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Resilient Sydney
Synthesis Report
2024



Front cover

Photo: Resilience ambassadors at the agenda
setting workshop / Jacquie Manning

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RESILIENT SYDNEY

A program for Greater Sydney in New South Wales in Australia, to build the capacity of individuals, communities, institutions, businesses and systems to survive, adapt and thrive in the face of chronic stresses and acute shocks.

Resilient Sydney is a regional collaboration of the 33 local governments of Greater Sydney, aligned to the global Resilient Cities Network. The Resilient Sydney Office is funded by local government and hosted by the City of Sydney.

www.resilientsydney.com.au

RESILIENT CITIES NETWORK

Resilient Cities Network is a global urban resilience network of cities, bringing together global knowledge, practice, partnerships, and funding to empower members to build safe and equitable cities for all.

www.resilientcitiesnetwork.org

The development of the Resilient Sydney Strategy 2025 – 2030 is funded under the joint Australian Government – NSW Government National Partnership Agreement on Disaster Risk Reduction. Although funding has been provided by both the Australian and NSW Governments, the material contained herein does not necessarily represent the views of either Government.

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Acknowledgement of Country

We acknowledge the Traditional Custodians of Gadigal, Wangal, Bidjigal, Gamaragal, Dharug, Dharawal, Gundungurra and Darkinjung Ngurra – the land, waters and sky of this place we now call Sydney.

We pay respect to Aboriginal and Torres Strait Islander Elders, past and present.

We recognise that this always was and always will be Aboriginal land.



Photo: Julie Vulcan

Introduction

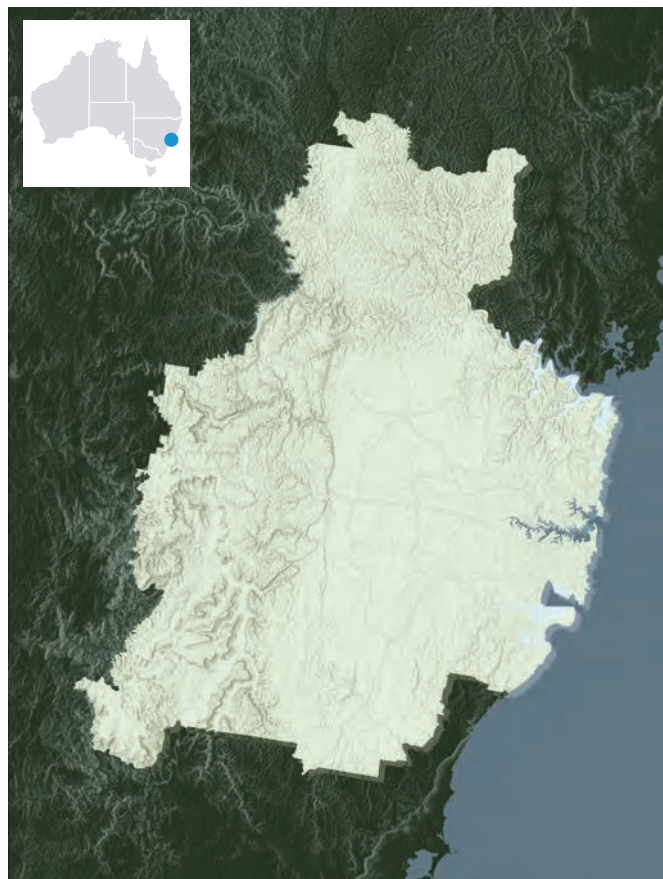
Communities in Greater Sydney have experienced the impact of the Covid-19 pandemic, major floods, storms and fires, and understand the need to anticipate and prepare for future shocks and stresses. They are also aware that the frequency and magnitude of acute shocks and day-to-day stresses are increasing.

Shocks are sudden events that disrupt a city such as floods, storms, or cyber-attacks. Stresses are ongoing challenges such as unaffordable housing and cost of living pressures that weaken the ability of the city and communities to respond and recover from shock events.

Shocks and stresses have significantly impacted Greater Sydney over the past 5 years depleting our resilience.

