated approach to the delivery of initiatives to address current and potential disaster risks. This Strategy:

- Provides a framework to embed disaster resilience planning within the broader international, federal and NSW disaster management frameworks
- Sets a clear priorities for disaster management across the Central Coast
- Identifies knowledge gaps and provides pathways to overcoming these gaps
- Identifies key actions to enhance local disaster resilience
- Sets timeframes for implementation of those actions

Defining Disaster Resilience

For the purposes of this Strategy and as defined by the Australian Institute for Disaster Resilience,

> *Disaster resilience is 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. Disaster resilience can be determined by the degree to which individuals, communities and public and private organisations can organise themselves to learn from past disasters and reduce their risks to future disasters, at international, regional, national and local levels (UNISDR 2005)*

Disaster resilience is a shared responsibility in Australia (Figure 1). The federal government provides national strategy and funding; the NSW government provides legislation to manage disasters, establishes governance systems such as state and regional committees and directly funds disaster response and recovery services. At the local level, local government provides support for disaster response and recovery and supports local community capacity to anticipate and prepare for disaster risks. However, individual community members and businesses play the most important role in understanding their changing risks to their property, livelihood and community and preparing to mitigate or adapt to these risks.

Figure 1 – National Disaster Risk Reduction Framework overview (Department of Home Affairs, 2018)

Sendai Framework Outcome 2030

The substantial reduction of disaster risk and losses in lives, livelihoods and health, and in the economic, physical, social, cultural and environmental assets of persons, businesses, communities and countries.

2030 Vision for Disaster Risk Reduction in Australia

In Australia, we are enabled and supported to actively reduce disaster risk and limit the impacts of disasters on communities and economies. All sectors of society understand and respond to social, environmental, technological and demographic changes which have the potential to prevent, create or exacerbate disaster risks. All sectors of society:

– make disaster risk-informed decisions,
– are accountable for reducing risks within their control, and
– invest in reducing disaster risk in order to limit the cost of disasters when they occur.

2030 Disaster Risk Reduction Goals

Take action to reduce existing disaster risk	Minimise creation of future disaster risk through decisions taken across all sectors	Equip decision-makers with the capabilities and information they need to reduce disaster risk and manage residual risk

Framework Priorities

1	2	3	4
Understand disaster risk	**Accountable decisions**	**Enhanced investment**	**Governance, ownership and responsibility**

Guiding Principles

Shared and defined responsibilities All sectors have shared but defined responsibilities to reduce disaster risk.	**Cultural change** All sectors cultivate a culture of disaster risk reduction awareness and action.	**Integrated action** Efforts to reduce disaster risk must be integrated across sectors, not progressed in silos.	**Inclusive engagement** All sectors connect with diverse stakeholders to ensure inclusive decision-making leading to more effective solutions.

Practical change at local, state and national levels

Continual improvement All sectors continuously learn and innovate to improve practices and share our lessons, data and knowledge widely.	**Data-driven decision making** Data and information informs implementation planning and execution.	**Leadership** Commitment is required at all levels and in all sectors to effectively reduce disaster risk.

What Makes a Disaster-Resilient Community?

The National Strategy for Disaster Resilience (COAG 2011) states that a

> *'disaster resilient community is one that works together to understand and manage the risks that it confronts', supporting disaster resilience as a collective responsibility shared by all sectors of society.*

A disaster resilient community can be understood as a community that has the capacity to:

- absorb stress, hazards or destructive forces through resistance, accommodation or adaptation
- manage or maintain essential basic functions and structures during disastrous events
- recover or bounce back from disastrous event

The concept of a disaster-resilient community should not be thought of as an end goal but rather an evolution where continual improvement is made. The resilience of a community is influenced by:

- Access to resources (finance, information, skills / knowledge and understanding)
- Community connectedness and social cohesion
- Employment
- Socio-economic status
- Geographic location
- The changing climate

Every disaster event provides new insights and lessons that help improve community response to future events. A disaster-resilient community has the knowledge and ability to design and build disaster risk reduction measures that minimise vulnerabilities.

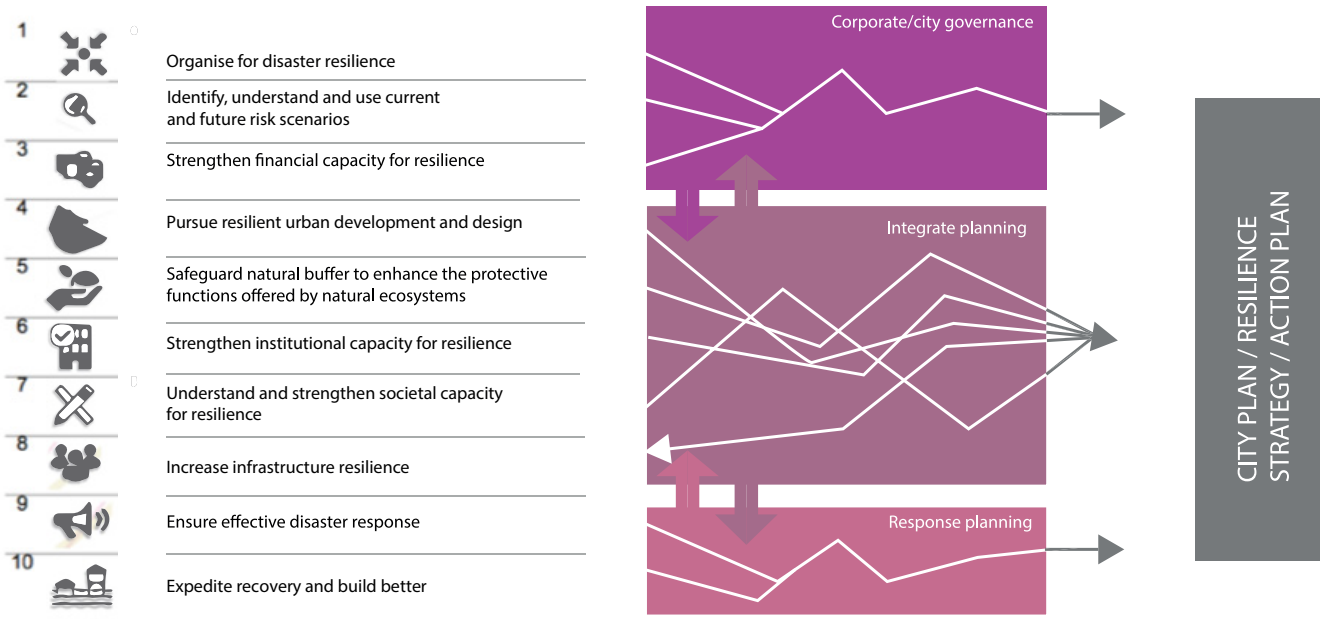
Roadmap to a Disaster Resilient Community

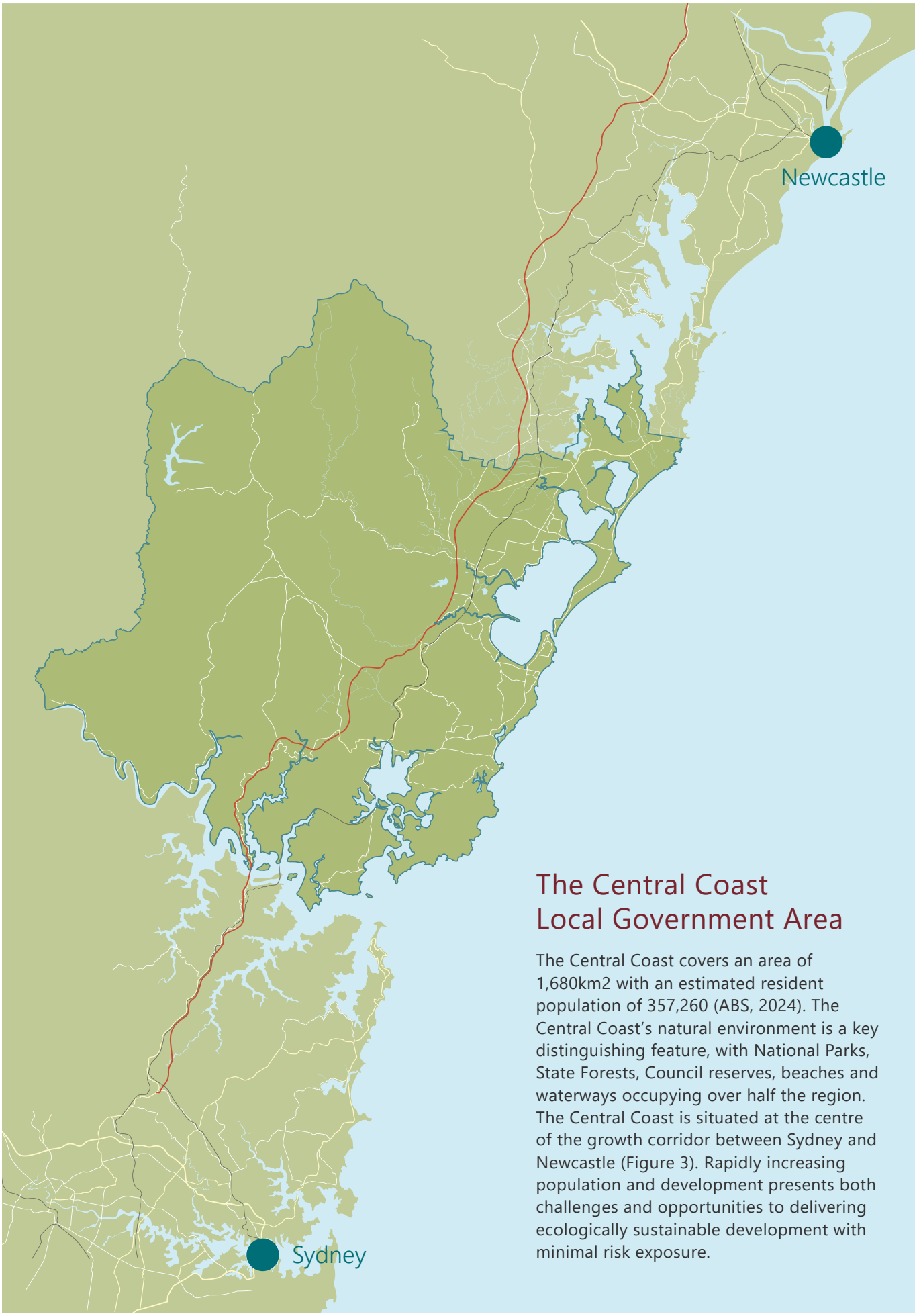
The United Nations comprised of 187 countries including Australia adopted the Sendai Framework for Disaster Risk Reduction 2015-2030 (UNDRR 2015), at the third World Conference on Disaster Risk Reduction held in Sendai, Japan in 2015.

The Sendai Framework provides a roadmap to make communities safer and resilient to disasters. To support local governments to implement the Sendai Framework, the United Nations Office of Disaster Risk Reduction developed a Disaster Resilience Scorecard, consisting of 10 essential elements that allow local governments to monitor, review progress and identify the challenges associated with disaster resilience (Figure 2).



Figure 2: Sendai framework for disaster resilience at the local level (UNDRR 2015)





The Central Coast Local Government Area

The Central Coast covers an area of 1,680km2 with an estimated resident population of 357,260 (ABS, 2024). The Central Coast's natural environment is a key distinguishing feature, with National Parks, State Forests, Council reserves, beaches and waterways occupying over half the region. The Central Coast is situated at the centre of the growth corridor between Sydney and Newcastle (Figure 3). Rapidly increasing population and development presents both challenges and opportunities to delivering ecologically sustainable development with minimal risk exposure.

Figure 3: Central Coast local government area

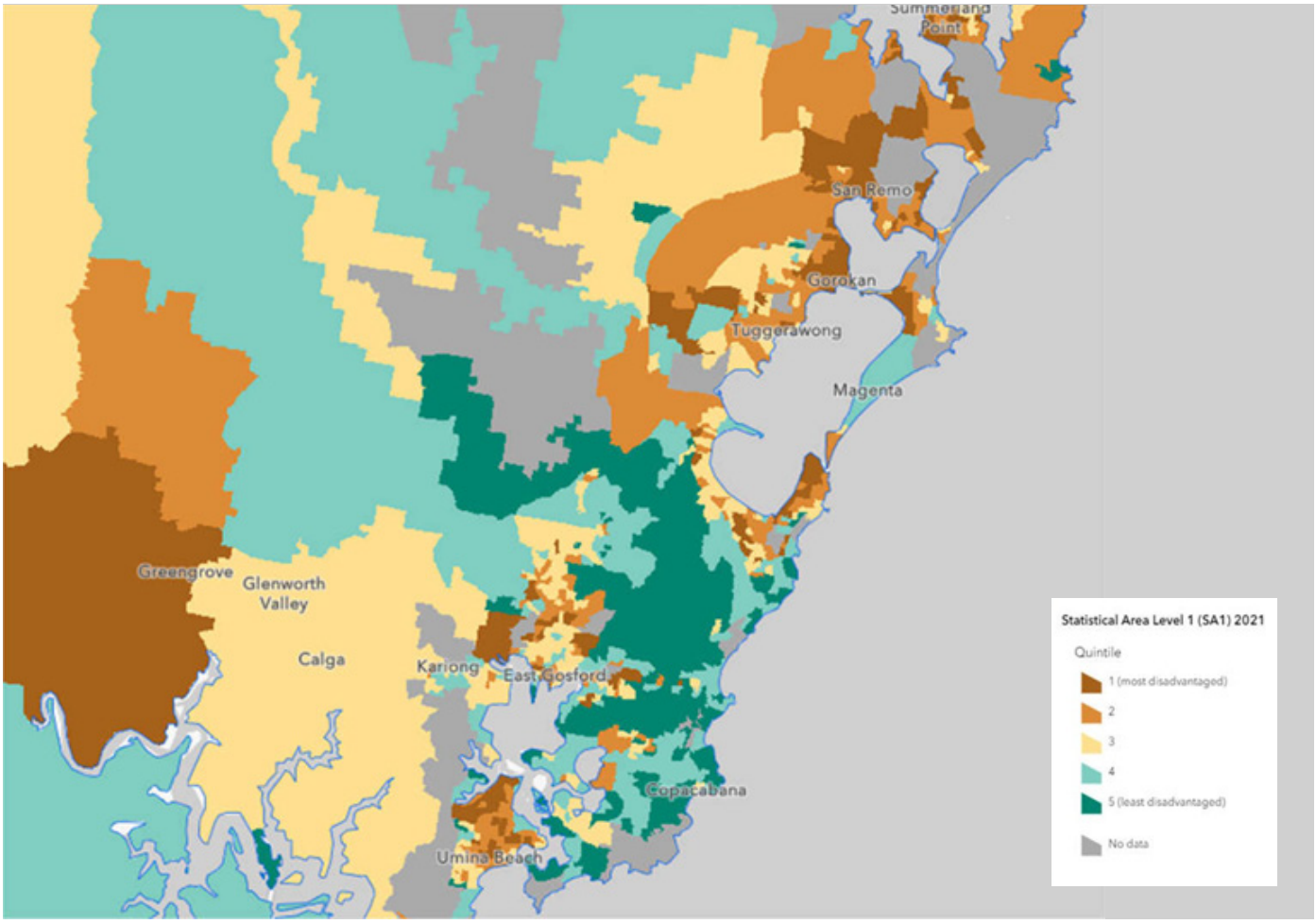
Socio-Economic Indicators

The Central Coast faces the same issues as other regional NSW locations; we have a very large and diverse location (multiple town centres and suburbs) that impacts servicing and creates public transport challenges for our workforce, we have an older resident population with a higher median age than other regional NSW locations, household incomes are lower than metro locations and we have a very high proportion of disadvantaged homes across the LGA, along with the housing availability and affordability issues that most of the locations in regional NSW are facing.

Thirty seven percent of the population is living in low-income households (earning less than $500/week in 2021 (.id based on 2021 ABS Census). There are also 26,745 rent assistance recipients on the Central Coast (Department of Social Services Payments Demographic Data, September 2024). Stressed and low-income households are less likely to have a financial buffer and be able to raise funds in a crisis. Such households are more likely to live in insecure housing situations and may not have access to digital technology for communication during emergencies.

The Central Coast has a SEIFA score of relative disadvantage of 994, indicting it is slightly less advantaged than the average for Australia of 1,000 (ABS 2024); however, there are pockets of significantly lower scores, particularly in the Wyong ward (ABS 2021, Figure 4). Socio-economic disadvantage increases community vulnerabilities and is associated with a reduced capacity to respond and recover from disaster events.

Figure 4. Index of Relative Socio-economic Disadvantage (ISRD), ABS 2021 Socio-economic indexes for Areas (SEIFA).



Twenty-two percent of the Central Coast LGA population is 65 years or older, and this proportion is expected to increase to 26% by 2046 (id.profile 2024). Twenty eight percent of people aged 65 or more are currently living alone, with the percentage rising to 38.4% for those aged 80 years or more (id.profile based on 2021 ABS Census).

Seven per cent of the Central Coast population needs help in their day-to-day lives due to disability (id. based on 2021 ABS Census). There were 11,142 people on the Central Coast with an active NDIS plan as September 2024 (NDIA 2024). A further 22,442 aged care packages are provided to older residents (GEN-agedcaredata.gov.au) as 30 June 2023.

Availability and affordability of housing also affect disaster resilience. Housing in the Central Coast has traditionally been more affordable than in Sydney, but as incomes have been lower, the community has still experienced high rates of housing stress (i.e. spending more than 30% of income on housing costs). In 2021, 14.7% of mortgagors and 42.0% of renters on the Central Coast were experiencing housing stress (id. based on 2021 ABS Census). With COVID-19 triggering higher rates of migration out of capital cities, the Central Coast has seen housing vacancies drop to a low of 0.5% in January 2022 (SQM Research 2024). This comes with an increase in rent and purchase prices and more hardship for lower income households to secure appropriate and affordable housing.

Ultimately, lack of affordable housing results in increased homelessness.

In 2023, it was estimated that about 2,011 people on the Central Coast were homelessness (Specialist Homelessness Services Collection data cubes, 2011-12 to 2021-22, Canberra AIHW). This number has remained at or around the 2,000 level since 2021. People who are homeless have far fewer protections than others in the case of disaster.

Health statistics for the Central Coast highlight the health vulnerabilities of our community. A higher proportion of people on the Central Coast are obese, drink alcohol at risky levels, smoke daily and have high or very high levels of psychological distress compared to NSW (Table 1), although these statistics have improved over the last five years.

Table 1 Health statistics for the Central Coast (NSW Health 2023)

Factor	Central Coast Local Health District	NSW
Obesity	27.8%	24.6%
Smoke daily	9.1%	8.2%
Risky alcohol consumption	32.7%	27.1%
High or very high psychological distress	18.5%	18.1%

Economic Overview

The region is located in the centre of the fastest growing corridor in New South Wales between Sydney and Newcastle and is classed as a Metro Satellite due to its relative proximity to Sydney. The Coast has a key strategic location with access to key local and export markets, with well-serviced road and rail infrastructure as well as strategically located warehousing and freight.

The region has a diverse economy, with expertise in healthcare and social assistance, food, advanced manufacturing, logistics, agriculture, and construction. There are five distinct economic typologies of the Central Coast; the Hinterland, the Pacific Highway Corridor, the agglomeration of Coastal Communities, and the major centres of Gosford and Wyong.

Each of these economic typologies is supported by concentrations of activities in centres and employment areas. Each plays a different role in the types of jobs provided and economic output they support.