Greater Sydney includes 33 local government areas and covers 12,145 km². It stretches from the Northern Beaches and Hawkesbury in the north, Blue Mountains to the west and Wollondilly and Sutherland in the south. It includes some of the highest density communities in Australia, suburbs of single dwellings, rural areas and environmentally significant areas of bushland.

Resilient Sydney is a successful collaboration program that brings together all 33 local governments of Greater Sydney. As a member of the Global Resilient Cities Network, Resilient Sydney has been implementing the first Resilient Sydney Strategy since 2018.



Greater Sydney. Source: City of Sydney

Resilient Sydney aims to build the capacity and capability of local government and other organisations, so the city and its people are better placed to survive, adapt and thrive in the face of acute shock events and chronic stresses.

Resilient Sydney is developing a new strategy for Greater Sydney. In late 2023 and early 2024 Resilient Sydney consulted widely with communities across Sydney and carried out a resilience risk assessment to inform the development of a new resilience strategy for Greater Sydney.

This report presents the key outcomes of the community engagement and risk assessment and describes how the synthesis of this information provides the evidence base to develop action areas for the Resilient Sydney Strategy 2025–2030.

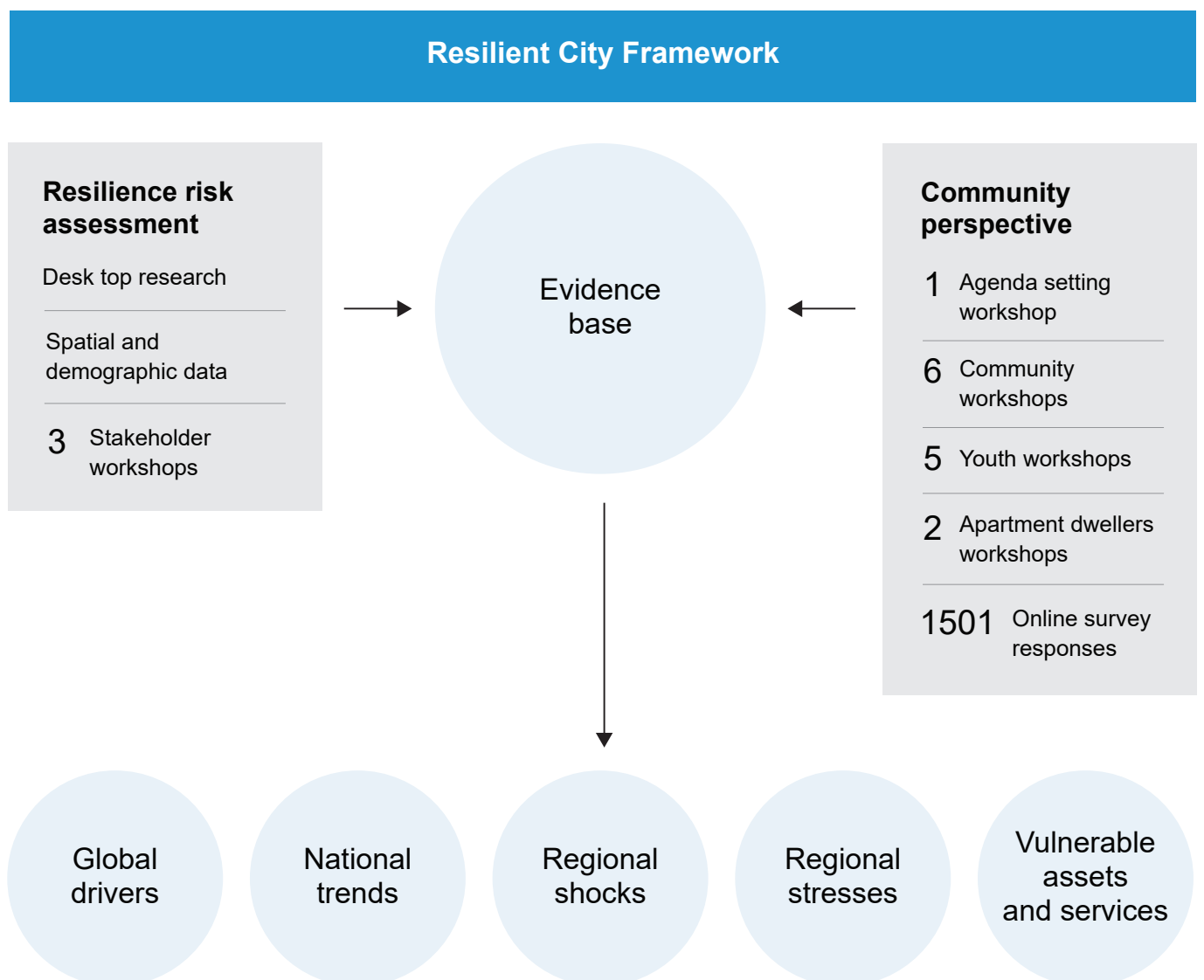
Approach to building the evidence base

To build the evidence base for the Resilient Sydney Strategy 2025 - 2030, we undertook a city-wide resilience risk assessment informed by the internationally recognised Resilient Cities Framework.

We commenced the project with an Agenda Setting Workshop with Greater Sydney councils. We undertook 6 community workshops and 5 youth workshops across Sydney exploring experiences of shocks and stresses. We had an online survey that was promoted by councils to their communities.

The approach is outlined in Figure 1. Further description of the resilience framework policy context, resilience risk assessment¹ and community engagement² is included in the Methodology section.

Figure 1
Approach to developing the evidence base



Key findings

SHOCKS FOR GREATER SYDNEY

Shocks are sudden events that disrupt a city. The top shocks for Greater Sydney have been grouped into three types of events – international crisis, natural hazards and critical infrastructure failures. The organisation of shocks into these categories aligns with the Australian Government Department of Home Affairs approach to all hazards risk assessments¹².

All hazard assessments consider the cumulative effects from multiple shock events. For example, extreme bushfires followed by heavy rainfall in Greater Sydney’s catchment will significantly impact raw water quality and put pressure on water treatment infrastructure. Power failure at the treatment plant and/or inability to treat the water would expose many more people to risk than the initial natural hazards alone.



International Crisis

- _____ Economic crisis
- _____ Conflict and war
- _____ Cyber-attack
- _____ Disease outbreak



Natural hazards

- _____ Heatwaves
- _____ Bushfires
- _____ Flooding
- _____ Storms
- _____ Coastal hazards



Critical infrastructure failure

- _____ Energy
- _____ Transport
- _____ Digital networks
- _____ Water
- _____ Waste

INTERNATIONAL CRISIS

The risk of these shocks are beyond the control of state or city governments. However, the consequences can be reduced by increasing community resilience. For example, prior planning proved important during the Covid-19 pandemic.

The World Economic Forum Global Risks Report identified “rapidly accelerating technological change and economic uncertainty” combined with simultaneous crises of climate and conflict as key drivers of declining global security³.

Cost-of-living pressures continue to rise, amidst persistently elevated inflation and interest rates and continued economic uncertainty. Online criminal activity is expanding along with cyber-attacks designed to undermine national governments and democracy. Increasing global travel and transportation is creating the environment for rapid and massive spread of disease and pests.



Economic crisis

A steep rise in inflation occurred from 2020 reaching a peak of 7.8% at the end of 2022. As a result, interest rates have risen leading to financial pressures¹.

Households are now facing a 9% reduction in disposable income per person. Financial recovery is expected to take until the end of the decade with the potential for thousands losing their jobs¹.

Failure to provide safe, reliable access to financial services including insurance has resulted in poor outcomes for consumers. Increased



prices of goods and services is causing financial stress and mental health impacts.



Conflict and war

Underlying geopolitical tensions combined with hostilities in multiple regions is contributing to an unstable global

order characterised by polarising narratives and eroding trust. “Active conflicts are at the highest levels in decades”³.

These conflicts have flow on effects for Greater Sydney through the disruption of supply chains and geopolitical instability. Russia’s invasion of Ukraine in 2022, limited oil and gas supplies resulting in increased prices for fuel in Greater Sydney. This contributed to inflation and higher interest rates in Australia¹.

Young people in our workshops indicated overexposure to conflict through social media channels, has the potential to minimise the reality of conflict, and fuel cultural and faith-based discrimination.



Cyber-attack

Cyber-attacks including data breaches, ransomware activity, and domain takedowns are becoming more common place. In FY 2022-23 there were 1,134 cyber security incidents reported in Australia, an increase of 23% compared to the previous year¹.