There were 173,617 residents employed on the Central Coast as of June 2023. Around 70% of these employees work within the LGA. Around 37% of resident workers have a tertiary qualification and 31% have no qualifications. Labour force participation rate is around 56%, with a high percentage of retirees (id.profile 2024). Employment on the Central Coast has shown some resilience. For the October 2024 quarter, the unemployment rate was 3.5%, having reduced consistently since June 2019 (5.6%) even through the initial impacts of the COVID-19 pandemic. Unemployment on the Central Coast is now lower than in Greater Sydney (3.9%) and NSW (3.5%).

The Central Coast economy is dominated by the household services sector, which in 2021 provided 43.1% of employment within the LGA, followed by goods related industries (37.6%) and business services (12.8%). The total local workforce employed in the LGA was 116,698, of which around 91% were local residents. The Central Coast contributes around 2.7% to NSW's Gross State Product, at about $19.8 billion per annum and 2.4% of its added value. In 2021, there were 26,266 registered businesses on the Coast.

The Central Coast has an opportunity for job diversification, moving away from fossil fuel intensive industries. Its connectivity to other regions such as the Hunter region, Greater Newcastle and Sydney provides the Central Coast with the opportunity to leverage economic investment and freight development in the surrounding areas.

The Central Coast's manufacturing, logistics and warehousing sectors are expected to evolve, with the emergence of smart manufacturing, artificial intelligence and robotics, and more distributed manufacturing. E-commerce increases demand for warehouse and logistic properties to accommodate automated warehousing.

The Central Coast is also a destination for tourism, leisure and recreation. Development of the Narara district is expected to help improve the connectivity and accessibility to surrounding tourism centres such as Ettalong Beach, Terrigal and Avoca Beach.

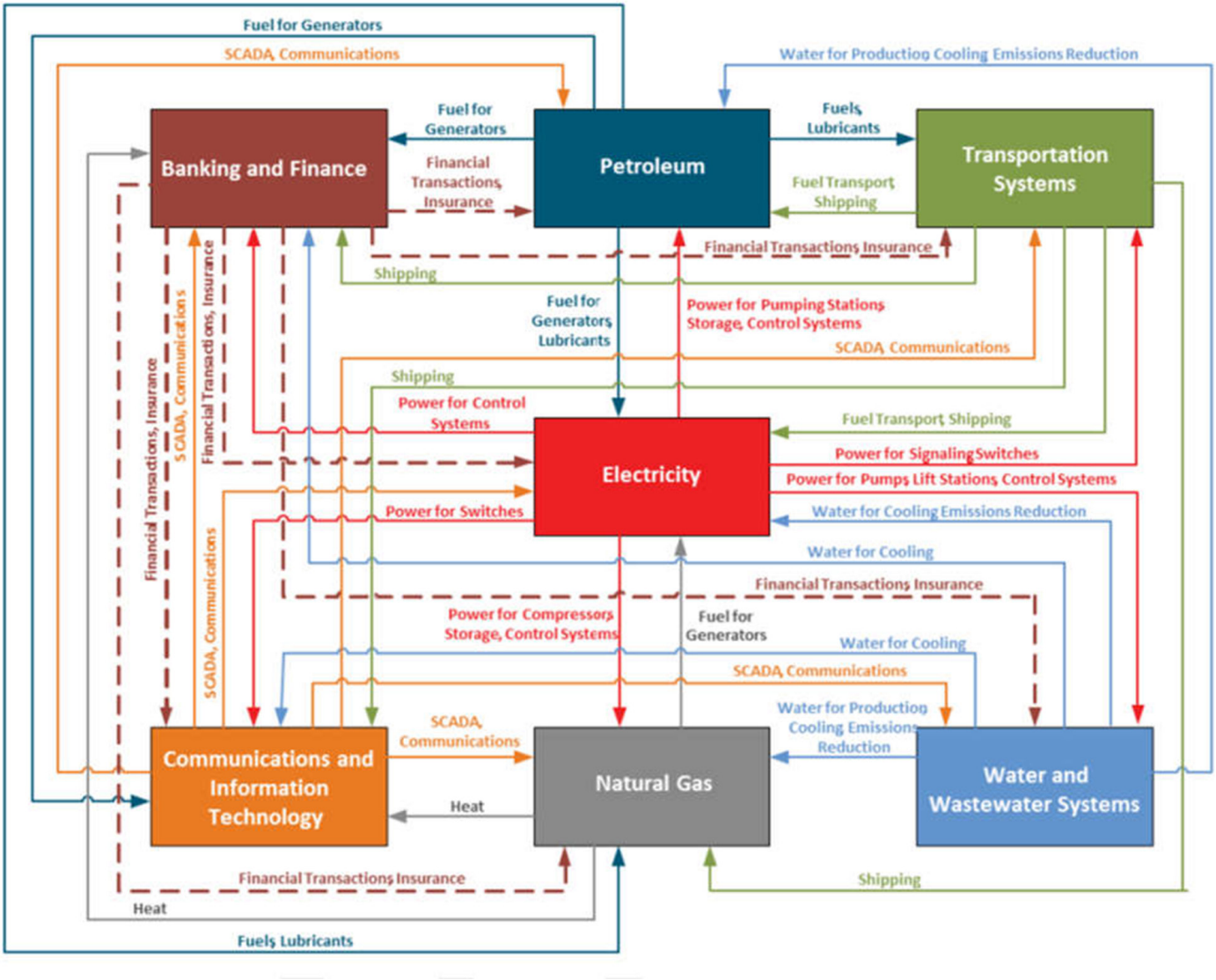
The Central Coast has been identified as one of five Renewable Energy Zones in NSW, which means it will be became a key area for renewable energy generation and storage. This will help transform and repurpose the region from fossil fuel heavy industry to an area focused on cleaner, more reliable energy. Additionally, development of new healthcare facilities and the new University of Newcastle campus will strengthen the healthcare sector within the Central Coast (NSW Treasury 2021).

Journey to work is typically by car, with poor levels of public transport service available across the LGA. Supply chains and journeys to work within the LGA are subject to disruption, with heavy reliance on the M1 motorway for both. There are also a large number of local roads that provide single access to communities and assets that are threatened by flood and/or fire (Transport for NSW 2024).

Electricity, water supply, sewerage and telecommunication services are also vulnerable to natural disasters, presenting challenges to both the business and residential communities of the Central Coast.

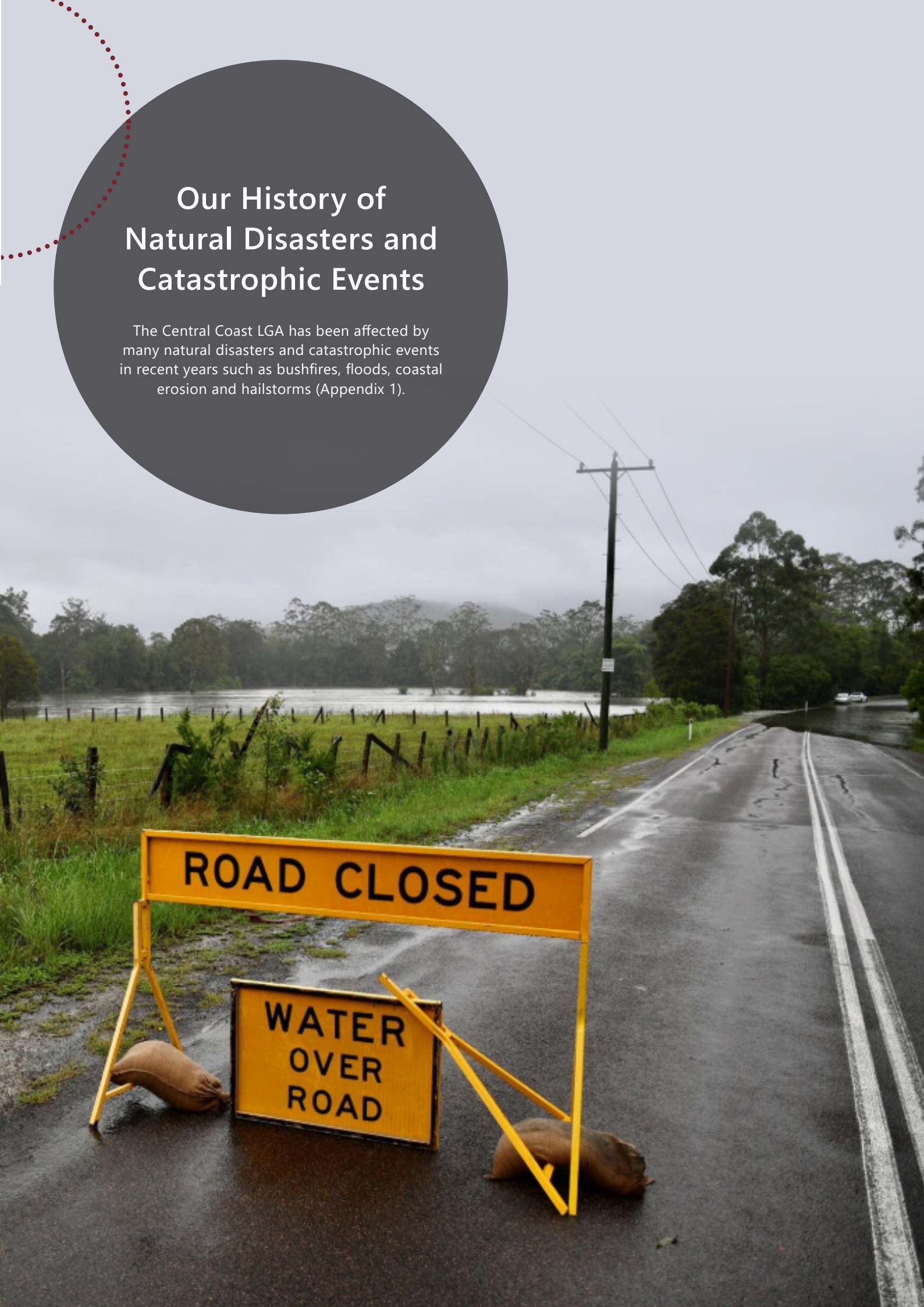
Critical infrastructure and supply chains are both complex and closely inter-related (Figure 5), requiring a systems approach to building local resilience.

Figure 5 - Example of critical infrastructure system interdependencies (Resilience NSW 2021)



Our History of Natural Disasters and Catastrophic Events

The Central Coast LGA has been affected by many natural disasters and catastrophic events in recent years such as bushfires, floods, coastal erosion and hailstorms (Appendix 1).



Coastal erosion, floods and storms

The Central Coast has been exposed to severe rainfall events such as East Coast Lows and other severe storm events (Appendix 1). Many of these severe storm events have resulted in catastrophic coastal erosion events (e.g. 1978 and 2020) and floods (e.g. the 2007 Pasha Bulker storm).

Flooding events across the region commonly occur as:

- riverine flooding: when creeks, rivers and lakes overtop their banks
- local overland flow, often through urban areas when the capacity of stormwater systems is exceeded, before it reaches a creek or river
- oceanic inundation: from elevated ocean level either during high or king tides and storm events or
- nuisance flooding due to rising groundwater levels in low-lying areas

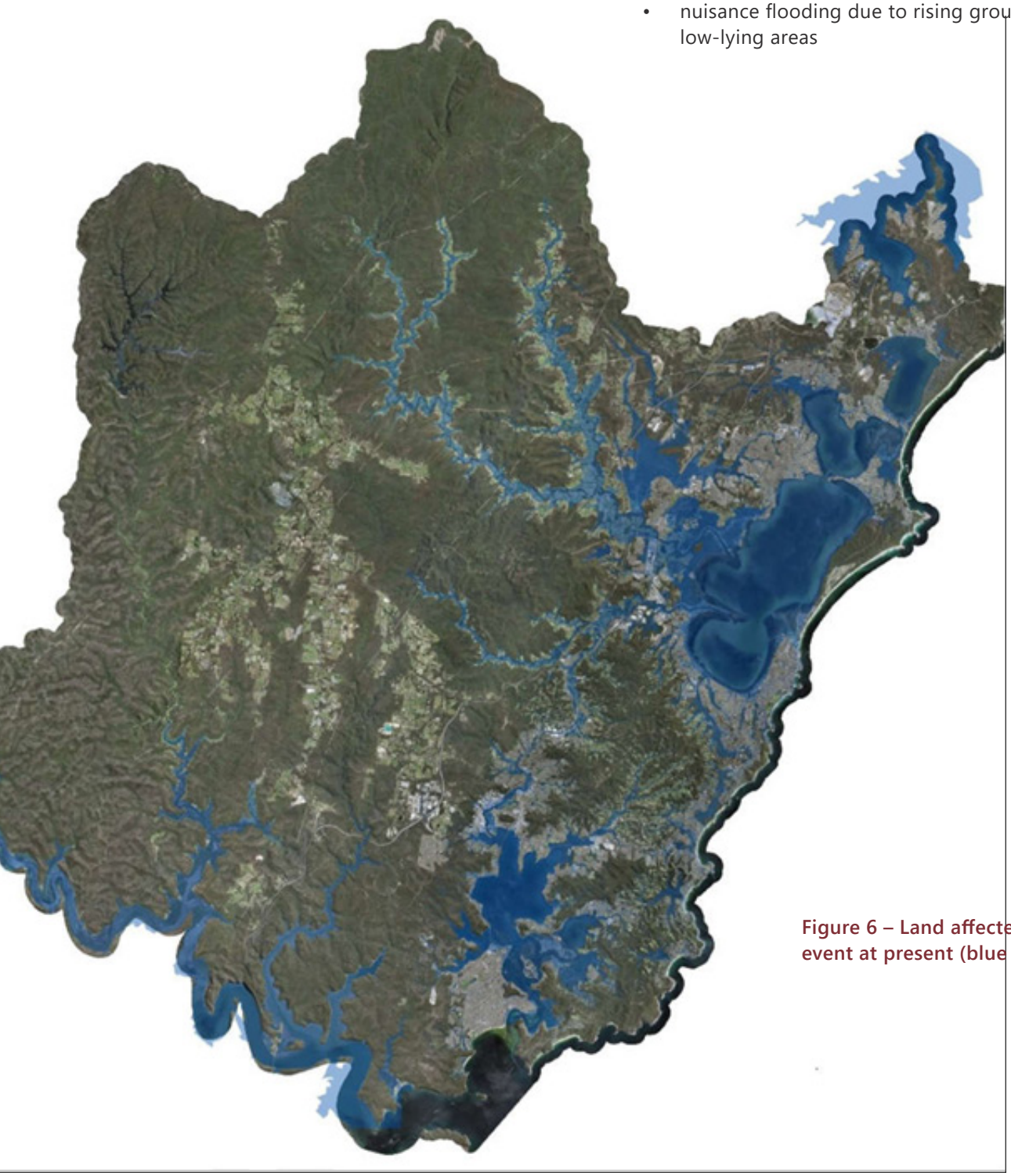
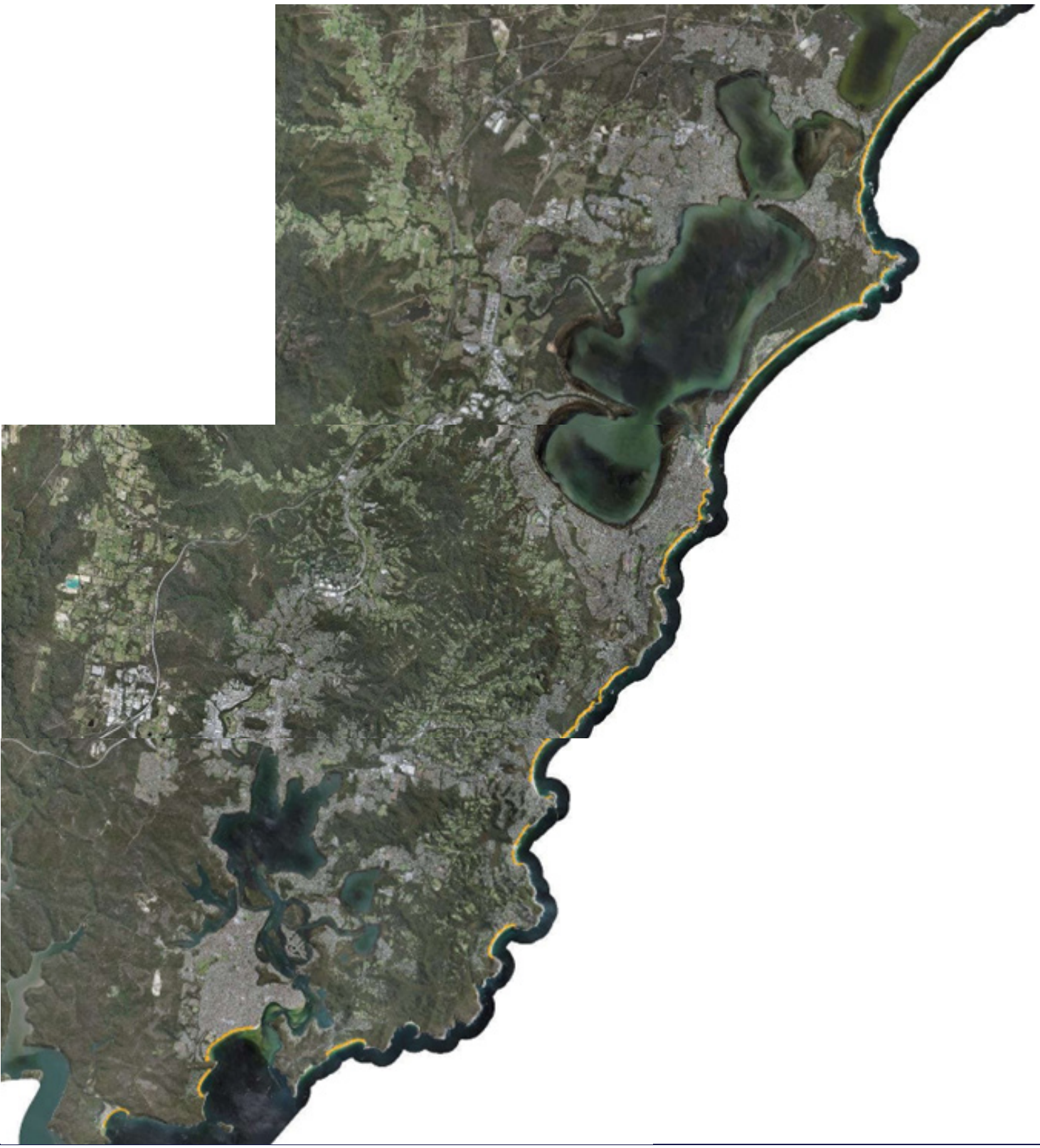


Figure 6 – Land affected by 1% flood event at present (blue shading)

Figure 7 – Land affected by 1% coastal erosion event at present (yellow line)

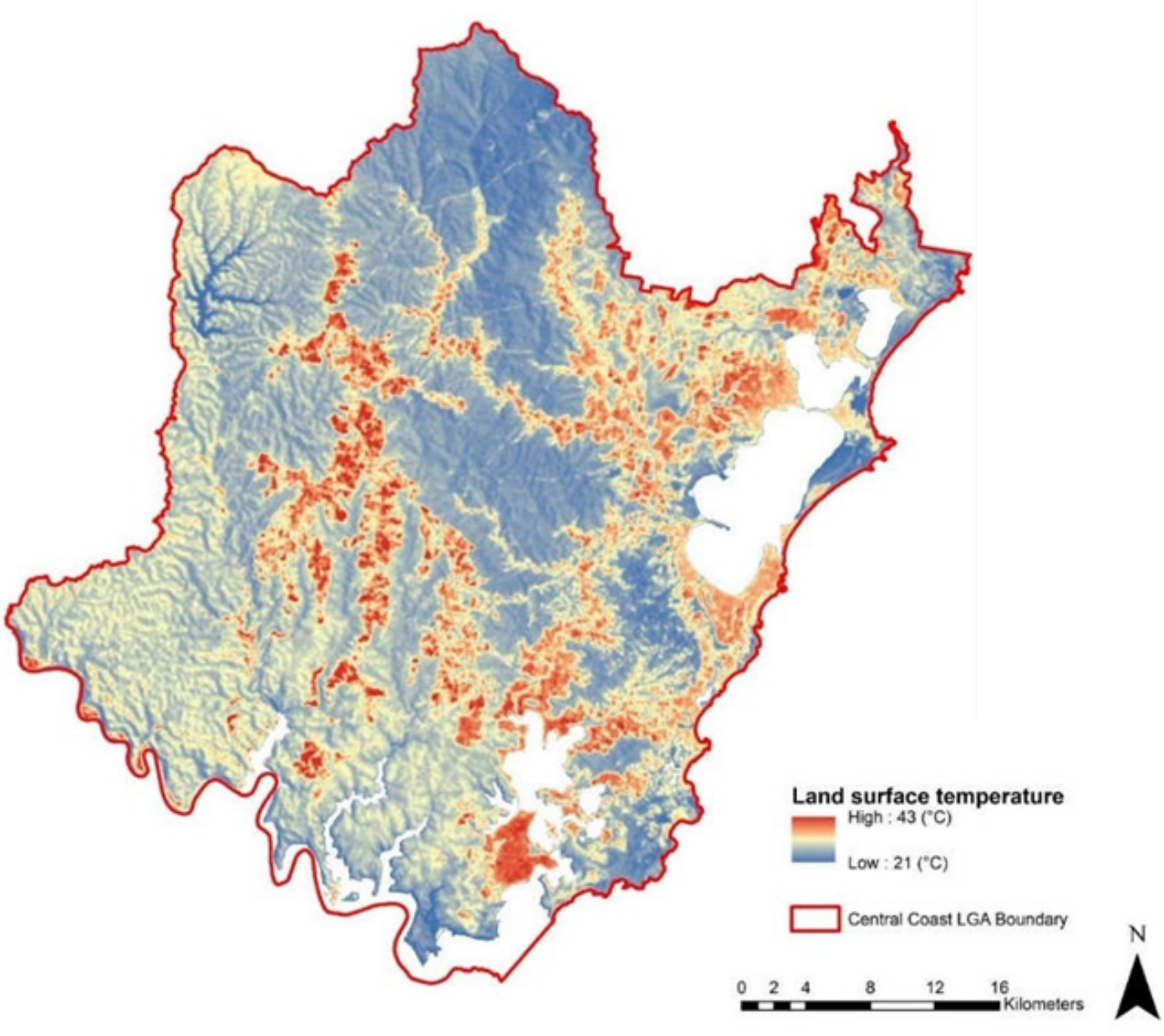


Extreme heat

Extreme heat events are one of the most significant natural hazards and responsible for more deaths in Australia than any other natural hazard (Nairn 2015, McMichael et al. 2003). Average temperatures across Australia have increased by just over 1°C since 1910 (CSIRO and BOM 2018).