An Optus data breach in 2022, saw 10 million customers’ personal information including driver’s licences, Medicare card numbers



and passport details accessed¹. Cyber-attacks result in financial loss, disruption of services and undermine the privacy, safety and security of millions of Australians.



Disease outbreak

The risk of pandemics occurring is increasing. The current probability of a pandemic in any given year is 2%¹.

Complex biosecurity risks are also growing. The Department of Primary Industries (DPI) reported 55 biosecurity hazard incident responses in 2020-21¹.

The effects from the Covid-19 pandemic are still being felt. These include an increase in mental health and chronic health issues and exacerbation of existing inequity. The health system is still experiencing ongoing impacts from the pandemic including increases in patient numbers when new strains of the virus occur.

NATURAL HAZARDS

The five natural hazards identified for Greater Sydney align with the priority natural hazards in the State Disaster Mitigation Plan⁴.

Extreme heat represents the greatest risk to life in Greater Sydney from natural hazards. Flooding and storms represent the greatest risks to property.

Greater Sydney is surrounded by areas of extreme bushfire risk and coastal hazards are increasingly impacting homes, businesses and public space along Sydney's shoreline.



Heatwaves

Greater Sydney is experiencing an increase in the frequency and severity of heatwaves. Western Sydney continues to experience record breaking extreme heat days. One day in 2020, Penrith was identified as the hottest place on earth at 48.9°C¹. Temperatures in Western Sydney during heatwaves are 8 to 10.5°C hotter than in the Sydney CBD¹.

Heatwaves and temperature increases have led to a rise in heat related health

problems, including heat exhaustion, heat stroke, dehydration and an increase in morbidity and mortality rates.

These impacts are felt particularly amongst those who work outdoors and vulnerable people including people with chronic illness, older people, and low-income earners who do not have access to air conditioning.



Bushfires

Bushfires are increasing in severity and frequency. In NSW the 2019-20 Black Summer bushfires burnt a total of 5.5 million ha of land including hundreds of protected indigenous sites. There were widespread power outages, 2,475 houses were destroyed. Across Australia a total of 450 lives were lost due to the fires and poor air quality¹.



The fires had a devastating impact on floral and faunal biodiversity and reduced the ecological resilience of the region. Smoke from the fires had negative health effects on people with asthma and other lung conditions. Figure 2 shows areas of Greater Sydney developed on bushfire prone land.



Flooding

Heavy rainfall and subsequent flooding events are occurring more frequently across all regions of Greater Sydney.

The Hawkesbury-Nepean floodplain experienced 4 major floods between 2020 and 2022 which damaged over 100,000 homes and businesses. Thousands of people were evacuated. The floods resulted in \$2.5 billion in road damage including \$140 million in Wollondilly local government area and more than \$400 million in the Blue Mountains¹.

Insurance is becoming unaffordable with some

homeowners in the region being quoted \$30,000 for annual home and contents insurance and some properties have become uninsurable¹.



Storms

East coast lows are decreasing in frequency but increasing in intensity in Greater Sydney. Overall, severe storms including hailstorms are increasing in frequency causing property damage and widespread power outages.

In 2018 a severe thunderstorm produced more than 30,000 lightning strikes, large hailstones, destructive winds, and heavy rainfall across Greater Sydney causing \$1.3 billion insured losses with 125,600 domestic insurance claims and 12,195 commercial claims¹.

In 2021 the Northern Beaches was hit by a severe storm with strong winds that damaged houses brought down trees and caused two deaths¹. As severe storms increase in frequency, councils and other organisations including emergency services and network operators will be under pressure to maintain assets, services and infrastructure.