An analysis of variation in land surface temperatures across the Central Coast LGA in 2018 has shown that temperatures ranged from 21°C to 43°C (Figure 8).

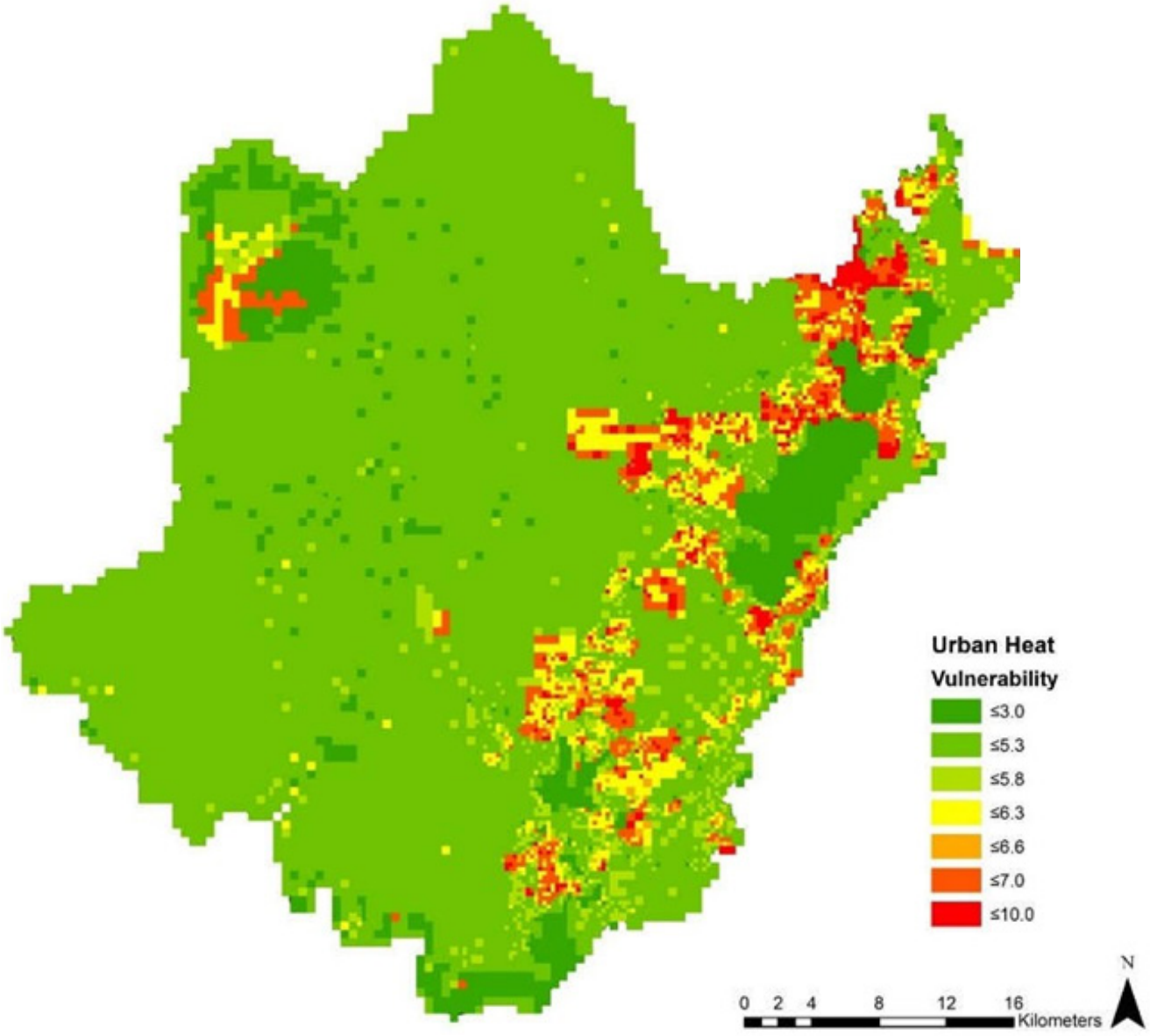
Figure 8. 2018 Land surface temperature map (source: Central Coast Council Heat and Tree Canopy Mapping Analysis, Seed 2018).



Warmer areas coincided with urban and developed areas and cooler temperatures were associated with forested and natural vegetated areas. Changes in land use, land cover and other alterations to the natural environment resulting from urbanised transformations are known to alter local urban climates.

Urban heat islands are a key concern for local government given that extreme heat poses the greatest health risk to the community and a greater risk to vulnerable members of the community as well as Council owned assets (Figure 9).

Figure 9. Urban heat vulnerability for Council owned assets across the LGA. A higher score indicates a higher vulnerability (source: Climate Change Vulnerability Assessment, Jacobs 2019).





Droughts

Drought which can be defined as prolonged and an abnormally dry period when the amount of available water is insufficient to meet normal use. Drought has historically affected the Central Coast LGA, one of the worst droughts reported in recent years was the Millennium drought which occurred from 2001 – 2010.

Bushfire

The climate of the Central Coast is cool temperate with predominately summer rainfall. The coastal strip is dominated by local coastal weather patterns (predominant coastal winds) and the western areas can be slightly warmer, drier and less humid, often influenced by wider wind systems. The bush fire season generally runs from August to March. Prevailing weather conditions associated with the bush fire season in the Central Coast are more generally north-westerly winds accompanied by high daytime temperatures and low relative humidity. There are also occasional dry lightning storms occurring during the bush fire season.

The dominant vegetation types are dry sclerophyll forest (shrubby), dry sclerophyll forest (shrub/grass), wet sclerophyll forest (shrubby), wet sclerophyll forest (grassy), with pockets of rainforest, heathlands, forested and saline wetlands.

The Central Coast has on average 843 bush and grass fire incidents per year, of which 6-8 can be major fires. Figure 10 displays the bushfire history within the LGA from 1960 to 2023 The main sources of ignition in the Central Coast BFMC area are:

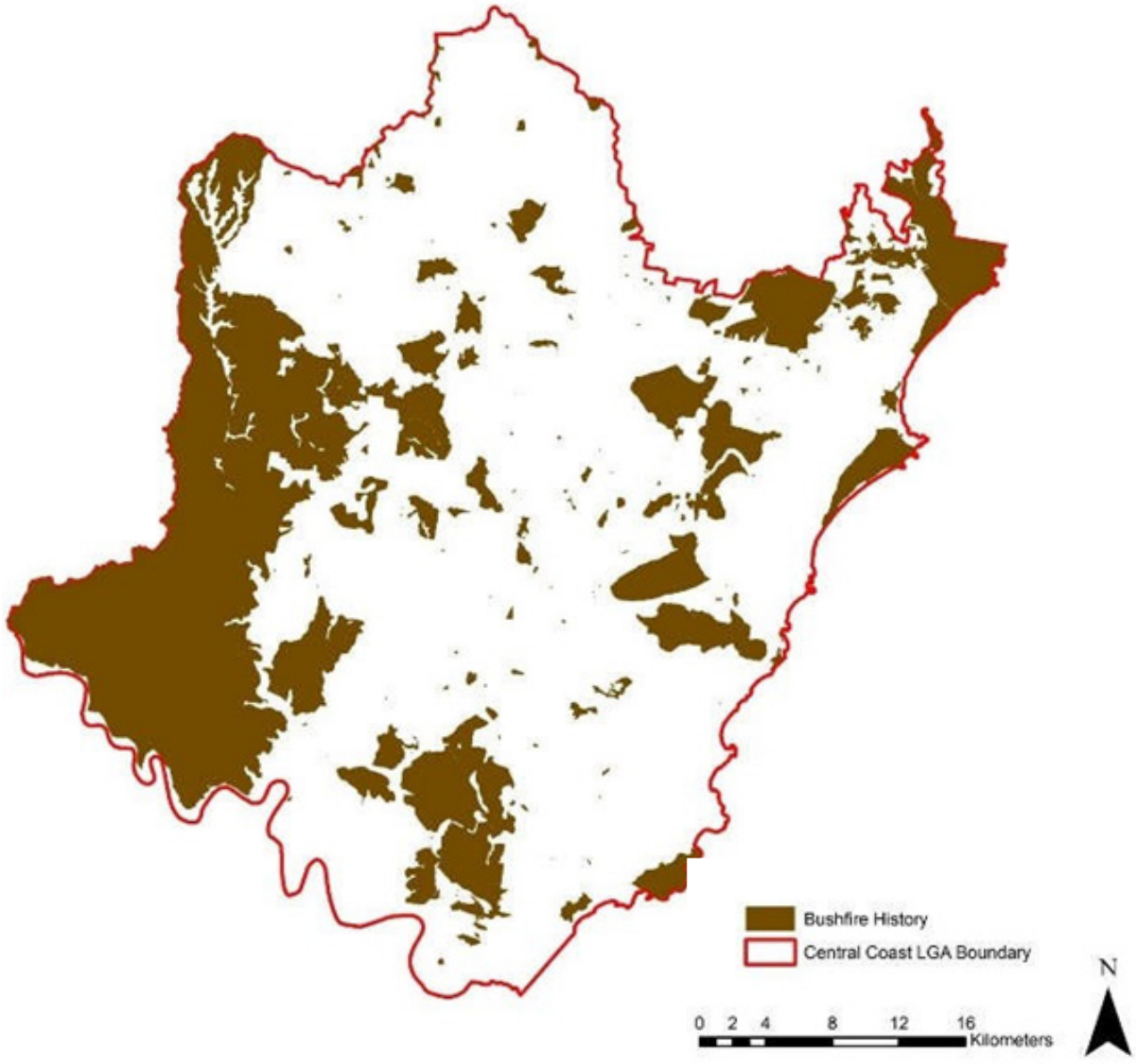
- Illegal burning activity
- Escapes from legal burning
- Arson and incendiarism
- Ignition of abandoned/stolen motor vehicle

Bushfires can cause serious property and infrastructure damage and lead to loss of life. The fire itself is only one element of the danger. Other impacts from bushfires include the effects of radiant heat and smoke.

- Fire embers can spread many kilometres from the location of a large bushfire, causing smaller spot fires to break out.
- Radiant heat can be felt more than 100 metres away from a large bushfire and has the potential to melt or fracture objects including parts of cars, glass windows, etc.

Toxic fumes and heavy smoke produced from bushfires can impair vision and impact on air quality and create difficulties in breathing. Due to the unpredictable nature of fast- moving fires, people are likely to be encouraged to evacuate from their homes as quickly as possible to ensure they are able to reach safety.

Figure 10. Bushfire history across the Central Coast LGA between 1960 and 2024.



Impact of Disaster Events on the Built Environment

NSW Reconstruction Authority (2024) has assessed the impact of natural disasters on the built environment across NSW. This assessment found that the Central Coast was the most disaster-affected LGA in NSW at present, with annual average damages estimated at $178 million (Table 2).

Table 2 – Built environment damage current estimates (NSW Reconstruction Authority 2024)

Total AALs ($million) for the top 20 LGAs in the built environment (2023)[90]

LGA	Total	Storm	Flood	Bush Fire	Earthquake	Cyclone	Coastal Inundation	Coastal Erosion
Central Coast	178	83	30	39	11	-	8	6
Tweed	146	24	100	3	1	9	9	0
Clarence Valley	133	12	112	2	1	4	1	1
Ballina	109	11	89	2	0	5	0	1
Northern Beaches	103	64	9	13	8	-	1	10
Penrith	97	28	61	2	6	-	-	-
Hawkesbury	94	8	82	2	2	-	-	-
Sydney	90	68	8	0	13	-	2	-
Lake Macquarie	87	52	3	23	6	-	2	0
Blacktown	85	50	23	1	11	-	-	-
Canterbury-Bankstown	81	57	14	1	9	-	0	-
Sutherland Shire	73	46	12	8	6	-	1	0
Newcastle	71	42	15	6	5	-	2	1
Bayside	68	43	17	0	8	-	0	0
Liverpool	65	30	27	2	6	-	0	0
Wollongong	64	45	2	9	6	-	0	1
Parramatta	63	40	13	1	9	-	0	-
Lismore	57	11	44	1	1	1	0	-
Shoalhaven	49	28	2	13	4	-	1	2
Inner West	49	41	3	0	6	-	0	-

Impact of Disaster Events on Council Services

All disasters can and do affect the services that Council provides to its customers, which can further compound the effects of disasters on the community.

For example, more frequent and intense rainfall events can present drinking water quality risks, which at a minimum make Council's water supply more costly to treat and in extreme circumstances may lead to Council not being able to provide safe water to customers.

Likewise, heatwaves, bushfires and East Coast Lows increase the likelihood of electricity supply interruptions, which can lead to disruption of water and sewerage services to the community.

The vulnerability of Council's ageing infrastructure such as roads and drainage, buildings, and water and sewer assets to disaster impacts both reduces levels of service to the community and increases costs to Council (and the community) to repair damaged infrastructure. Council services are also affected by failure of other service providers' infrastructure, for example Council's ability to communicate with local people is significantly affected when telecommunications go down.



Disaster Resilience, Coping Capacity and Adaptive Capacity Across the Central Coast

Resilience arises from the capacities of social, economic and government systems to prepare for, respond to and recover from a natural disaster and to learn, adapt and transform in anticipation of future natural disasters (Parsons et al 2020). The Australian Disaster Resilience Index provides a tool for assessing the resilience of communities to natural disasters. The index is made up of two components:

- coping capacity, which is the means by which people or organisations can use available resources and abilities to face adverse consequences that could lead to a disaster. In a practical sense, coping capacity relates to the factors influencing the ability of a community to prepare for, absorb and recover from a disaster
- adaptive capacity, which is the capacity to adjust through learning and transformation. Adaptive capacity requires institutions and networks that learn and store knowledge and experience, create flexibility in problem solving and balance power among interest groups

Resilience, coping capacity and adaptive capacity vary across the Central Coast (Figures 11- 13; data at the SA2 level are provided in Appendix 2). Resilience is moderate to high (Figure 11), which is related to level of economic capital, access to services, community cohesion and capacity for adaptive learning and problem solving. Communities generally demonstrate good capacity to cope with disasters (Figure 12) although have more variable capacity to adapt to changing circumstances (Figure 13).

Figure 11 – Resilience across the Central Coast

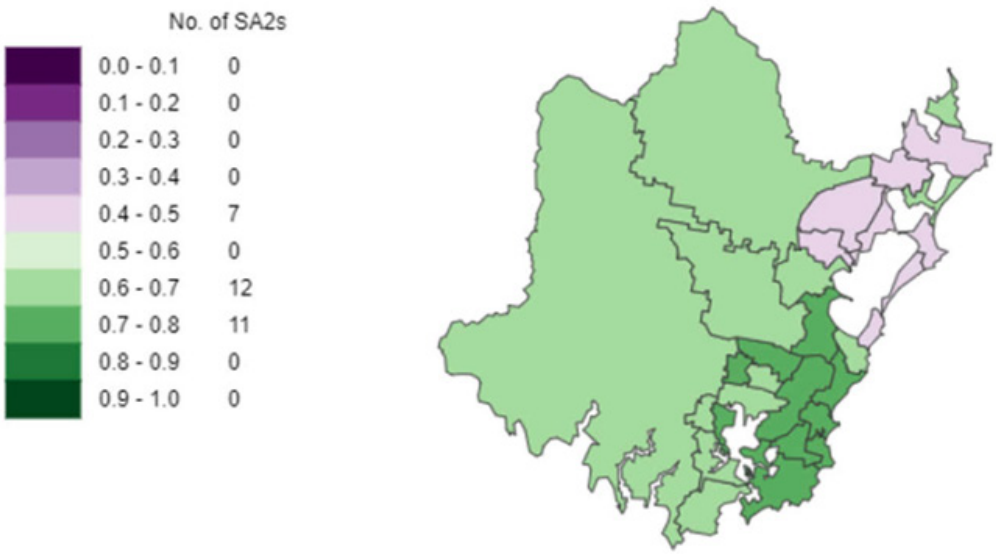


Figure 12 – Coping capacity across the Central Coast

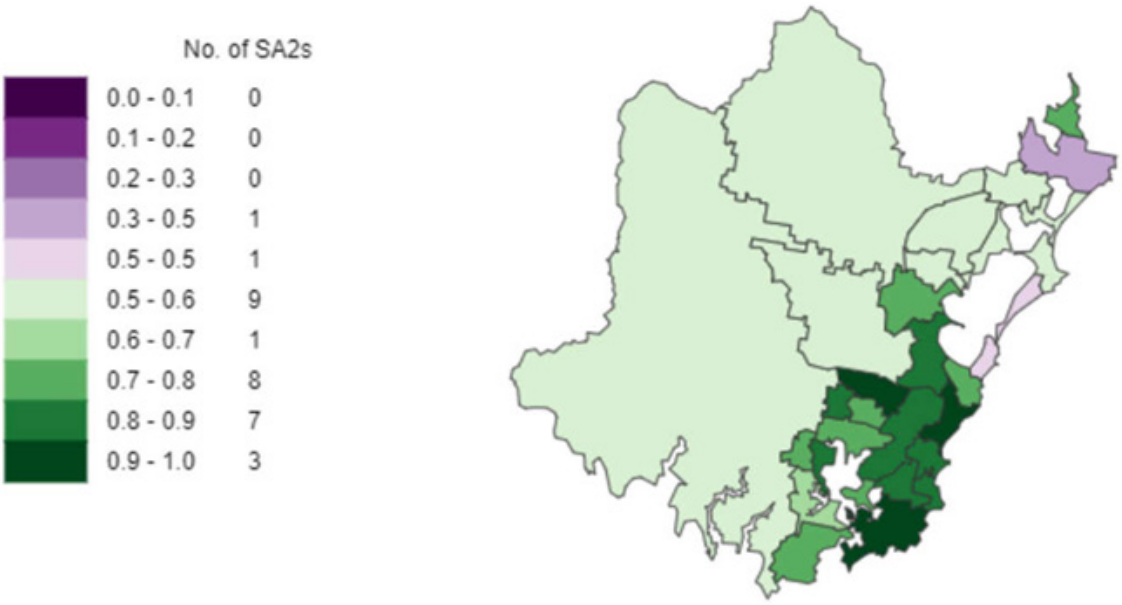
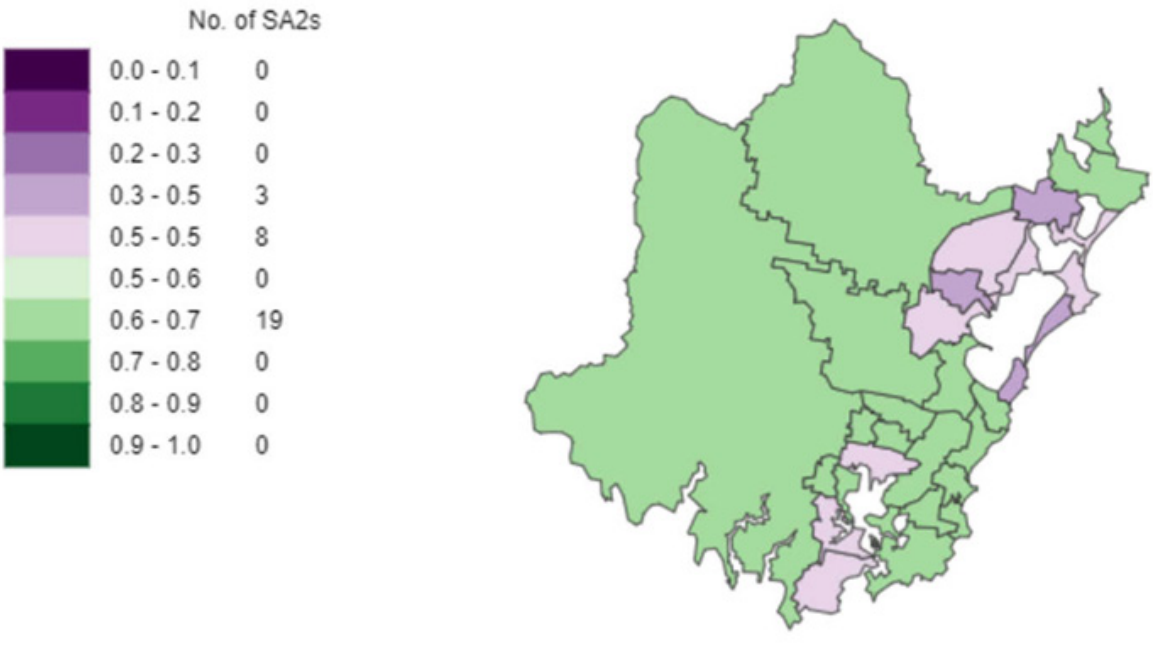


Figure 13 – Adaptive capacity across the Central Coast



Regional Climate Projections and Likely Effect on Natural Disasters

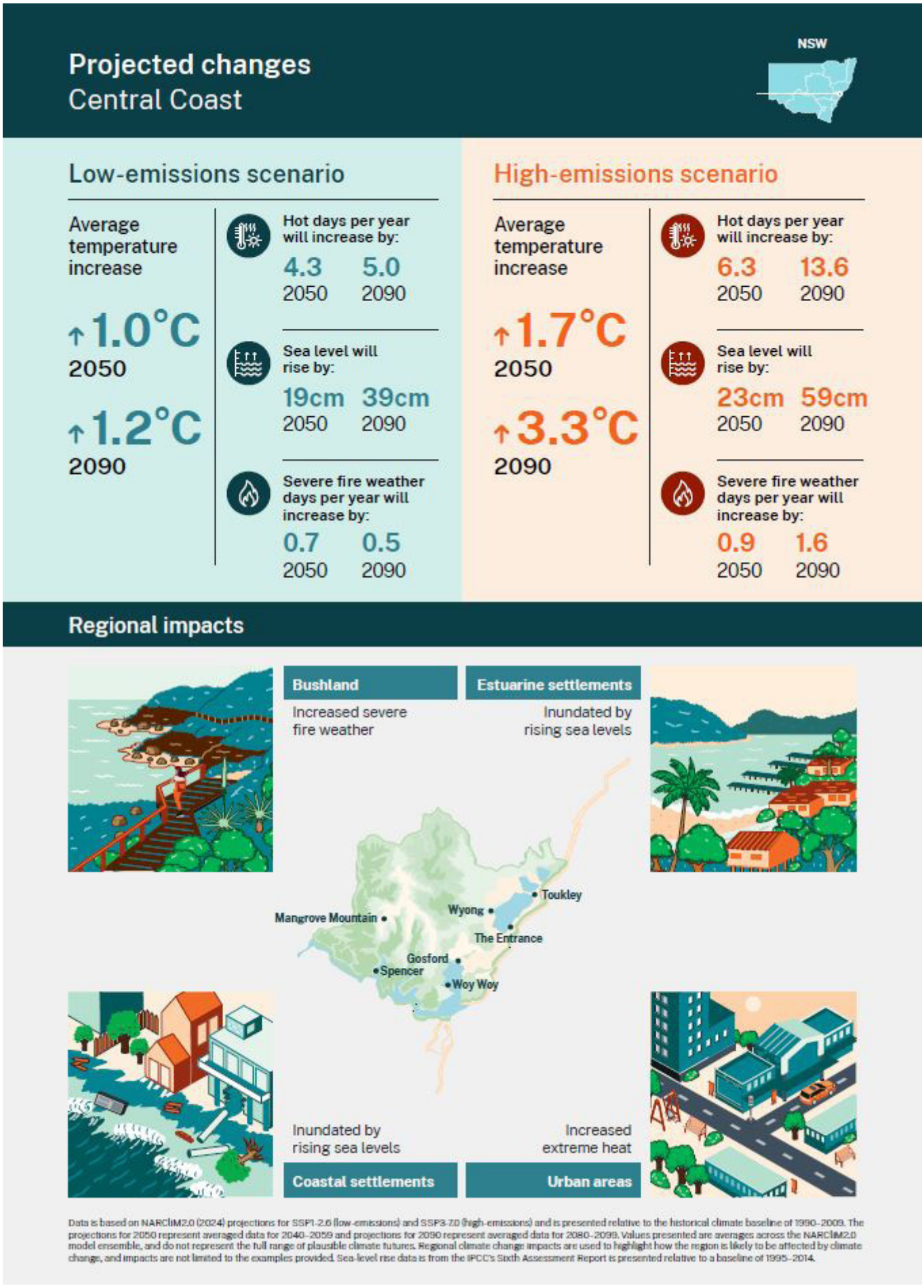
Adapt NSW has predicted that the Central Coast is likely to experience more heat waves, bushfire events, intense storms, and flooding and coastal erosion risks (Figure 14). This increase in the intensity of natural disasters makes it difficult to predict how those disasters will affect local communities. The expected increase in frequency of disasters means that there is often an overlap in the impact of disasters, which can create circumstances where communities are moving from response to recovery and back to response without respite. It can also mean that the cumulative impact of disasters is amplified compared to the impact of the same disasters occurring in separate periods of time. The NSW Reconstruction Authority (2024) estimates that the annual average damages to the built environment from bushfire, storm, flood, coastal erosion, coastal inundation and earthquake on the Central Coast will increase from $178 million at present to $663 million by 2060 (Table 3).

Table 3 – Built environment damage estimates with climate change (NSW Reconstruction Authority 2024)

Total AALs ($million) for the top 20 LGAs in the built environment (2060)[91]

LGA	Total	Coastal	Storm	Flood	Bush Fire	Earthquake	Cyclone
Northern Beaches	969	867	62	10	22	8	-
Central Coast	663	426	96	49	78	14	-
Clarence Valley	594	419	12	149	3	1	10
Byron	501	465	12	8	6	0	10
Shoalhaven	500	422	40	3	29	7	-
Mid-Coast	445	380	29	17	14	2	3
Coffs Harbour	378	317	24	21	5	1	10
Wollongong	363	270	61	3	19	10	-
Newcastle	334	231	51	33	12	7	-
Ballina	316	174	13	113	4	1	11
Eurobodalla	290	259	14	2	13	2	-
Blacktown	253	-	96	133	5	19	-
Tweed	235	40	26	139	7	1	22
Port Macquarie-Hastings	228	159	25	23	14	2	5
Penrith	216	-	40	160	6	10	-
Parramatta	153	1	80	46	4	22	-
Sydney	151	0	109	15	0	26	-
Hawkesbury	149	-	11	131	4	2	-
Shellharbour	139	109	23	1	3	3	-
Lake Macquarie	131	5	60	11	47	8	-

Figure 14. Projected climate change impact for the Central Coast region. Source: Central Coast Climate change snapshot, NSW Office of Environment and Heritage, November 2024.



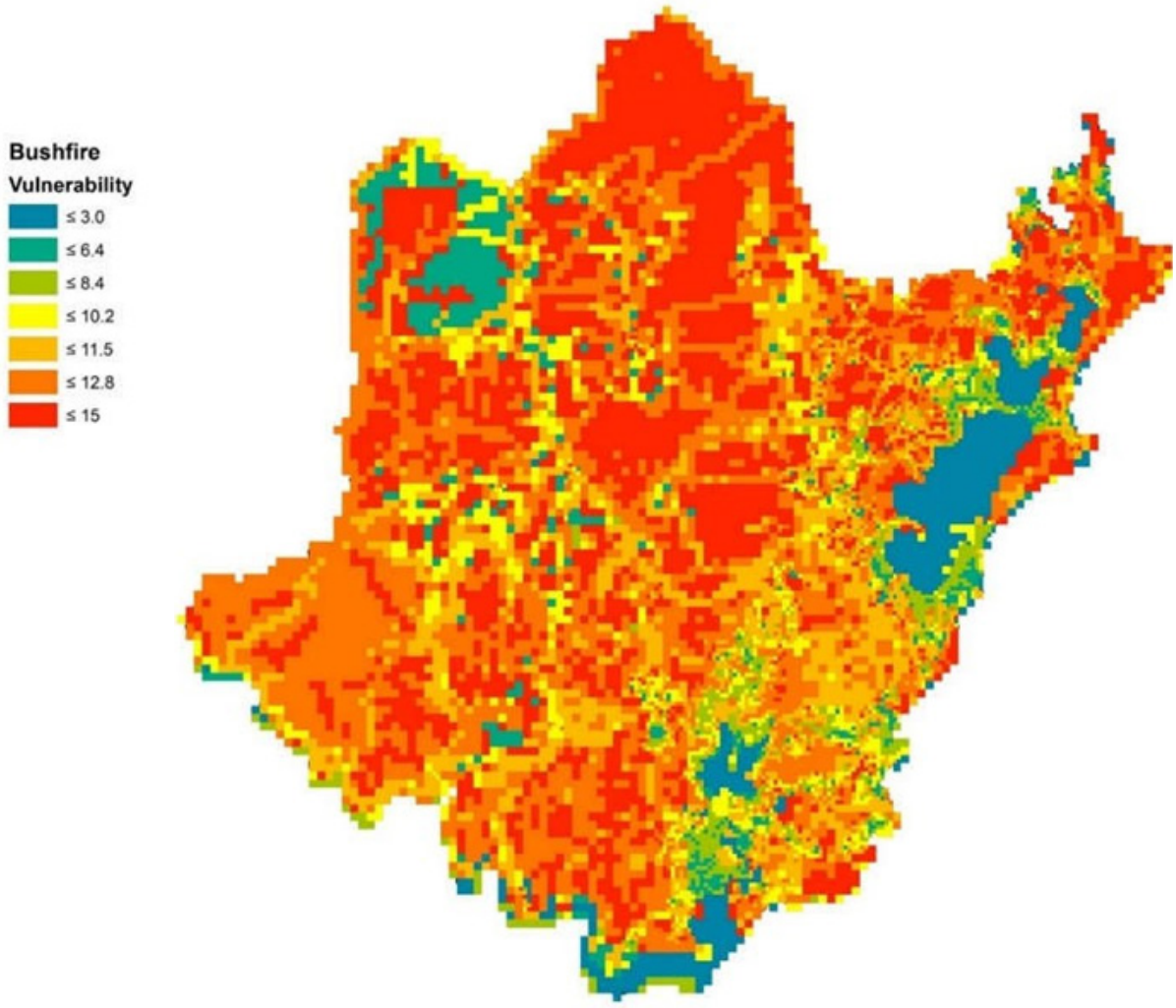
Bushfire

According to Adapt NSW, climate change is expected to increase fire risk across the Central Coast region in several different ways that include:

1. Predicted higher temperatures and droughts can lead to an increase in drying of fuel loads, thereby increasing susceptibility to burning
2. Changes in precipitation, wind, humidity and elevated CO2 and higher temperatures influence biomass volume and hence fuel loads
3. More extreme heat, low humidity and high winds increase the severity of fire- weather risk
4. An increase in accumulated fire risk over a prolonged period (e.g. 12 months or more) can lead to a longer fire season and consequently a reduction in the number of days suitable for prescribed and hazard reduction burning.

With approximately 73% of the LGA covered by wooded vegetation, a vast majority of Central Coast is bushfire prone and vulnerable to bushfire (Figure 15).

Figure 15. Bushfire vulnerability across the Central Coast. A higher score indicates a higher vulnerability to bushfires, Climate Change Vulnerability Assessment, Jacobs 2019



Extreme heat

Records of historical temperatures and future climate projections indicate that mean maximum/minimum temperatures for the Central Coast are projected to increase by approximately 1°C over the coming decade and by approximately 2.7°C by 2070 (Table 4). These temperature changes affect the extreme temperatures and hence will increase in the number of hot days (temperatures > 35°C) and an increase in the frequency of extreme heat days (temperatures ≥ 37°C) across the Central Coast LGA.

Table 4 Temperature projections and increase in hot days

Temperature variable	Year projection and temperature change			
	Current (1985-2005)	2030	2050	2070
Mean maximum	22.75°C	+1.0 (0.7-1.4)	+1.8(1.2 – 2.5)	+2.7 (1.8 – 3.8)
Mean minimum	12.56°C	+1.0 (0.7-1.4)	+1.8(1.2 – 2.5)	+2.7 (1.8 – 3.8)
#of hot days	Fewer than 10 / yr	+3 to 4	No data available	+7 to 9

Rainfall and storms (East Coast Lows)

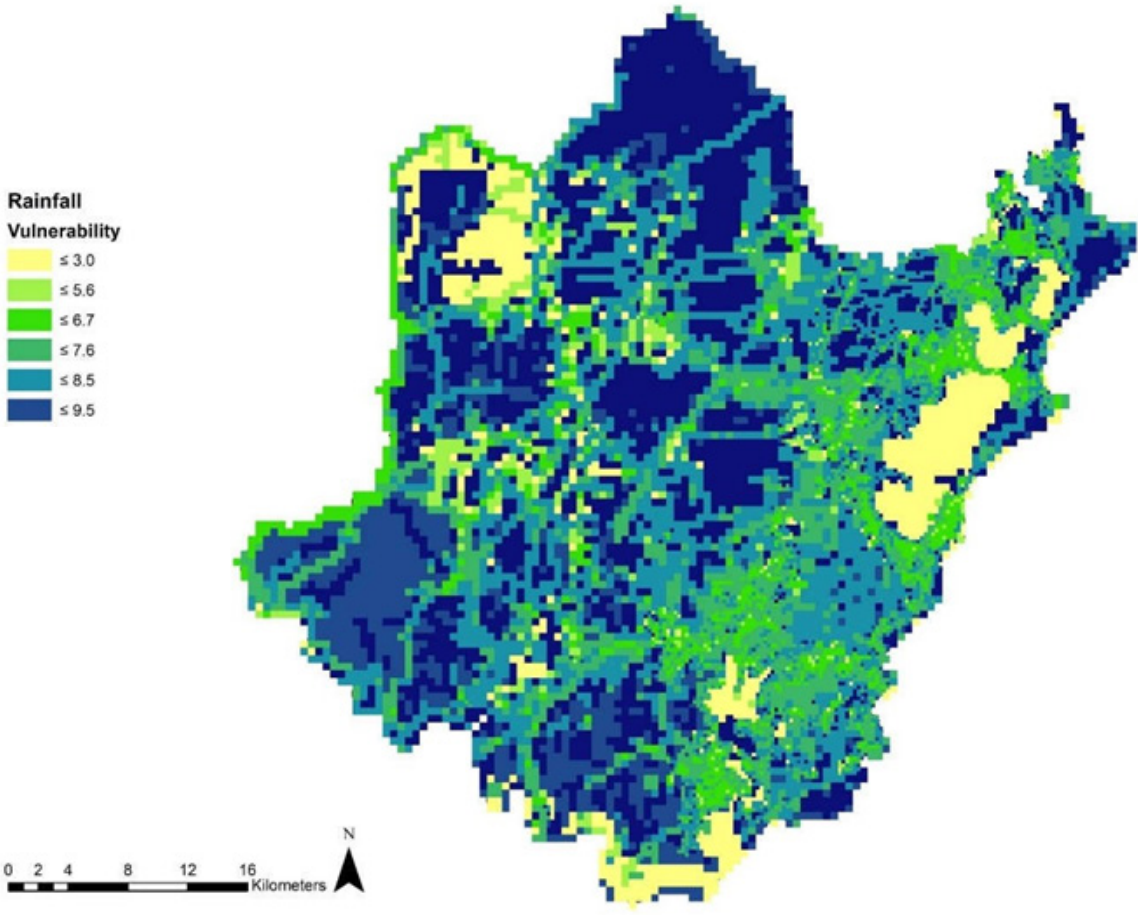
Severe rainfall events occur over south-eastern Australia as a result of individual weather events such as East Coast Lows and associated severe storms events. East Coast Lows have been identified as the cause of 78% of extreme winter rainfall events on the Central Coast. The storminess and rainfall over Southern Australia and deep low-pressure systems and East Coast Lows affecting eastern Australia is expected to decline overall. However, the probability of intense systems affecting south-eastern Australia during summer is expected to increase strongly.

The recent climate risks assessment (by Climate model, SimCLIM) indicated that there was little change in the average rainfall for the region, although the uncertainty increases overtime. The rainfall changes are seasonal in nature and with the average rainfall will be lower in Summer and Autumn, and higher in Winter and Spring.

This recent analysis varies from the earlier projections by Adapt NSW, which projected that average rainfall will decrease in spring and winter and increase in summer and autumn.

Extreme rainfall vulnerability assessment of the region revealed a steady increase in extreme rainfall events which equate to a hotter climate where the atmosphere can hold a greater amount of water. This projection indicates that the Central Coast will be exposed to increased extreme rainfall risks into the future (Figure 16).