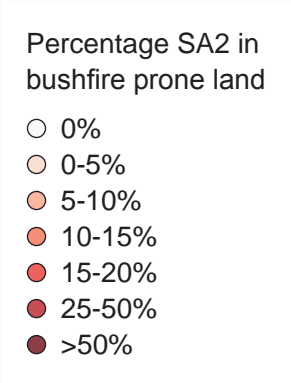
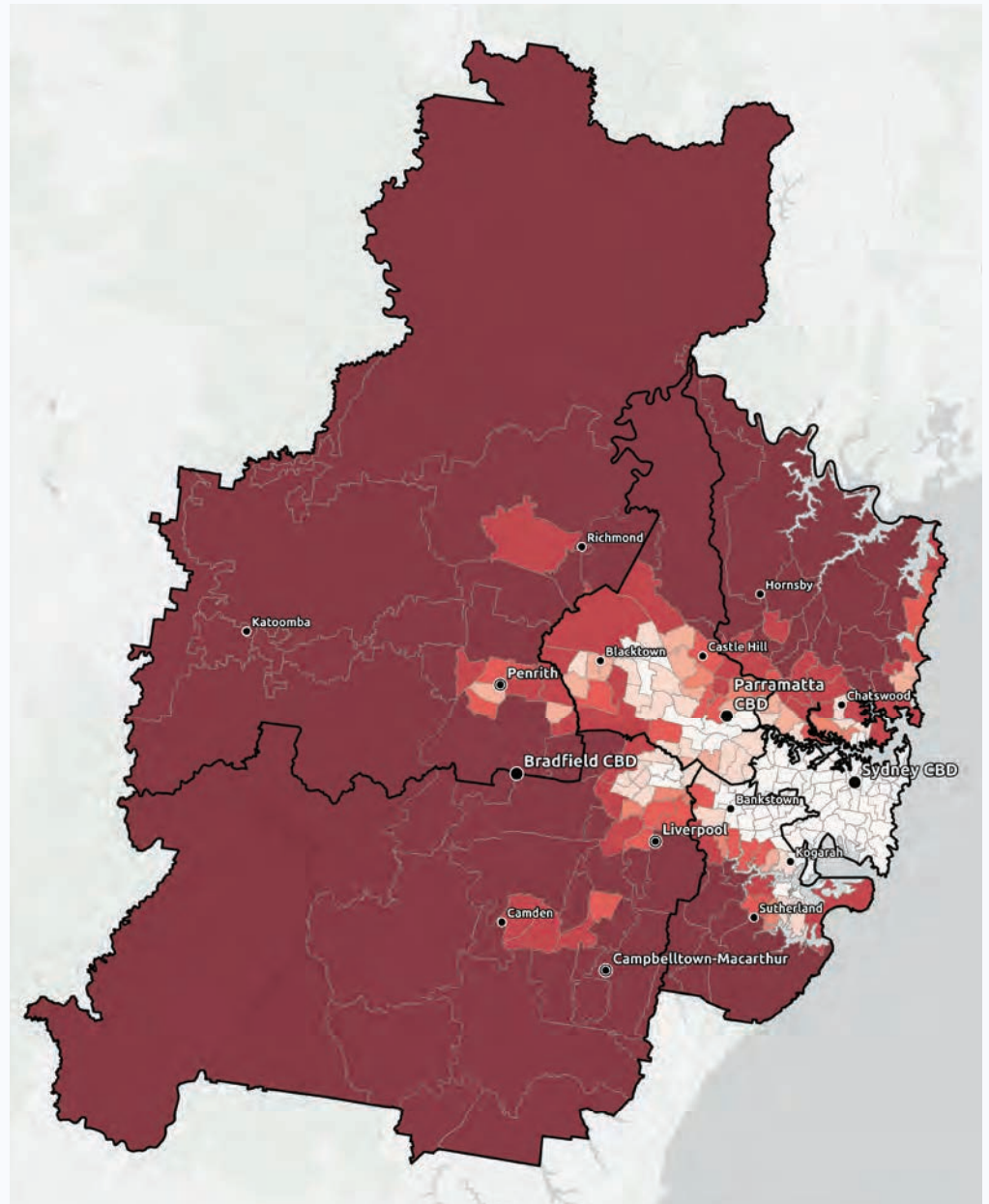
Coastal hazards

Coastal erosion is an increasing threat to homes and businesses along the shoreline.

In 2016, an east coast low swallowed up 50 metres of coastline along Collaroy and Narrabeen Beaches destroying multiple backyards¹. Inside the harbour, Nielsen Park, Vaucluse was badly damaged in the same storm¹. Coastal erosion is causing dangerous sandy slopes along Cronulla Beach, closing public pathways and access routes, and damaging local infrastructure.