Figure 16. Rainfall vulnerability across the Central Coast. A higher score indicates a higher vulnerability, Climate Change Vulnerability Assessment, Jacobs 2019.



Flooding and sea level rise

Sea level rise is projected to accelerate over the 21st century (IPCC 2021). The IPCC predict a likely sea level increase on the central NSW coast of:

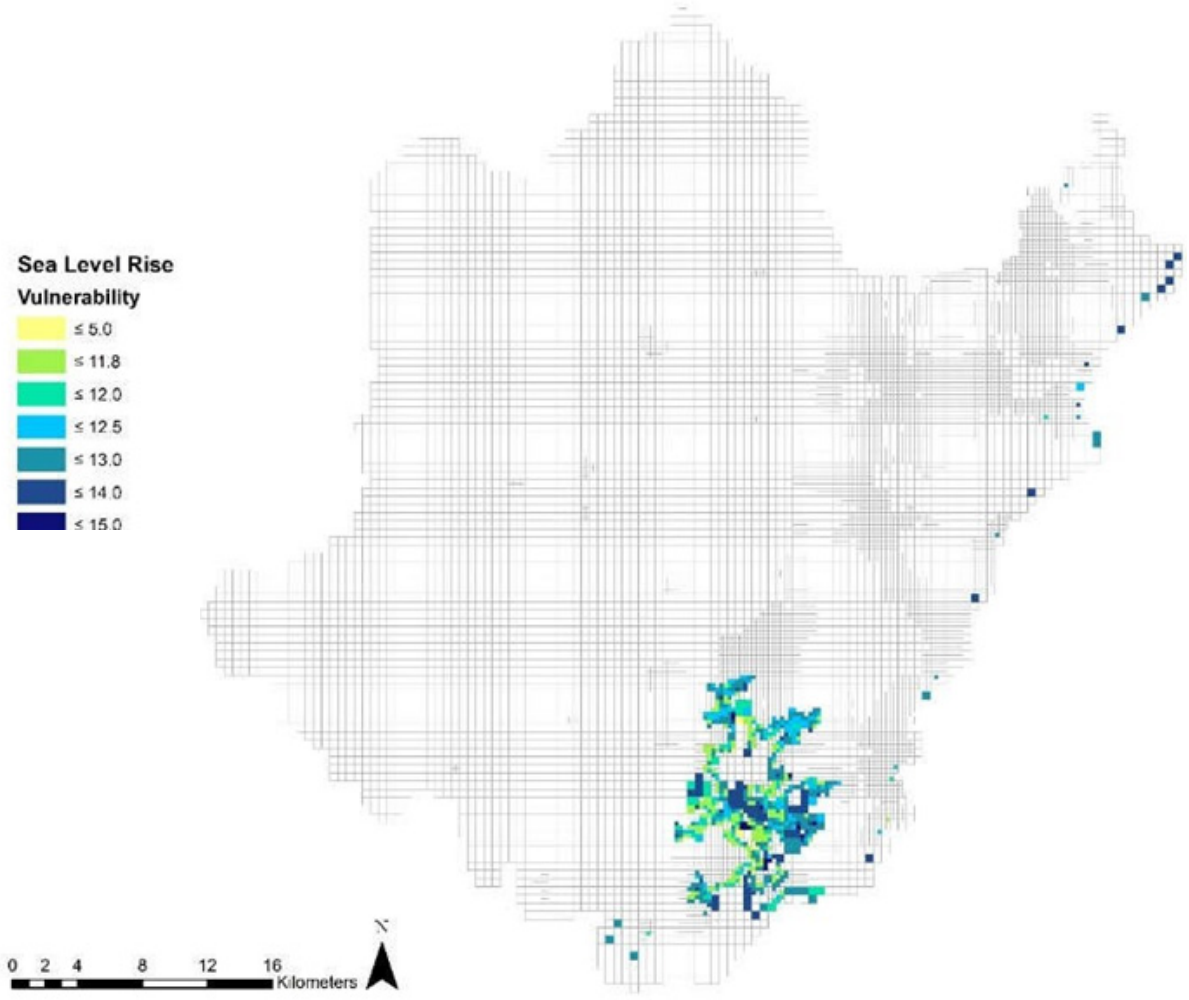
- between 0.21m and 1.06m by 2100, and
- between 0.28m and 1.95m by 2150.

This is dependent on the level of future greenhouse gas emissions.

In the longer term, the IPCC show sea level is committed to rise for centuries to millennia due to continuing deep ocean warming and ice sheet melt, and will remain elevated for thousands of years. If warming is limited to 1.5°C, global mean sea level will rise by about 2-3m.

Sea level rise is expected to affect exposed open coast locations across the LGA, as well as low-lying areas around estuaries such as Brisbane Water and Tuggerah Lakes. Impacts are likely to be both to increase the extent of flooding and coastal erosion during extreme events and to increase the frequency and duration of nuisance tidal inundation.

Figure 17. Sea level rise vulnerability for the Central Coast. LGA. A higher score indicates a higher vulnerability, Climate Change Vulnerability Assessment, Jacobs 2019



Purpose of the strategy

Purpose

The purpose of this strategy is to build resilience across the Central Coast to natural hazards such as floods, storms, coastal erosion, landslips, tsunamis, bushfires, droughts and heatwaves.

Key Challenges for the Central Coast

Key challenges to enhancing disaster resilience across the Central Coast LGA include:

- The fragmented nature of disaster management in NSW, which leads to a focus on individual disasters led by individual agencies rather than an all hazards approach
- Lack of holistic planning for current or future disaster events that incorporates climate risk into disaster planning
- Current government funding arrangements, which focus on replacing assets like for like, rather than improving the resilience of assets to the disaster environment they are likely to face over their lifespan
- Confusion about the roles and responsibilities for disaster management across the Central Coast
- Lack of resources allocated to disaster prevention and preparedness.

This Strategy provides a framework to embed disaster resilience planning across the LGA.



Scope

Disaster resilience responsibilities are shared across federal, state and local government agencies, the community and the private sector.

The scope of this Strategy is to identify new opportunities to build local capacity to prevent, prepare for, respond to, and recover from natural disasters through:

1. enhancing cooperative partnerships such as interagency support networks, public and private partnerships, and community social networks
2. integrating existing NSW government risk management frameworks, such as those for flooding, bushfire and coastal hazards, into an all hazards approach that takes a place-based approach to disaster management
3. further embedding disaster risk management and climate change management into Council's strategic planning, including local planning controls;
4. working with other local disaster management organisations to develop appropriate policies and procedures for improved disaster management
5. on-going community and organisational capacity building initiatives to:
    - anticipate natural disaster risks
    - understand local capacities and vulnerabilities that affect our ability to address those risks
    - develop adaptive learning programs to improve community awareness and preparedness to risks and celebrate community resilience initiatives
    - focus resources on prevention and preparedness activities, to reduce the impacts of natural disasters and support effective response and recovery.

Planning Framework

A range of legislative instruments, frameworks, policies, strategies and plans relate directly to this Strategy.

International Sendai framework for Disaster Risk Reduction

Focuses on the adaptation of measures which address the dimensions of disaster risk in order to prevent the creation of new risks, reduce existing risk and increase resilience.

National Disaster Resilience Strategy

Sets out steps and actions that governments at all levels can take to reduce risks posed by natural hazards and better support communities to recover from disasters.

National Disaster Risk Reduction Framework

Guides national, whole-of-society efforts to proactively reduce disaster risk in order to minimise the loss and suffering caused by disasters

National Action Plan

Identifies national actions to implement the National Disaster Risk Reduction Framework

State legislation: State Emergency and Rescue Management Act, NSW Reconstruction Authority Act, Coastal Management Act, Local Government Act

State Emergency Management Plan

NSW State Disaster Mitigation Plan

NSW Recovery Plan

NSW Government Guidelines

Regional emergency management and recovery plans

Hunter-Central Coast Joint Organisation of Councils programs

Central Coast Regional Plan 2041

Central Coast Local Emergency Management Plan

Central Coast Pre-event Recovery Plan

Central Coast Community Strategic Plan

Central Coast Climate Change Policy

Local flood, coastal and bushfire management plans and programs

Local community resilience action plans

At the national level, disaster resilience is led by the National Emergency Management Agency of Australia. In NSW, disaster risk reduction and recovery are led by the NSW Reconstruction Authority. Emergency management is coordinated by the State Emergency Management Committee, which is made up of emergency services organisations and other government agencies and chaired by NSW Police.

Local government plays a key role in supporting local disaster resilience. In accordance with the Local Government Act 1993, local government planning, including disaster management planning, is implemented via the Integrated Planning and Reporting Framework (Figure 18).

Figure 18: Embedding Disaster Resilience within the Integrated Planning and Reporting Framework (Office of Emergency Management, 2012)



Council's contribution to delivery of the Strategy will be implemented through Council's Delivery Program and annual Operational Plan. The Strategy will also provide direction for the development of Council's emergency planning and business continuity capabilities.

Our natural disaster resilience framework

This Strategy adopts five directions to enhance local disaster resilience, aligned to the Central Coast Community Strategic Plan:

Direction 1: Our people feel safe, supported, celebrated and connected to their life on the Central Coast.

Direction 2: Our environment is protected and celebrated for its natural values

Direction 3: Our place supports our people to live, move and enjoy their life on the Central Coast

Direction 4: Our economy supports activities and opportunities that create a dynamic, thriving local business community and town centres

Direction 4: Our leadership ensures genuine community participation, engagement, financial stewardship and transparent communication with our community

Priorities for disaster resilience that support these directions and their alignment with the United Nations Sendai Framework's Ten Essential principles are identified in Table 5.

Table 5. Aligning natural disaster resilience priorities with the Sendai Framework and Council's Community Strategic Plan

Council's Strategic Planning Directions	Sendai Guiding Principles	Disaster Resilience Priorities for the Central Coast
Direction 5: Our leadership	1. Organise for disaster resilience 2. Identify, understand & use current and future risk scenarios 3. Strengthen financial capacity for resilience	1. Integrate disaster resilience planning into organisational planning frameworks 2. Understand disaster risk, vulnerability and resilience profiles of Council and local communities 3. Embed disaster resilience principles in public infrastructure management
Direction 1: Our people **Direction 2: Our environment** **Direction 3: Our place** **Direction 4: Our economy** **Direction 5: Our leadership**	4. Pursue resilient urban development 5. Safeguard natural buffers to enhance the protective functions offered by natural ecosystems 6. Strengthen institutional capacity for resilience 7. Understand and strengthen societal capacity for resilience 8. Increase infrastructure resilience	4. Identify relevant planning instrument amendments and urban design solutions to enhance resilience of the built environment, particularly housing 5. Continue climate change adaptation planning for the Central Coast 6. Build community capacity and learn from community expertise 7. Invest in and maintain critical infrastructure that reduces disaster risk 8. Protect natural buffers and ecosystem services that reduce disaster risk
Direction 1: Our people **Direction 2: Our environment** **Direction 3: Our place** **Direction 4: Our economy** **Direction 5: Our leadership**	9. Ensure effective disaster response 10. Expedite recovery and build better	9. Strengthen emergency response and recovery processes 10. Embed lessons learnt to improve ongoing disaster resilience across the LGA

Our natural disaster resilience action plan

1.	**Immediate implementation (next year)**
2.	**Medium term implementation (2-10 years)**
3.	**Ongoing / Long term (10+years)**

Priority 1

Integrate disaster resilience planning into organisational planning frameworks

Timing	Action	Lead
1	**Action 1.1** Align Disaster Resilience Strategy with Community Strategic Plan, Delivery Program and Long Term Financial Plan	Council (Director Environment and Planning)
1	**Action 1.2**: Coordinate Council disaster resilience initiatives through internal working group	Council (Disaster Resilience Working Group)
2	**Action 1.3** Review and continually improve disaster resilience planning for the local region in collaboration with regional combat agencies, emergency management functional areas and priority local communities.	Local Emergency Management Committee

Priority 2

Understand disaster risk, vulnerability and resilience profiles of Council and local communities

Timing	Action	Lead
1	**Action 2.1** Regularly review NSW Government information regarding climate risk	Council (EMU)
1	**Action 2.2** Regularly update disaster hazard assessment mapping such as bushfire prone land, flood risk, urban heat and coastal hazards	Council (EMU and SPU)
2	**Action 2.3** Conduct disaster response and recovery exercises based on scenario modelling in line with Local Emergency Management Committee schedule	Local Emergency Management Committee
2	**Action 2.4** Develop spatial tools for community (including businesses) awareness of disaster risk	Council (EMU)
2	**Action 2.5** Develop decision support tools for Council disaster planning and management	Council (EMU)
2	**Action 2.6** Regularly review vulnerability, coping and resilience mapping of local communities and business provided by Natural Hazards Research Australia	Council (EMU)
2	**Action 2.7** Develop method to assess vulnerability of local businesses	NSW Reconstruction Authority



Priority 3

Embed disaster resilience principles in public infrastructure management

Timing	Action	Lead
1	**Action 3.1** Embed resilience planning for Council infrastructure (scenario assessment including climate change projections, future investment needs and succession planning)	Council (Asset custodians)
1	**Action 3.2** Advocate for NSW Government public infrastructure owners to embed resilience planning in their annual capital works and service delivery programs	Council (Director Environment and Planning)
2	**Action 3.3** Incorporate natural disaster impact analysis in Council's asset management program to support adaptation of infrastructure	Council (AMU)
1	**Action 3.4** Develop and commence implementing an Integrated Transport Strategy that supports disaster resilience *Pending confirmation from TfNSW project proceeding	Council (SPU)
1	**Action 3.5** Regularly review and update Council's Business Continuity Plan	Council (GRL)
2	**Action 3.6** Implement Central Coast Strategic Regional Integrated Transport Plan actions that support disaster resilience *Pending confirmation from TfNSW project proceeding	Transport for NSW

Priority 4

Identify relevant planning instrument amendments and urban design solutions to enhance resilience of the built environment, particularly housing

Timing	Action	Lead
2	**Action 4.1** Amend planning controls to ensure development is appropriate for hazard exposure in hazard prone areas	Council (SPU)
2	**Action 4.2** Implement urban design solutions to mitigate risks, improve urban ecology and promote urban greening, including those identified in the Central Coast Greener Places Strategy and Central Coast Green Grid: Our Place	Council (Asset custodians)
2	**Action 4.3** Implement the Central Coast Local Housing Strategy and Central Coast Affordable Housing Strategy actions that support affordable and resilient housing	Council (SPU and CCU)

Priority 5

Continue climate change adaptation planning for the Central Coast

Timing	Action	Lead
1	**Action 5.1** Periodically update Coastal Management Programs and Flood Risk Management Plans	Council (EMU)
1	**Action 5.2** Regularly update the Central Coast Bushfire Risk Management Plan	Central Coast Bush Fire Management Committee
1	**Action 5.3** Develop a process to integrate adopted actions for Council from Coastal Management Programs, Flood Risk Management Plans and Bushfire Risk Management Plans into corporate planning framework	Council (EMU)
2	**Action 5.4** Develop a regional Disaster Adaptation Plan to identify priority adaptation investment across the Central Coast and develop a local disaster adaptation implementation plan	NSW Reconstruction Authority or Hunter Joint Organisation of Councils (TBC)
1	**Action 5.5** Continue to support regional climate change adaptation programs and governance arrangements	Council (Director Environment and Planning)
1	**Action 5.6** Continue to develop and implement climate change adaptation plans for priority local areas	Council (Disaster Resilience Working Group)
1	**Action 5.7** Develop the Central Coast Sustainability and Climate Action Plan actions relevant to disaster resilience	Council (Director Environment and Planning)



Priority 6

Build community capacity and learn from community expertiseg

Timing	Action	Lead
1	**Action 6.1** Build and support local networks for disaster risk reduction	Local Emergency Management Committee
1	**Action 6.2** Assist priority local communities to develop and implement local disaster resilience plans	Council (CCU)
2	**Action 6.3** Develop resources to build community preparedness for disaster resilience	NSW Reconstruction Authority
2	**Action 6.4** Develop program for high resilient local communities to share their experiences with less resilient communities	Council (CCU)
2	**Action 6.5** Provide disaster risk reduction programs aligned with Disaster Adaptation Plan (see Action 5.4) for vulnerable communities and businesses	NSW Reconstruction Authority
2	**Action 6.6** Implement Economic Development Strategy actions that support disaster resilience	Council (EDP)
1	**Action 6.7** Communicate information about local disaster management, based on NSW Government material and messaging	Council (CCU)
1	**Action 6.8** Implement Disability Inclusion Action Plan actions relevant to disaster resilience	Council (CCU)
1	**Action 6.9** Implement First Nations Accord to involve First Nations people to enhance community disaster resilience	Council (CCU)
1	**Action 6.10** Maintain Central Coast Disaster Resilience and Recovery Network	Council (CCU)
1	**Action 6.11** Undertake regular economic modelling of impact of disaster scenarios (based on Priority 2 data)	NSW Reconstruction Authority

Priority 7

Invest in and maintain critical infrastructure that reduces disaster risk

Timing	Action	Lead
1	**Action 7.1** Advocate for changes to disaster relief funding to support investment in adaptable infrastructure	Council (ECS)
2	**Action 7.2** Plan for surge capacity, business continuity and restoration of Council's waste, water, sewer and IT infrastructure	Council (WRR, WSD, ITU)
2	**Action 7.3** Advocate for other critical infrastructure owners to plan for surge capacity, business continuity and restoration of critical infrastructure	Council (ECS)
2	**Action 7.4** Analyse interdependencies of critical infrastructure and include in disaster scenario exercises (Action 2.4)	Local Emergency Management Committee

Priority 8

Protect natural buffers and ecosystem services that reduce disaster risk

Timing	Action	Lead
1	**Action 8.1** Monitor ecosystem health	Council (EMU)
2	**Action 8.2** Implement actions in Biodiversity Strategy that support disaster resilience	Council (EMU)
3	**Action 8.3** Improve understanding of role of natural ecosystems in local disaster resilience	Council (EMU)

Priority 9

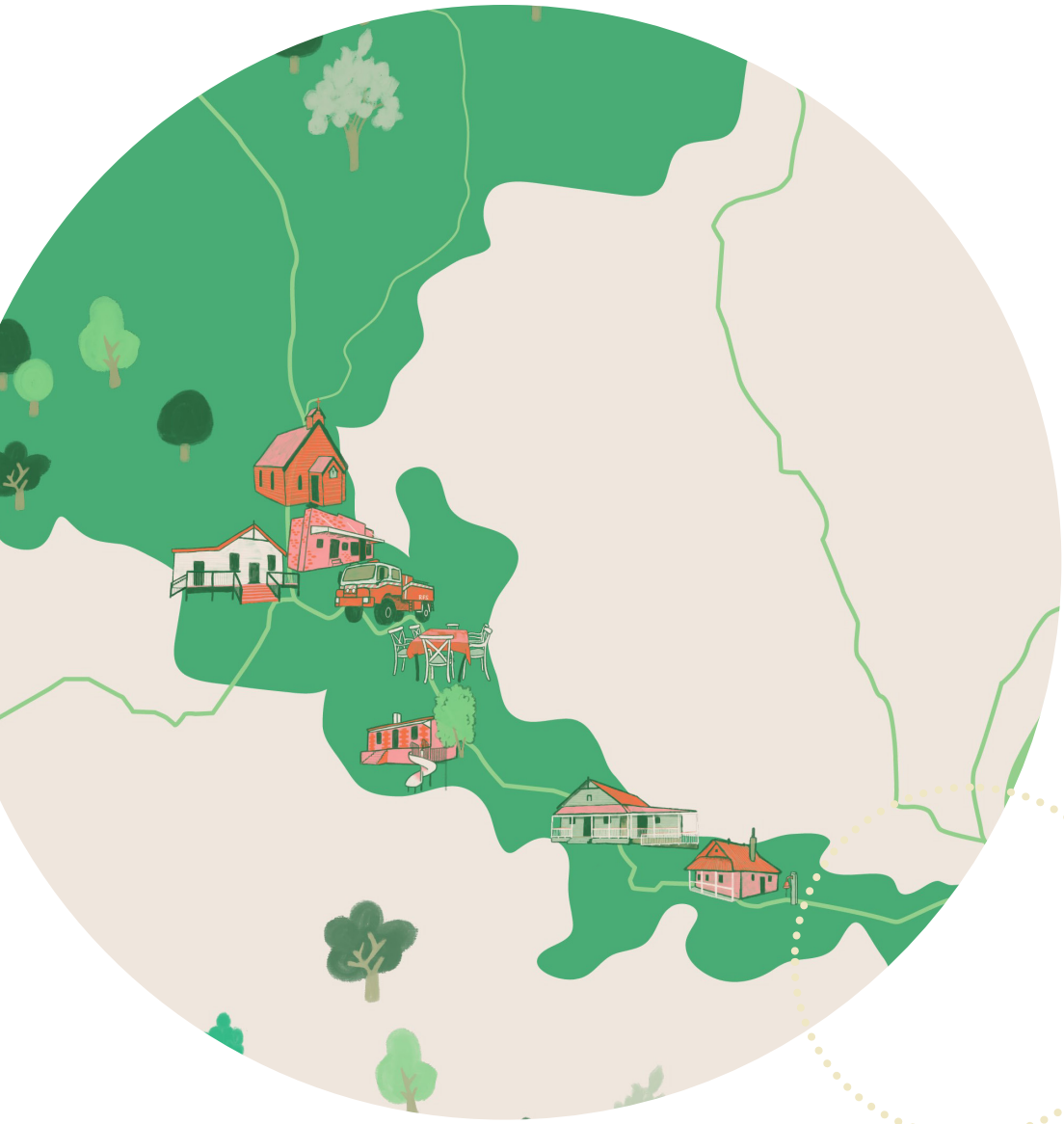
Strengthen emergency response and recovery processes

Timing	Action	Lead
1	**Action 9.1** Continue to support local modelling of flood response to Bureau of Meteorology weather warnings and integrate existing tools such as the Manly Hydraulics Laboratory Flood Intelligence Tool	Council (EMU)
1	**Action 9.2** Develop and regularly review Local Emergency Management Plan and Local Pre-Event Recovery Plan	Local Emergency Management Committee
1	**Action 9.3** Develop a centralised system to capture data about disasters, their impacts, damages, response and recovery effort across the Central Coast.	Local Emergency Management Committee
1	**Action 9.4** Develop emergency communication strategy	Local Emergency Management Committee
1	**Action 9.5** Update Council's Emergency Management Procedures	Council (ECS)
2	**Action 9.6** Work with local communities to develop resilience hubs to support priority communities during disaster events	Council (CCU)
1	**Action 9.7** Coordinate on-ground emergency response	Relevant combat agency
1	**Action 9.8** Control emergency response operations	Local Emergency Operations Controller
1	**Action 9.9** Lead disaster recovery, with a focus on social, built, economic and natural recovery environments	NSW Reconstruction Authority

Priority 10

Embed lessons learnt to improve ongoing disaster resilience across the LGA

Timing	Action	Lead
1	**Action 10.1** Host post disaster debrief after response and recovery phases of each disaster, including community input (see Actions 6.2 and 6.5)	Local Emergency Management Committee
2	**Action 10.2** Incorporate learnings from debriefs and other feedback into disaster management processes	Local Emergency Management Committee



Implementation

Actions identified in this Strategy have been designed to increase disaster resilience at the individual, business, and local community levels and will be delivered over the next 10+ years by the relevant areas of Council and community. The responsibility to implement the Strategy is shared, however, the coordination of the Strategy will be the responsibility of Council.

Council's contribution to this Strategy will be implemented through the Integrated Planning and Reporting Framework. Scheduling, prioritising and budgeting of actions will be completed as part of existing frameworks for capital and operational expenditure planning, coordinated through Council's Disaster Resilience Working Group.

The ongoing implementation and coordination of disaster resilience initiatives across the region will be through the Central Coast Local Emergency Management Committee (LEMC) which includes combat agencies and critical infrastructure service providers.

Monitoring & evaluation

The implementation of the Strategy over the next 10 years will require regular monitoring and evaluation to continually improve organisational disaster resilience capacity. Council's Disaster Resilience Working Group will coordinate regular updates to the LEMC on progress with implementing the Strategy and the effectiveness of the actions in achieving the aims of the Strategy and responding to changes in the natural disaster hazard environment and local capacity to address that change. Every four years, as part of the development of Council's Delivery Program, the Disaster Resilience Working Group will undertake a review of the identified actions and determine if the actions require amendment to allow for continuous improvement of the Strategy.

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Appendices

Appendix 1. Historical Events for the Central Coast - 1974 to 2024

1974 & 1978.



Following devastation of the NSW coast by severe storms in May-June 1974 and again in 1978, coastal management emerged as a specialised role within the NSW Government (ASCE, 1996). Pivotal was damage to open coast foreshores, particularly Narrabeen-Collaroy on the Sydney northern beaches and Wamberal- Terrigal located on the Central Coast. This Major erosion event threatened $400m worth of Wamberal homes and infrastructure.

1990.



24 December 1990, major bushfires in the Brisbane Waters National Park and Wyong areas resulted in the loss of houses at Pearl Beach, Umina, Wyong, and Tacoma. The Bays RFS Tanker overturned and was destroyed while responding to houses alight at Pearl Beach.

1991.



16 October 1991, a number of fires erupted on the coast of New South Wales many of which were believed to have been deliberately lit. Major towns affected included Kenthurst, Hunter, Shoalhaven, Baulkham Hills, Gosford, Wyong Shire, Lake Macquarie and Cooma. Approximately 2500 firefighters were activated to control around thirty separate incidents across the state. The Central Coast fire burned from Lisarow through Holgate and Matcham to Forresters Beach and Bateau Bay.

1993.



December 1993, New South Wales experienced an extended period of extreme fire weather. Outbreak of bushfire occurred down the east coast of NSW, including the Central Coast.

Commonly referred to as the '94 Bushfires'. 20,000 firefighters were deployed against some 800 fires throughout the state, the fires caused mass evacuations of many thousands of people, claimed four lives, destroyed, some 225 homes and burned out 800,000 hectares (2,000,000 acres) of bushland. Photo. The NRMA depot and service station Mt White.

Appendix 1. Historical Events for the Central Coast - 1974 to 2024

1997.



November 1997, New South Wales experienced numerous serious bushfires. Fire services issued several emergency warnings in NSW as serious fires burn in Sydney's Blue Mountains, Central Coast, and near Newcastle.

1999.



October 1999, an outbreak of Newcastle Disease occurred at Mangrove Mountain causing the destruction of more than 2 million chickens. Chicken carcasses were gassed, and incinerated or buried in more than 100 shipping containers and placed in two massive burial pits. Cost of the outbreak to the industry was $25.69 million.

2001.



From 24 December 2001 (Black Christmas), more than 100 fires burned through parts of New South Wales and the Australian Capital Territory. The fires began in the Cessnock, Blue Mountains, Hawkesbury and Penrith areas. The fires lasted for approximately 23 days and required over 20,000 regular and volunteer firefighters as well as 85 aircraft. The fires burnt approximately 753,314 hectares, destroyed 109 houses and damaged a further 40. They also destroyed 433 outbuildings, 222 vehicles, and 7043 stock and 33 commercial and industrial buildings. Vast stretches of forests were destroyed, including more than 60 per cent of the Royal National Park.

2002.



44 LGAs in Greater Sydney, Central Coast, Hunter, North Coast, Mid North Coast, Northern

Tablelands & Central Tablelands [link] Deaths/injured: 0 deaths.

Area/property damage: 744,000 ha. 109 houses destroyed. 40 houses damaged.

6,000 stock.

Normalised cost ($2011 AUD): $131m

Appendix 1. Historical Events for the Central Coast - 1974 to 2024

2003.



81 local government areas in Greater

Sydney, Hunter, North Coast, Northern Tablelands, Northern Rivers, northwest slopes, north-west plains, Central Tablelands, Southern Tablelands, Illawarra, South Coast. 1 464 000 (459 fires). 86 houses destroyed; 3400 stock; 151 days of severe fire activity.

2004.



20 September 2004. The SES has now had some 300 requests for assistance, particularly from the central coast area, around Gosford and Wyong and Budgewoi, and also up in the Hunter Valley area around the Raymond Terrace and up towards Forster and just west of Newcastle

2006.



1 January 2006, with temperatures reaching the mid-forties, the Brisbane Waters National Park fire destroyed several homes in the Woy Woy area along with the Bay's Fire Station, and the evacuation of 180 residents. The Bays Fire Station near Woy Woy was also damaged along with several volunteer's cars being destroyed.

2007.



12 June long weekend 2007, also referred to as the 'Pasha Bulker storm'. A family of four, and a nephew, were swept to their deaths in a road collapse at Somersby. Commuter train hits landslide at Wondabyne, 2,000 passengers stranded. 12,300 homes and businesses without power for a week, and fears of an environmental catastrophe if a ship that ran aground in Newcastle would break up, leaking its 700 tonnes of fuel oil, this was the Pasha Bulker.

Appendix 1. Historical Events for the Central Coast - 1974 to 2024

2007.



August 2007, outbreak of equine influenza, also known as "horse flu" and "A1 influenza", was widespread across NSW including the Central Coast. The outbreak that eventuated was the most serious emergency animal disease Australia has experienced in recent history. At its peak, 47,000 horses were infected in NSW on 5,943 properties, and horse owners and industry workers were facing dark times with major impacts on their livelihood and lifestyle.

2013.



Oct 2013, significant bush fires throughout Chain Valley Bay, Mannering Park, Gwandalan, Summerland Pt, Doyalson. 4 houses lost. Additionally, the Hawkesbury, including fires at Gorricks Creek, Howes Swamp, Mellong and Webbs Creek. As of 25 October 2013, these fires had burnt out approximately 4,000 hectares (9,900 acres)

2015.



April 2015, an intense East Coast Low caused loss of life and major damage to highly populated areas including the Sydney Metropolitan, Central Coast, and Hunter regions.

2016.



The erosion damage caused by a severe storm 15 June 2016 was focussed in the centre of the beach between 21 Pacific Street and north to 97 Ocean View Drive Wamberal, impacting some 40 properties along approximately 825m of the beach frontage. This Major erosion event threatened $400m worth of Wamberal homes and infrastructure.

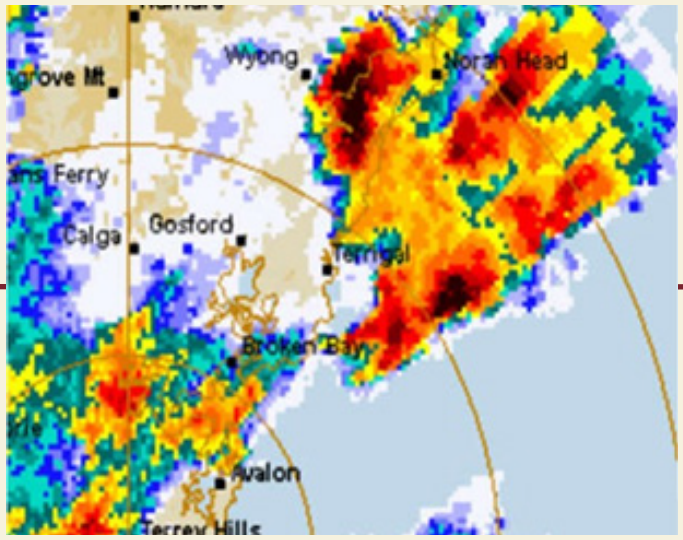
Appendix 1. Historical Events for the Central Coast - 1974 to 2024

2017.



November 2017. An intense cell impacted parts of Toukley with significant damage reported. Wyong Unit attended to 92 jobs in the Toukley area. 5 field teams worked through the jobs, reports of homes that had lost their roofs. Fire and Rescue NSW provided support at the location.

2018.



December 2018. Natural disaster declarations were invoked in 34 LGAs including the Central Coast. The storm generated large hail, damaging winds and flash flooding in many areas of the state. Initial damage reports indicated that the suburbs of Berowra Heights, Hornsby, Liverpool, Gosford and Lithgow were the most severely affected.

2019.



November 2019 – January 2020, bushfires affected Mangrove Mountain, Kulnura, Spencer and Charmhaven with reported losses of four homes destroyed and three damaged, and ten outbuildings destroyed and 19 damaged.

2020.



February 2020, torrential rain for several days caused flooding on numerous rivers in eastern New South Wales (NSW) along with Tuggerah Lakes on the Central Coast.

Appendix 1. Historical Events for the Central Coast - 1974 to 2024

2020.



March 2020, COVID-19 pandemic, ongoing. Covid Test Centres opened across the Central Coast.

2020.



July 2020, severe weather and coastal erosion at The Entrance North and Wamberal involving several homes being severely damaged and evacuation of residents.

2021.



March 2021, significant weather event caused flooding at Tuggerah Lakes, with the Hawkesbury river flooding and impacting 60 plus properties and a caravan park.

2021.



1. At risk locations, groups and communities (LEMC to input)

- New cases: **13** (report period 16/11 – to 8pm 22/11)
- Total cases: **1,316**
- Hospitalised: **1**
- Active cases: **23 (to 8pm 22/11/21)**
- Unknown source cases: **4**
- Home Isolation: **11**
- SHA: **4** (West Gosford)
- CSA:7 in CHA (West Gosford)
- TOTAL: 11 (West Gosford)
- SHA: **0** (Avoca)
- Venues of Concern: Close **0** Casual **0**
- Total number of cases being managed in the community/welfare checks: **11**
- Total number of patients exposed in a CCLHD facility: 0
- CCLHD Health Workers in Isolation: **4**, Community Exposure: **4**, Workplace Exposure: **0**
- CCLHD Covid-19 Testing Numbers Last 24 Hours: Gosford **86**, Wyong **48**
- CCLHD Covid-19 Vaccination Numbers Last 24 Hours: Gosford **22**, Wyong 45
- 5,000 + Public Housing 1st dose 81.4%, 2nd dose 71%
- As of 15/10/21 Central Coast LGA 95% first dose, 80.8% second dose
- Close contacts as at 20.10.2021: **352**
- Police Primary (Close) Contacts:
- Police Primary (Close) Contacts:
- Police Covid positive:
- Sewer Detection: 16/11/21. Woy Woy, Wyong-Toukley, Bateau Bay, Charmhaven, Gwandalan, Gosford-Kincumber

Thursday 5 August 2021 Central Coast Local Health District advised the LEMC of a number of positive COVID cases identified on the coast, notably the Lake Munmorah and Charmhaven areas, and an increased number of positive results from sewage testing in the areas of Toukley, along with the Woy Woy Peninsula, including the suburbs of Woy Woy, Woy Woy Bay, Phegans Bay, Horsfield Bay, Blackwall, Booker Bay, Ettalong Beach, Umina Beach, Pearl Beach and Patonga.

Appendix 1. Historical Events for the Central Coast - 1974 to 2024

2022.



1 March 2022. As a result of this Severe Weather Event, areas of the Central Coast have been impacted with local flooding affecting the Tuggerah Lake and surrounding suburbs. Flooding and land slips have also cut roads in Yarramalong, Spencer, and Gunderman. A Flood Evacuation Order was issued for Tuggerah Lakes at 0530 hrs Thursday 3 March.

2022.



NSW DPI has detected Varroa mite, which was confirmed as Varroa destructor. On 22 June 2022 Varroa mite was detected at Wyong, Somersby, Glenning Valley, and Kincumber.

2022.



1 July 2022. The LEOCON activated the EOC at 0900hrs Monday 4 July. A Flood Evacuation Order was issued for Lower Hawkesbury Downstream of Wisemans Ferry at 0600hrs Monday 4 July. Return with caution issued 12.20pm 10 July. A Flood Evacuation Order for Low Lying areas Budgewoi and Tuggerah Lakes was issued at 1220hrs Tuesday 5 July. Return with caution issued 12.20pm 10 July. Total Assessments 2278. Total Damaged 1039. Slight damage

744. Moderate damage 256. Severe damage

37. Destroyed 2. Not Inhabitable 78. Building

Inundation 674.

2022.



6 October. Moderate to heavy rainfall across the Nepean and Hawkesbury Rivers catchment has caused minor flooding along the Hawkesbury River at North Richmond. Further rainfall caused significant flooding along the Nepean River, Hawkesbury River and their tributaries

Appendix 2. Central Coast Disaster Resilience Index, Coping Capacity and Adaptive Capacity

Disaster Resilience Data Report

This report shows the Australian Disaster Resilience Index for selected geographic areas.

Index values range between 0 and 1. Communities in areas of low, moderate and high disaster resilience have different capacities to cope with and adapt to natural hazard events.

Disaster Resilience

Low = 0.0000 to 0.4461	Moderate = 0.4462 – 0.6598	High = 0.6599 to 1.0000
Communities in areas of low disaster resilience may be limited in their capacity to use available resources to cope with adverse events, and are limited in their capacity to adjust to change through learning, adaptation and transformation. Limitations to disaster resilience may be contributed by entrenched social and economic disadvantage, less access to or provision of resources and services, lower community cohesion and limited opportunities for adaptive learning and problem solving.	Communities in areas of moderate disaster resilience have some capacity to use available resources to cope with adverse events, and some capacity to adjust to change through learning, adaptation and transformation. Moderate disaster resilience is generally contributed by moderate levels of coping and adaptive capacity, which in turn are associated with moderate levels of economic capital, moderate provision of and access to services, moderate community cohesion and variable encouragement for adaptive learning and problem solving.	Communities in areas of high disaster resilience have enhanced capacity to use available resources to cope with adverse events, and enhanced capacity to adjust to change through learning, adaptation and transformation. Factors contributing to high disaster resilience may include employment, education, income, good access to or provision of resources and services, strong community cohesion and ample opportunities for adaptive learning and problem solving.