Councils are being required to construct concrete sea walls to protect residential properties and local infrastructure. The sea wall in the Northern Beaches was estimated to cost \$25 million and at Nielsen Park \$6.8 million. Pressure on councils to maintain safe public access routes to beaches will continue.

Figure 2
Percentage of bushfire prone land¹



Source: Aecom

CRITICAL INFRASTRUCTURE FAILURE

Critical infrastructure requires maintenance and deteriorates over time. It must respond to changes in demand and increasing need for climate resilience.

Critical infrastructure can also fail due to natural hazard events and cyber-attacks. Power and digital infrastructure enable many other core functions of a city.



Energy

Power and rail network outages are the most common example of failures of critical infrastructure that occur in Greater Sydney.

In 2017 an extensive blackout occurred in the inner west. The outage was due to equipment failure and affected 60,000 homes and businesses and the transport network including 100 sets of traffic lights and light rail services¹.

In recent years, extreme weather including storms damaging powerlines and heatwaves causing increased demand on the energy network have become the leading causes of power outages.



Transport

In March 2023, the rail network was hit by multiple outages. The service disruption caused extended delays as no trains were available for the western, inner west, airport, and northern lines and passengers were asked to seek alternative transport¹.

A 2023 review of the Sydney train network found that the network was plagued by 40,000 defects and delays are likely to continue to worsen¹. Road and rail network delays increase travel time for commuters across Greater Sydney.

Pressure is increasing on transport and network operators to continue to maintain services during extreme weather events while responding to increased demand. Community workshops identified that transport services in Greater Sydney can be unreliable and easily disrupted.



Digital networks

Impacts to digital infrastructure can delay emergency response services during disaster events, disrupt individuals attempting to access healthcare or digital banking, and cause both energy and transport network interruptions.

Failure of digital infrastructure such as data breaches or misinformation can increase social isolation, distrust in government, and decrease social cohesion. It can also have manufacturing and supply chain impacts and lead to delays in essential goods and services for communities.



Water

Prolonged periods of drought are becoming more frequent and severe across NSW and Sydney catchments. This has a major influence on Greater Sydney's catchment health and drinking water yields.

Sydney is the largest city in Australia that relies on a single reservoir, the Warragamba Dam for approximately 85% of its water supply¹. The most recent drought in 2017-2019 saw a 50 % decline

in Greater Sydney's water storage levels¹.

As we experience greater frequency and intensity of rainfall, droughts, and bushfires the risk of contamination and poor water quality supply increases the need for higher levels of treatment with significant cost and serious water supply implications.



Waste

In 2021, the EPA reported that at its current rate, Greater Sydney putrescible landfills are anticipated to reach capacity within 15 years¹. No clear guidance or geospatial planning from Government has been shared to outline the future of waste management in Greater Sydney.

Local council areas within Greater Sydney have begun to implement Food Organics and Garden Organics (FOGO) waste management to reduce the volume of waste to landfill¹.

Geospatial constraints and lack of alternatives make waste management vulnerable to disruption. Major failure would lead to pollution and/or contamination compromising community health and causing extensive disruption to the city.

COMPARISON OF SHOCKS

Table 1 highlights the consistency in understanding priority shocks for Greater Sydney. There is strong alignment between the concerns of the community and the outcomes of the risk assessment.

The NSW State Disaster Mitigation Plan rated the highest risk shocks as flooding, storms, coastal inundation, bushfire and heatwaves.