Disaster Resilience Data Report

Disaster Resilience

Low = 0.0000 to 0.4461 | Moderate = 0.4462 – 0.6598 | High = 0.6599 to 1.0000





SA2	State	Remoteness	Disaster Resilience	Class	Falls in the following LGAs	% Area
Avoca Beach - Copacabana	NSW	Metropolitan	0.7215	High	Central Coast (C) (NSW)	100
Bateau Bay - Killarney Vale	NSW	Metropolitan	0.6240	Moderate	Central Coast (C) (NSW)	100
Blue Haven - San Remo	NSW	Metropolitan	0.4885	Moderate	Central Coast (C) (NSW)	100
Box Head - MacMasters Beach	NSW	Metropolitan	0.7598	High	Central Coast (C) (NSW)	100
Budgewoi - Buff Point - Halekulani	NSW	Metropolitan	0.5592	Moderate	Central Coast (C) (NSW)	100
Calga - Kulnura	NSW	Inner regional	0.6016	Moderate	Hawkesbury (C) Central Coast (C) (NSW)	0.01 99.98
Chittaway Bay - Tumbi Umbi	NSW	Metropolitan	0.6812	High	Central Coast (C) (NSW)	100
Erina - Green Point	NSW	Metropolitan	0.7002	High	Central Coast (C) (NSW)	100
Gorokan - Kanwal - Charmhaven	NSW	Metropolitan	0.5226	Moderate	Central Coast (C) (NSW)	100
Gosford - Springfield	NSW	Metropolitan	0.5700	Moderate	Central Coast (C) (NSW)	100
Jilliby - Yarramalong	NSW	Metropolitan	0.6307	Moderate	Central Coast (C) (NSW) Cessnock (C)	99.97 0.03
Kariong	NSW	Metropolitan	0.6556	Moderate	Central Coast (C) (NSW)	100

Disaster Resilience Data Report

Disaster Resilience

Low = 0.0000 to 0.4461 | Moderate = 0.4462 – 0.6598 | High = 0.6599 to 1.0000





SA2	State	Remoteness	Disaster Resilience	Class	Falls in the following LGAs	% Area
Kincumber - Picketts Valley	NSW	Metropolitan	0.6809	High	Central Coast (C) (NSW)	100
Lake Munmorah - Mannering Park	NSW	Metropolitan	0.4816	Moderate	Central Coast (C) (NSW)	99.99
Narara	NSW	Metropolitan	0.7072	High	Central Coast (C) (NSW)	100
Niagara Park - Lisarow	NSW	Metropolitan	0.7144	High	Central Coast (C) (NSW)	100
Ourimbah - Fountaindale	NSW	Metropolitan	0.6018	Moderate	Central Coast (C) (NSW)	100
Point Clare - Koolewong	NSW	Metropolitan	0.6978	High	Central Coast (C) (NSW)	100
Saratoga - Davistown	NSW	Metropolitan	0.6912	High	Central Coast (C) (NSW)	100
Summerland Point - Gwandalan	NSW	Metropolitan	0.6279	Moderate	Central Coast (C) (NSW)	100
Terrigal - North Avoca	NSW	Metropolitan	0.6812	High	Central Coast (C) (NSW)	100
The Entrance	NSW	Metropolitan	0.4628	Moderate	Central Coast (C) (NSW)	100
Toukley - Norah Head	NSW	Metropolitan	0.5309	Moderate	Central Coast (C) (NSW)	100
Tuggerah - Kangy Angy	NSW	Metropolitan	0.5658	Moderate	Central Coast (C) (NSW)	100
Umina - Booker Bay - Patonga	NSW	Metropolitan	0.5981	Moderate	Central Coast (C) (NSW)	100
Wamberal - Forresters Beach	NSW	Metropolitan	0.7191	High	Central Coast (C) (NSW)	100
Warnervale - Wadalba	NSW	Metropolitan	0.5459	Moderate	Central Coast (C) (NSW)	100

Disaster Resilience Data Report

Disaster Resilience

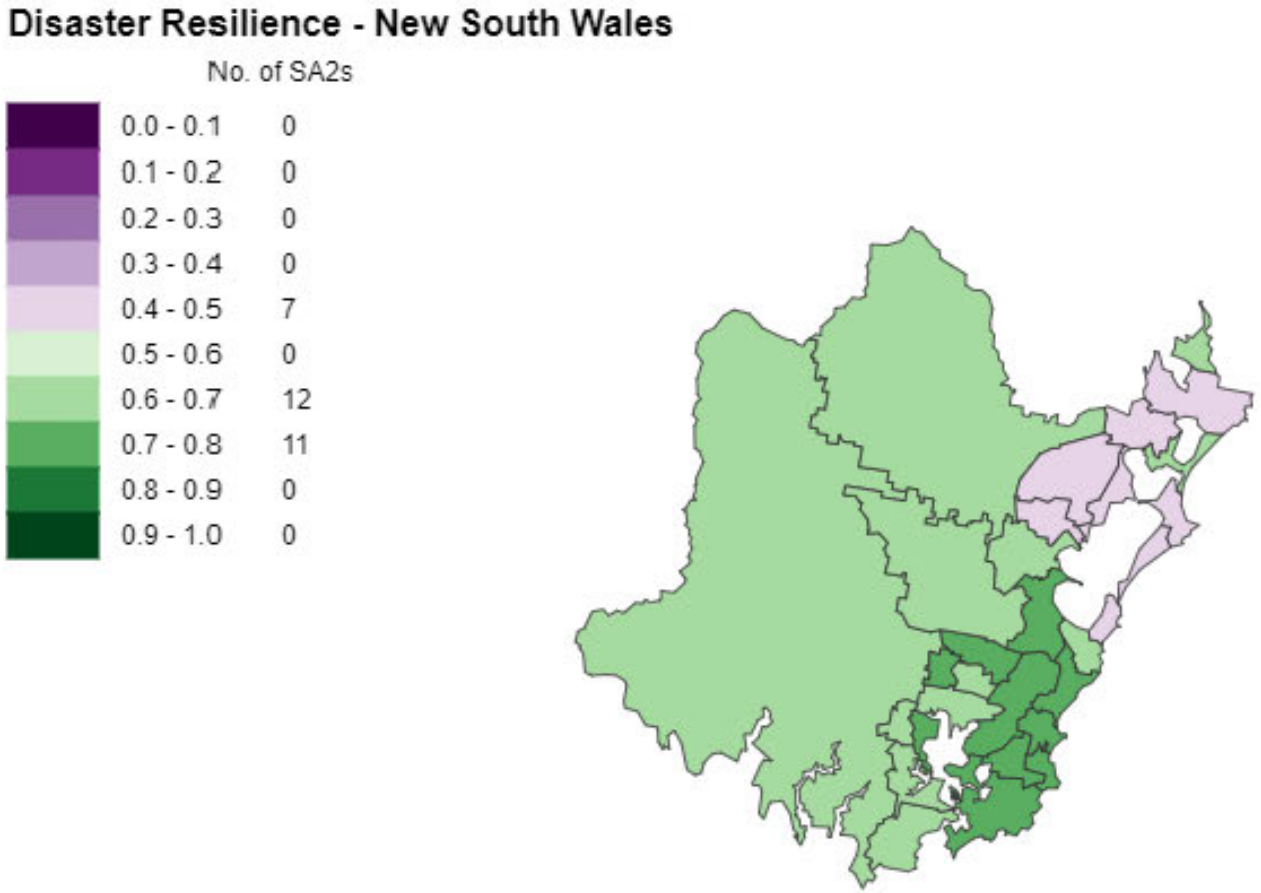
Low = 0.0000 to 0.4461	Moderate = 0.4462 – 0.6598	High = 0.6599 to 1.0000





SA2	State	Remoteness	Disaster Resilience	Class	Falls in the following LGAs	% Area
Woy Woy - Blackwall	NSW	Metropolitan	**0.5555**	Moderate	Central Coast (C) (NSW)	100
Wyoming	NSW	Metropolitan	**0.6501**	Moderate	Central Coast (C) (NSW)	100
Wyong	NSW	Metropolitan	**0.4936**	Moderate	Central Coast (C) (NSW)	100

Map of New South Wales for selected areas



Disaster Resilience Data Report

This report shows Coping and Adaptive Capacity for selected geographic areas.

Index values range between 0 and 1. The combination of Coping and Adaptive capacity captures the dimensions of disaster resilience that come from anticipating and withstanding natural hazard events (coping capacity) and the adaptation and decision making capacities required to adjust to change (adaptive capacity).

Adaptive Capacity

Low = 0.0000 to 0.4515	Moderate = 0.4516 to 0.6656	High = 0.6657 to 1.0000
Communities in areas of low Adaptive Capacity may be constrained in their capacity to adjust to change through learning, adaptation and transformation.	Communities in areas of moderate Adaptive Capacity have some capacity to adjust to change through learning, adaptation and transformation.	Communities in areas of high Adaptive Capacity have enhanced capacity to adjust to change through learning, adaptation and transformation.

Coping Capacity

Low = 0.0000 to 0.3945	Moderate = 0.3946 to 0.6311	High = 0.6312 to 1.0000
Communities in areas of low Coping Capacity may be constrained in their capacity to use available resources to cope with adverse events and to prepare for, absorb and recover from a natural hazard.	Communities in areas of moderate Coping Capacity have some capacity to use available resources to cope with adverse events and to prepare for, absorb and recover from a natural hazard.	Communities in areas of high Coping Capacity have enhanced capacity to use available resources to cope with adverse events and to prepare for, absorb and recover from a natural hazard.

Adaptive Capacity

Low = 0.0000 to 0.4515	Moderate = 0.4516 to 0.6656	High = 0.6657 to 1.0000

Coping Capacity

Low = 0.0000 to 0.3945	Moderate = 0.3946 to 0.6311	High = 0.6312 to 1.0000







SA2	State	Remoteness	Coping Capacity	Class	Adaptive Capacity	Class	Falls in the following LGAs	% Area
Avoca Beach - Copacabana	NSW	Metropolitan	0.7834	High	0.6404	Moderate	Central Coast (C) (NSW)	100
Bateau Bay - Killarney Vale	NSW	Metropolitan	0.6326	High	0.5742	Moderate	Central Coast (C) (NSW)	100
Blue Haven - San Remo	NSW	Metropolitan	0.5676	Moderate	0.4202	Low	Central Coast (C) (NSW)	100
Box Head - MacMasters Beach	NSW	Metropolitan	0.8752	High	0.6524	Moderate	Central Coast (C) (NSW)	100
Budgewoi - Buff Point - Halekulani	NSW	Metropolitan	0.5777	Moderate	0.5107	Moderate	Central Coast (C) (NSW)	100
Calga - Kulnura	NSW	Inner regional	0.5459	Moderate	0.6009	Moderate	Hawkesbury (C) Central Coast (C) (NSW)	0.01 99.98
Chittaway Bay - Tumbi Umbi	NSW	Metropolitan	0.7355	High	0.6068	Moderate	Central Coast (C) (NSW)	100
Erina - Green Point	NSW	Metropolitan	0.7883	High	0.6097	Moderate	Central Coast (C) (NSW)	100
Gorokan - Kanwal - Charmhaven	NSW	Metropolitan	0.5237	Moderate	0.4848	Moderate	Central Coast (C) (NSW)	100

Disaster Resilience Data Report

Adaptive Capacity

Low = 0.0000 to 0.4515	Moderate = 0.4516 to 0.6656	High = 0.6657 to 1.0000

Coping Capacity

Low = 0.0000 to 0.3945	Moderate = 0.3946 to 0.6311	High = 0.6312 to 1.0000







SA2	State	Remoteness	Coping Capacity	Class	Adaptive Capacity	Class	Falls in the following LGAs	% Area
Gosford - Springfield	NSW	Metropolitan	0.7089	High	0.4690	Moderate	Central Coast (C) (NSW)	100
Jilliby - Yarramalong	NSW	Metropolitan	0.5638	Moderate	0.6397	Moderate	Central Coast (C) (NSW) Cessnock (C)	99.97 0.03
Kariong	NSW	Metropolitan	0.6559	High	0.6066	Moderate	Central Coast (C) (NSW)	100
Kincumber - Picketts Valley	NSW	Metropolitan	0.8076	High	0.5755	Moderate	Central Coast (C) (NSW)	100
Lake Munmorah - Mannering Park	NSW	Metropolitan	0.3623	Low	0.5749	Moderate	Central Coast (C) (NSW)	99.99
Narara	NSW	Metropolitan	0.8210	High	0.6051	Moderate	Central Coast (C) (NSW)	100
Niagara Park - Lisarow	NSW	Metropolitan	0.8738	High	0.5920	Moderate	Central Coast (C) (NSW)	100
Ourimbah - Fountaindale	NSW	Metropolitan	0.5398	Moderate	0.6089	Moderate	Central Coast (C) (NSW)	100
Point Clare - Koolewong	NSW	Metropolitan	0.7671	High	0.6155	Moderate	Central Coast (C) (NSW)	100
Saratoga - Davistown	NSW	Metropolitan	0.6893	High	0.6400	Moderate	Central Coast (C) (NSW)	100

Disaster Resilience Data Report

Adaptive Capacity

Low = 0.0000 to 0.4515	Moderate = 0.4516 to 0.6656	High = 0.6657 to 1.0000

Coping Capacity

Low = 0.0000 to 0.3945	Moderate = 0.3946 to 0.6311	High = 0.6312 to 1.0000

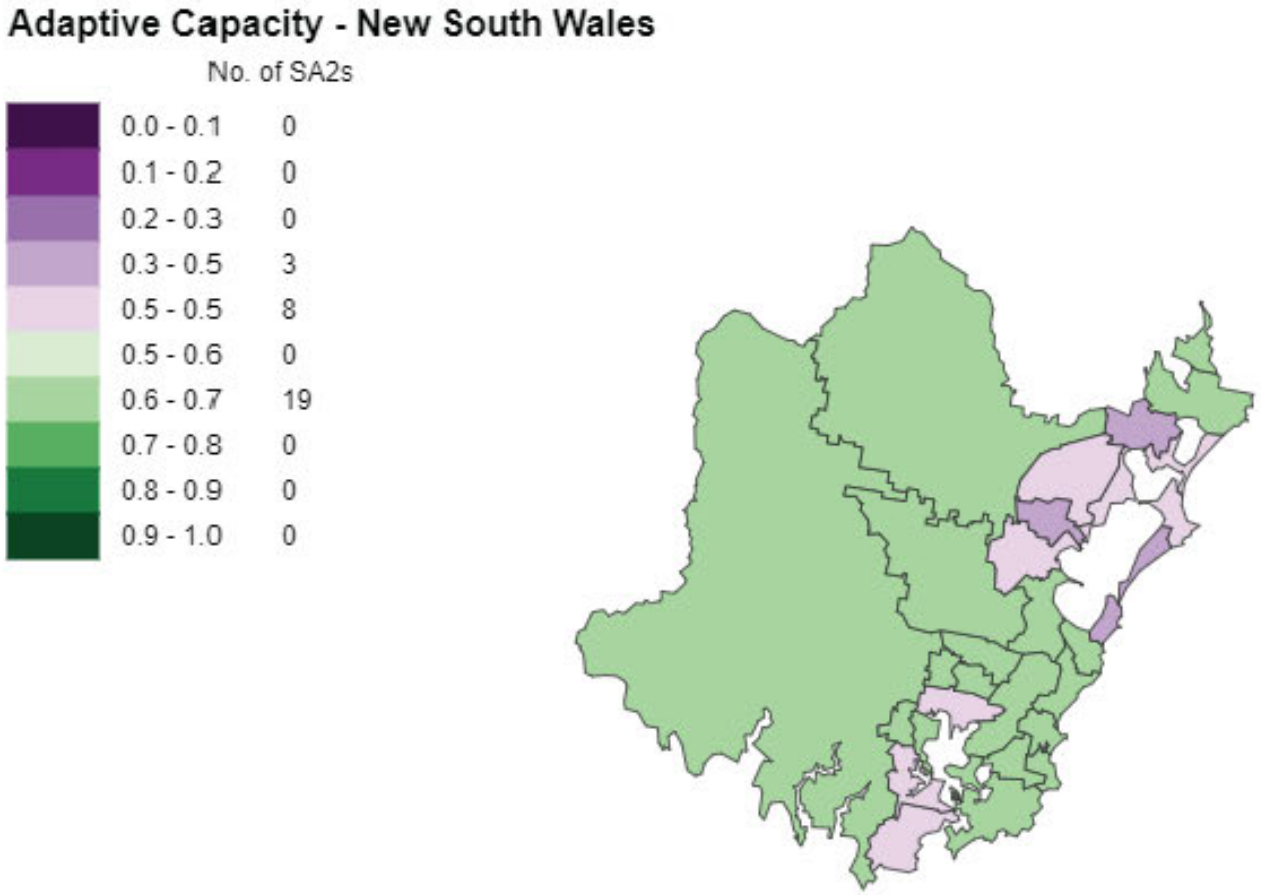




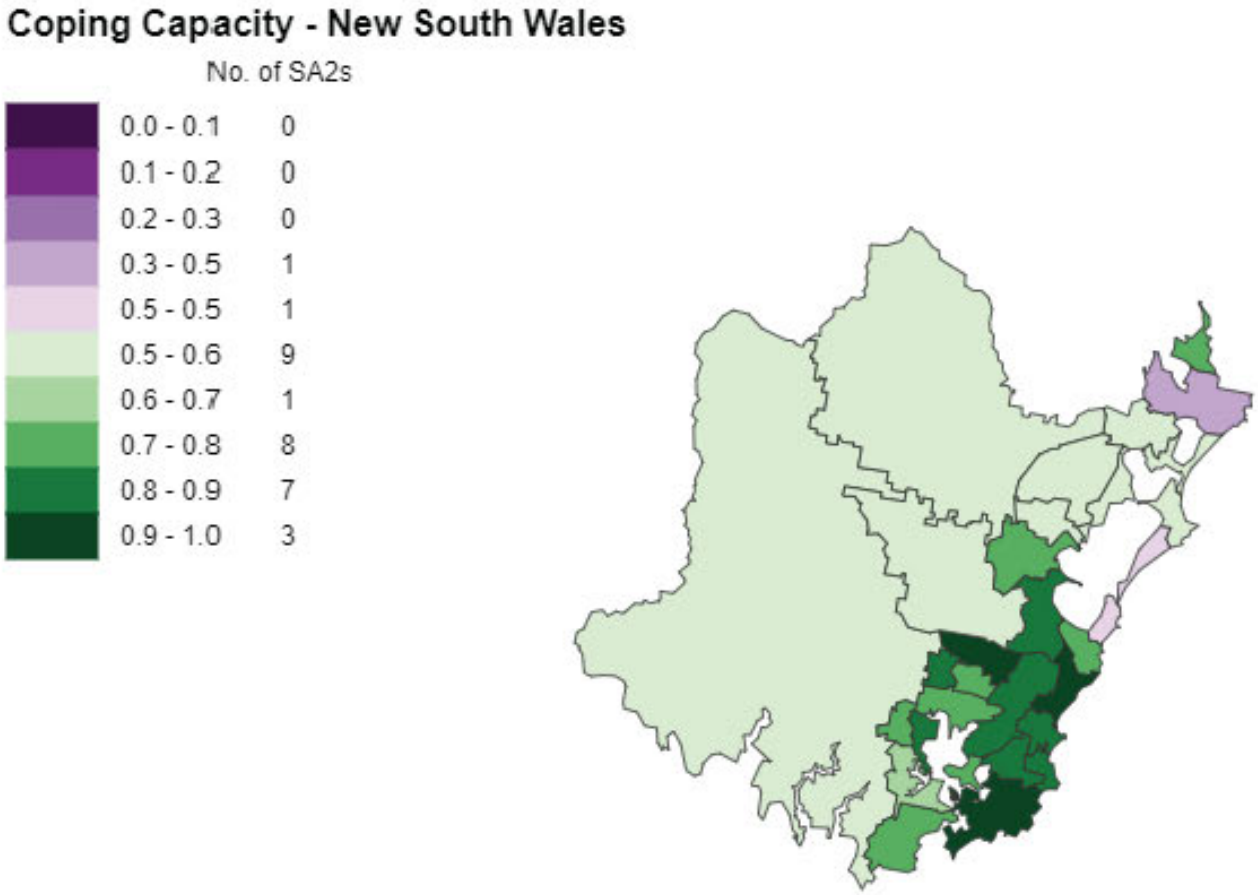


SA2	State	Remoteness	Coping Capacity	Class	Adaptive Capacity	Class	Falls in the following LGAs	% Area
Summerland Point - Gwandalan	NSW	Metropolitan	0.6367	High	0.5777	Moderate	Central Coast (C) (NSW)	100
Terrigal - North Avoca	NSW	Metropolitan	0.7677	High	0.5929	Moderate	Central Coast (C) (NSW)	100
The Entrance	NSW	Metropolitan	0.4926	Moderate	0.4178	Low	Central Coast (C) (NSW)	100
Toukley - Norah Head	NSW	Metropolitan	0.5524	Moderate	0.4835	Moderate	Central Coast (C) (NSW)	100
Tuggerah - Kangy Angy	NSW	Metropolitan	0.6493	High	0.4889	Moderate	Central Coast (C) (NSW)	100
Umina - Booker Bay - Patonga	NSW	Metropolitan	0.6895	High	0.5150	Moderate	Central Coast (C) (NSW)	100
Wamberal - Forresters Beach	NSW	Metropolitan	0.8893	High	0.5918	Moderate	Central Coast (C) (NSW)	100
Warnervale - Wadalba	NSW	Metropolitan	0.5266	Moderate	0.5148	Moderate	Central Coast (C) (NSW)	100
Woy Woy - Blackwall	NSW	Metropolitan	0.6046	Moderate	0.4942	Moderate	Central Coast (C) (NSW)	100
Wyoming	NSW	Metropolitan	0.7273	High	0.5686	Moderate	Central Coast (C) (NSW)	100
Wyong	NSW	Metropolitan	0.5550	Moderate	0.4325	Low	Central Coast (C) (NSW)	100