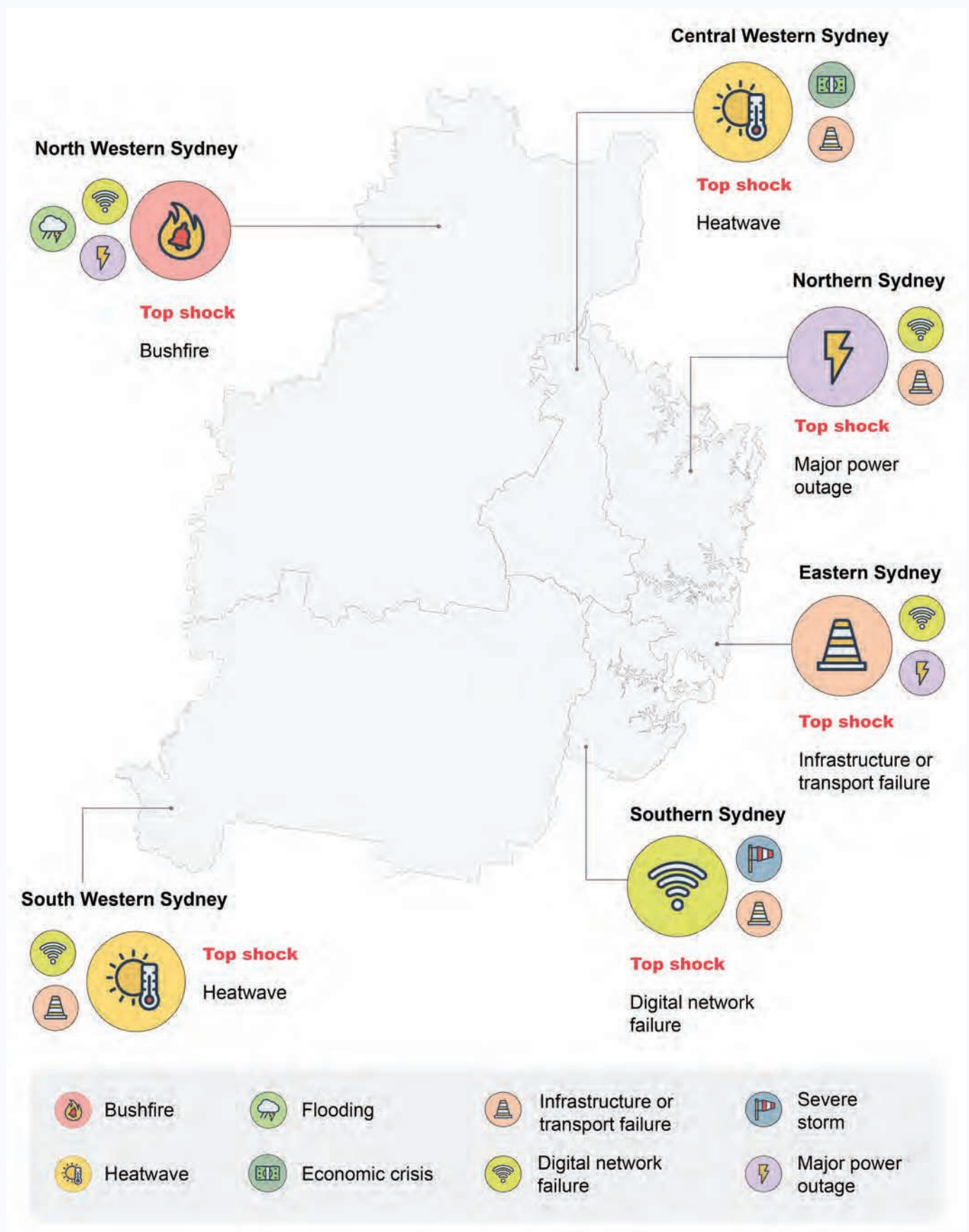
Communities across Sydney experience different shocks. Heatwaves are of most concern in the south west and central west of Sydney. Bushfires and flooding are of concern in the north west of Sydney. Storms are a concern in southern Sydney. People across Sydney are concerned about transport, infrastructure, power and digital failures.

Figure 3 presents the top three shocks identified in each region of Sydney by the community workshop participants.

Table 1
Comparison of shock rankings by evidence source

Prioritisation of shocks by evidence source	Community Workshops ²	Youth Workshop ¹⁵	Public Survey ¹⁶	Risk Assessment AECOM ¹	Agenda Setting Workshop ¹⁷	
	1	Infrastructure failure	Climate change	Heatwaves	Economic crisis	Heatwaves
	2	Heatwaves	Bushfires	Storms	Conflict & war	Flooding
	3	Power failure	Heatwaves	Bushfires	Bushfires	Storms
	4	Digital network	Conflict	Flooding	Flooding	Bushfires
	5	Storms	Environmental degradation	Infrastructure failure	Heatwaves	Infrastructure failure
	6	Economic crisis		Economic crisis	Disease outbreak	Economic crisis
	7	Bushfires		Power failure	Storms	Cyber-attack
	8	Flooding		Digital network	Water crisis	Coastal inundation
	9	Disease outbreak		Cyber-attack	Digital network	Water crisis
10	Cyber-attack		Coastal inundation	Infrastructure failure	Digital network	

Figure 3
Regional shocks across Greater Sydney²



Source: Cred Consulting

STRESSES FOR GREATER SYDNEY

Stresses are ongoing challenges such as unaffordable housing and cost of living pressures that weaken the ability of the city and communities to respond and recover from shock events.