Map of New South Wales for selected areas



Map of New South Wales for selected areas



Appendix 3. EMPLAN Acronym Table

Acronym	Full Reference	Definition / Function
AMU	Asset Management Unit	Unit within Central Coast Council
CCU	Community and Culture Unit	Unit within Central Coast Council
	Combat Agency	Means the agency identified in the State Emergency Management Plan as the agency primarily responsible for controlling the response to a particular emergency.
	Disaster	A disaster is a serious disruption in a community, caused by the impact of an event that requires a significant coordinated response by the State and other entities to help the community recover from the disruption.
	Disaster Management	Means arrangements about managing the potential adverse effects of an event, including, for example, arrangements for mitigating, preventing, preparing for, responding to, and recovering from a disaster.
	Disaster Recovery Operations	Means that phase of disaster operations that relates to recovering from a disaster. Incorporates the four environments - social, built, economic and natural environments.
ECS	Environment and Compliance Section	Unit within Central Coast Council
EDP	Economic Development Unit	Unit within Central Coast Council
EMU	Environment Management Unit	Unit within Central Coast Council
	Emergency	An emergency due to an actual or imminent occurrence (such as fire, flood, storm, earthquake, explosion, terrorist act, accident, epidemic, or warlike action) which: (a) endangers, or threatens to endanger, the safety or health of persons or animals in the State, or (b) destroys or damages, or threatens to destroy or damage, property in the State, being an emergency which requires a significant and coordinated response'
EM & DM	Emergency vs Disaster	Each specialist field describes hazardous events in different ways, and there is also variation between the States and Territories. Thus, the hazardous events are variously labelled as 'accidents', 'incidents', 'emergencies', and 'disasters'; depending upon the scale of the event, the number of organisations involved, and the ability of the organisations to cope within their normal resources. For example, a major vehicle accident may be labelled an 'incident' by the emergency services but may be labelled a 'disaster' by an emergency medical facility.
GRL	Governance, Risk and Legal	Unit within Central Coast Council
IMT	Incident Management Team	A group of incident management personnel comprising the incident controller. Provide overall direction of response activities in an emergency.
ITU	Information Technology Unit	Unit within Central Coast Council
LEMC	Local Emergency Management Committee	Local Committee under the SERM Act 1989.

Acronym	Full Reference	Definition / Function
LEMO	Local Emergency Management Officer	The term LEMO was removed from the SERM Act in 2010, but the principal functions of that role are now undertaken by the Emergency Management Coordinator (EMC).
LGA	Local Government Area	An area defined under the Local Government Act 1993
NSWRA	New South Wales Reconstruction Authority	The NSW Reconstruction Authority is dedicated to disaster prevention, preparedness, recovery, and reconstruction.
NGO	Non-government Agency	Means a voluntary organisation or any other private individual or body, other than a government agency.
PPRR	Prevention, Preparedness, Response, Recovery	A comprehensive approach to Emergency Management
SPU	Strategic Planning Unit	Unit within Central Coast Council
TNSW	Transport NSW (TNSW)	Responsible for building and maintaining road infrastructure and managing the day-to-day compliance and safety for roads and waterways.
WRR	Waste and Resource Recovery	Essential services delivered by Central Coast Council.
WSD	Water and Sewer Directorate	Essential services delivered by Central Coast Council.

Appendix 4. Plan 1

Disaster resilience capacity

Disaster resilience is the capacity for communities to prepare for, absorb and recover from natural hazard events and to learn, adapt and transform in the face of future events. Below is an overall measure of disaster resilience formed from coping and adaptive capacity. The index values range from 0 to 1, where 1 indicates the highest capacity for resilience, and 0 represents the lowest.

Hawkesbury- .6016

This area is assessed as having moderate capacity for disaster resilience.

Communities in areas of moderate disaster resilience have some capacity to use available resources to cope with adverse events, and some capacity to adjust to change through learning, adaptation and transformation.

Moderate disaster resilience is generally contributed by moderate levels of coping and adaptive capacity, which in turn are associated with moderate levels of economic capital, moderate provision of and access to services, moderate community cohesion and variable encouragement for adaptive learning and problem solving.

Coping capacity index

Coping capacity is the means by which communities or organisations can use available resources and abilities to face adverse consequences. The coping capacity index also ranges from 0 to 1, with 1 being the highest capacity to cope.

Hawkesbury- .5459

This area is assessed as having moderate Coping Capacity.

Communities in areas of moderate Coping Capacity have some capacity to use available resources to cope with adverse events and to prepare for, absorb and recover from a natural hazard.

Adaptive capacity index

Adaptive capacity is the arrangements and processes that enable adjustment through learning, adaptation and transformation. The index ranges from 0 to 1, with 1 representing the highest adaptive capacity.

Hawkesbury- .6009

This area is assessed as having moderate Adaptive Capacity.

Communities in areas of moderate Adaptive Capacity have some capacity to adjust to change through learning, adaptation and transformation.

Disaster resilience factors

Social character

The social and demographic characteristics of the community. Factors such as household and family composition, age, sex, education, employment, disability, language, and length of residence have well-known influences on capacity to prepare for, respond to and recover from natural hazards.

Economic capital

The economic characteristics of the community. Economic capital can contribute to the reduction of losses from natural hazard events through improved mitigation and risk management, individual flexibility and adaptation, enhanced recovery, market continuity and business continuity.

Emergency services

The presence and resourcing of emergency services. Emergency management is a core government service and is integral to natural hazard preparation, response and recovery. Emergency services undertake a range of activities to assist communities before, during and after natural hazards.

Planning and the built environment

The presence of legislation, plans, structures or codes to protect communities and their built environment. Land use planning articulates and regulates relationships between development and hazards. Planning reduces current and future risk and enhances the readiness and capacity of organisations to respond to events.

Community capital

The cohesion and connectedness of the community. Social capital is a resource that facilitates collective action for mutual benefit. Sense of community fosters participation, community competency, pro-social behaviour and preparedness through working with others to solve shared local problems.

Information access

The potential for communities to engage with natural

hazard information. Telecommunication and internet access is vital to information sharing before, during and after natural hazard events. Community engagement activities benefit communities through capacity building, social connectedness, self-reliance, training, awareness of risk and psycho-social preparation.

Governance and leadership

The capacity within organisations to adaptively learn, review and adjust policies and procedures, or to transform organisational practices. Adaptive institutions have conditions suited to the development of the skills, knowledge and culture for managing complex change. They have flexibility and can learn from experience, innovate and adjust.

Social and community engagement

The capacity within communities to adaptively learn and transform in the face of complex change. Adaptive communities have support and resources to manage complex change and to renew for mutual benefit. Characteristics of adaptive communities include social engagement, trust, cooperation, learning and wellbeing. The identified communities possess the above strengths and have the common barrier of:

Information access

The potential for communities to engage with natural hazard information. Telecommunication and internet access is vital to information sharing before, during and after natural hazard events. Community engagement activities benefit communities through capacity building, social connectedness, self-reliance, training, awareness of risk and psycho-social preparation

Disaster resilience capacity

Disaster resilience is the capacity for communities to prepare for, absorb and recover from natural hazard events and to learn, adapt and transform in the face of future events. Below is an overall measure of disaster resilience formed from coping and adaptive capacity. The index values range from 0 to 1, where 1 indicates the highest capacity for resilience, and 0 represents the lowest.

Charmhaven/Bluehaven/San Remo - .4885

This area is assessed as having moderate capacity for disaster resilience.

Communities in areas of moderate disaster resilience have some capacity to use available resources to cope with adverse events, and some capacity to adjust to change through learning, adaptation and transformation.

Moderate disaster resilience is generally contributed by moderate levels of coping and adaptive capacity, which in turn are associated with moderate levels of economic capital, moderate provision of and access to services, moderate community cohesion and variable encouragement for adaptive learning and problem solving.

Coping capacity index

Coping capacity is the means by which communities or organisations can use available resources and abilities to face adverse consequences. The coping capacity index also ranges from 0 to 1, with 1 being the highest capacity to cope.

Blue Haven - San Remo- .5676

This area is assessed as having moderate Coping Capacity.

Communities in areas of moderate Coping Capacity have some capacity to use available resources to cope with adverse events and to prepare for, absorb and recover from a natural hazard.

Adaptive capacity index

Adaptive capacity is the arrangements and processes that enable adjustment through learning, adaptation and transformation. The index ranges from 0 to 1, with 1 representing the highest adaptive capacity.

Blue Haven - San Remo- .4202

This area is assessed as having low Adaptive Capacity.

Communities in areas of low Adaptive Capacity may be constrained in their capacity to adjust to change through learning, adaptation and transformation.

Disaster resilience factors

Social character

The social and demographic characteristics of the community. Factors such as household and family composition, age, sex, education, employment, disability, language, and length of residence have well-known influences on capacity to prepare for, respond to and recover from natural hazards.

Economic capital

The economic characteristics of the community. Economic capital can contribute to the reduction of losses from natural hazard events through improved mitigation and risk management, individual flexibility and adaptation, enhanced recovery, market continuity and business continuity.

Emergency services

The presence and resourcing of emergency services. Emergency management is a core government service and is integral to natural hazard preparation, response and recovery. Emergency services undertake a range of activities to assist communities before, during and after natural hazards.

Planning and the built environment

The presence of legislation, plans, structures or codes to protect communities and their built environment. Land use planning articulates and regulates relationships between development and hazards. Planning reduces current and future risk and enhances the readiness and capacity of organisations to respond to events.

Community capital

The cohesion and connectedness of the community. Social capital is a resource that facilitates collective action for mutual benefit. Sense of community fosters participation, community competency, pro-social behaviour and preparedness through working with others to solve shared local problems.

Information access

The potential for communities to engage with natural hazard information. Telecommunication and internet access is vital to information sharing before, during and after natural hazard events. Community engagement activities benefit communities through capacity building, social connectedness, self-reliance, training, awareness of risk and psycho-social preparation.

Governance and leadership

The capacity within organisations to adaptively learn, review and adjust policies and procedures, or to transform organisational practices. Adaptive institutions have conditions suited to the development of the skills, knowledge and culture for managing complex change. They have flexibility and can learn from experience, innovate and adjust.

Social and community engagement

The capacity within communities to adaptively learn and transform in the face of complex change. Adaptive communities have support and resources to manage complex change and to renew for mutual benefit. Characteristics of adaptive communities include social engagement, trust, cooperation, learning and wellbeing.

The identified communities possess the above strengths and have the common barrier of:

Information access

The potential for communities to engage with natural hazard information. Telecommunication and internet access is vital to information sharing before, during and after natural hazard events. Community engagement activities benefit communities through capacity building, social connectedness, self-reliance, training, awareness of risk and psycho-social preparation.

Appendix 4. Plan 3

Disaster resilience capacity

Disaster resilience is the capacity for communities to prepare for, absorb and recover from natural hazard events and to learn, adapt and transform in the face of future events. Below is an overall measure of disaster resilience formed from coping and adaptive capacity. The index values range from 0 to 1, where 1 indicates the highest capacity for resilience, and 0 represents the lowest.

Chittaway - .6812

This area is assessed as having high capacity for disaster resilience.

Communities in areas of high disaster resilience have enhanced capacity to use available resources to cope with adverse events, and enhanced capacity to adjust to change through learning, adaptation and transformation. Factors contributing to high disaster resilience may include employment, education, income, good access to or provision of resources and services, strong community cohesion and ample opportunities for adaptive learning and problem solving

The Entrance - .4628

This area is assessed as having moderate capacity for disaster resilience.

Communities in areas of moderate disaster resilience have some capacity to use available resources to cope with adverse events, and some capacity to adjust to change through learning, adaptation and transformation. Moderate disaster resilience is generally contributed by moderate levels of coping and adaptive capacity, which in turn are associated with moderate levels of economic capital, moderate provision of and access to services, moderate community cohesion and variable encouragement for adaptive learning and problem solving.

Coping capacity index

Coping capacity is the means by which communities or organisations can use available resources and abilities to face adverse consequences. The coping capacity index also ranges from 0 to 1, with 1 being the highest capacity to cope.

Chittaway Bay - Tumbi Umbi- .7355

This area is assessed as having high Coping Capacity.

Communities in areas of high Coping Capacity have enhanced capacity to use available resources to cope with adverse events and to prepare for, absorb and recover from a natural hazard.

The Entrance- .4926

This area is assessed as having moderate Coping Capacity.

25 Southern Tuggerah Lakes, Central Coast Council
Communities in areas of moderate Coping Capacity have some capacity to use available resources to cope with adverse events and to prepare for, absorb and recover from a natural hazard.

Adaptive capacity index

Adaptive capacity is the arrangements and processes that enable adjustment through learning, adaptation and transformation. The index ranges from 0 to 1, with 1 representing the highest adaptive capacity.

Chittaway Bay - Tumbi Umbi- .6068

This area is assessed as having moderate Adaptive Capacity.

Communities in areas of moderate Adaptive Capacity have some capacity to adjust to change through learning, adaptation and transformation.

The Entrance- .4178

This area is assessed as having low Adaptive Capacity.

Communities in areas of low Adaptive Capacity may be constrained in their capacity to adjust to change through learning, adaptation and transformation.

Disaster resilience factors

Social character

The social and demographic characteristics of the community. Factors such as household and family composition, age, sex, education, employment, disability, language, and length of residence have well-known influences on capacity to prepare for, respond to and recover from natural hazards.

Economic capital

The economic characteristics of the community. Economic capital can contribute to the reduction of losses from natural hazard events through improved mitigation and risk management, individual flexibility and adaptation, enhanced recovery, market continuity and business continuity.

Emergency services

The presence and resourcing of emergency services. Emergency management is a core government service and is integral to natural hazard preparation, response and recovery. Emergency services undertake a range of activities to assist communities before, during and after natural hazards.

Planning and the built environment

The presence of legislation, plans, structures or codes to protect communities and their built environment. Land use planning articulates and regulates relationships between development and hazards. Planning reduces current and future risk and enhances the readiness and capacity of organisations to respond to events.

Community capital

The cohesion and connectedness of the community. Social capital is a resource that facilitates collective action for mutual benefit. Sense of community fosters participation, community competency, pro-social behaviour and preparedness through working with others to solve shared local problems.

Information access

The potential for communities to engage with natural hazard information. Telecommunication and internet access is vital to information sharing before, during and after natural hazard events. Community engagement activities benefit communities through capacity building, social connectedness, self-reliance, training, awareness of risk and psycho-social preparation.

Governance and leadership

The capacity within organisations to adaptively learn, review and adjust policies and procedures, or to transform organisational practices. Adaptive institutions have conditions suited to the development of the skills, knowledge and culture for managing complex change. They have flexibility and can learn from experience, innovate and adjust.

Social and community engagement

The capacity within communities to adaptively learn and transform in the face of complex change. Adaptive communities have support and resources to manage complex change and to renew for mutual benefit. Characteristics of adaptive communities include social engagement, trust, cooperation, learning and wellbeing.

The identified communities possess the above strengths and have the common barrier of:

Information access

The potential for communities to engage with natural hazard information. Telecommunication and internet access is vital to information sharing before, during and after natural hazard events. Community engagement activities benefit communities through capacity building, social connectedness, self-reliance, training, awareness of risk and psycho-social preparation.

Appendix 4. Plan 4

Disaster resilience capacity

Disaster resilience is the capacity for communities to prepare for, absorb and recover from natural hazard events and to learn, adapt and transform in the face of future events. Below is an overall measure of disaster resilience formed from coping and adaptive capacity. The index values range from 0 to 1, where 1 indicates the highest capacity for resilience, and 0 represents the lowest.

Yarramalong - .6307

This area is assessed as having moderate capacity for disaster resilience.

Communities in areas of moderate disaster resilience have some capacity to use available resources to cope with adverse events, and some capacity to adjust to change through learning, adaptation and transformation.

Moderate disaster resilience is generally contributed by moderate levels of coping and adaptive capacity, which in turn are associated with moderate levels of economic capital, moderate provision of and access to services, moderate community cohesion and variable encouragement for adaptive learning and problem solving.

Coping capacity index

Coping capacity is the means by which communities or organisations can use available resources and abilities to face adverse consequences. The coping capacity index also ranges from 0 to 1, with 1 being the highest capacity to cope.

Yarramalong- .5638

This area is assessed as having moderate Coping Capacity.

Communities in areas of moderate Coping Capacity have some capacity to use available resources to cope with adverse events and to prepare for, absorb and recover from a natural hazard.

Adaptive capacity index

Adaptive capacity is the arrangements and processes that enable adjustment through learning, adaptation and transformation. The index ranges from 0 to 1, with 1 representing the highest adaptive capacity.

Jilliby – Yarramalong- .6397

This area is assessed as having moderate Adaptive Capacity.

Communities in areas of moderate Adaptive Capacity have some capacity to adjust to change through learning, adaptation and transformation.

Disaster resilience factors

Social character

The social and demographic characteristics of the community. Factors such as household and family composition, age, sex, education, employment, disability, language, and length of residence have well-known influences on capacity to prepare for, respond to and recover from natural hazards.

Economic capital

The economic characteristics of the community. Economic capital can contribute to the reduction of losses from natural hazard events through improved mitigation and risk management, individual flexibility and adaptation, enhanced recovery, market continuity and business continuity.

Emergency services

The presence and resourcing of emergency services. Emergency management is a core government service and is integral to natural hazard preparation, response and recovery. Emergency services undertake a range of activities to assist communities before, during and after natural hazards.

Planning and the built environment

The presence of legislation, plans, structures or codes to protect communities and their built environment. Land use planning articulates and regulates relationships between development and hazards. Planning reduces current and future risk and enhances the readiness and capacity of organisations to respond to events.

Community capital

The cohesion and connectedness of the community. Social capital is a resource that facilitates collective action for mutual benefit. Sense of community fosters participation, community competency, pro-social behaviour and preparedness through working with others to solve shared local problems.

Information access

The potential for communities to engage with natural hazard information. Telecommunication and internet access is vital to information sharing before, during and after natural hazard events. Community engagement activities benefit communities through capacity building, social connectedness, self-reliance, training, awareness of risk and psycho-social preparation.

Governance and leadership

The capacity within organisations to adaptively learn, review and adjust policies and procedures, or to transform organisational practices. Adaptive institutions have conditions suited to the development of the skills, knowledge and culture for managing complex change. They have flexibility and can learn from experience, innovate and adjust.

Social and community engagement

The capacity within communities to adaptively learn and transform in the face of complex change. Adaptive communities have support and resources to manage complex change and to renew for mutual benefit. Characteristics of adaptive communities include social engagement, trust, cooperation, learning and wellbeing.

The identified communities possess the above strengths and have the common barrier of:

Information access

The potential for communities to engage with natural hazard information. Telecommunication and internet access is vital to information sharing before, during and after natural hazard events. Community engagement activities benefit communities through capacity building social connectedness, self-reliance, training, awareness of risk and psycho-social preparation.

Draft Natural Disaster Resilience Strategy

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