The stresses for Greater Sydney are related to three themes, inequity, wellbeing and governance. While all stresses are systemic, inequity and wellbeing stresses have been identified as increasing the vulnerability of individuals and communities in relation to geography and demographics. Governance stresses undermine the ability of the city to function effectively and manage increasing risks.

Stresses were used in the assessment to understand the underlying vulnerabilities of Greater Sydney that explain the consequences of different shock events. For example, people with chronic health conditions who are socially isolated and have low trust in government may not evacuate from a flood area in time.



Inequity

Health services

Housing

Transport

Education

Cost of living



Wellbeing

Mental health

Chronic health conditions

Social isolation & lack of community connection

Racism & vilification

Family violence



Governance

Fragmented governance

Low trust

Low social cohesion

Environmental degradation

Disrupted supply chains

INEQUITY

The risk assessment and community insights identified inequity of access and availability of critical services as significant chronic stresses in Greater Sydney.

These stresses relate to geography and demographics with people experiencing inequity in Western Sydney and based on gender, age and cultural identity.

There is growing wealth disparity in Greater Sydney and cost of living pressures are disproportionately affecting some groups within our society.



Health services

NSW hospital emergency departments waiting times are inequitably spread across Greater Sydney. Only 22% of patients are seen on time in hospitals in Western Sydney, compared to 80% of patients at hospitals in the North Shore¹.

Participants in community workshops expressed concern that health services are easily overwhelmed, expensive, and have long wait times. This results in people not being able to get the treatment they need or being pushed into the private system where there is a larger financial impact. Availability of bulk billing rates has decreased from 87% in July 2022 to 74% in September 2023¹.



Housing

Lack of affordable and quality housing is a major problem across Greater Sydney. In 2022-23 housing prices increased by 14% across Greater Sydney and rental prices increased by 16%¹. Income growth has not kept up with the cost of the housing market, further amplifying this stress (Figure 4 and Figure 5). Some parts of Greater Sydney are becoming unaffordable for key workers.

Participants reported that poor housing exacerbates health conditions because of mould, dampness and difficulties heating or cooling homes. There was a strong desire for new homes to be designed to respond to climate change. Renters felt they had little control over their housing quality including the level of

repairs and upgrades to cope with shock events such as heatwaves.

Workshops noted that increasing high density living means people need more access to public open spaces and that a lack of open space can lead to family tensions and social isolation.



Transport

People are concerned that transport services can be easily overwhelmed, often unreliable and prone to frequent outages, leaving people stranded with no way to get to work, home or important commitments.

Alternative public transport options are expensive, slow and in some areas were not available at all. Inability to use public transport compounds existing stresses, particularly job insecurity, earning income, cost of living and accessing important services.

Unreliable and costly public transport was also a prominent stress in the youth workshops¹⁵. Young people stated these issues were causing negative impacts on numerous aspects of their daily lives including access to education, employment, safety, and cost of living stress.



Education

Young people identified education inequality in relation to access, cost, resources, and subject availability, as a major stress. They noted that the school curriculum lacked relevancy to current issues faced by young people, and subjects needed to address life skills including financial acumen, job ready skills, navigating government systems, mentoring (guidance into adulthood) and mental health resilience.¹⁵



Cost of living

The cost of living and unaffordable housing were continuous themes of stress expressed in the community and youth workshops and the survey. The cumulative stress of financial pressures is impacting other aspects of people's lives including mental health and ability to care for each other.

People are worried they do not have the finances or capacity to cope with future shock events. Costs associated with repairing homes and increases in insurance premiums are adding to financial pressures.

People feel they are being pushed out of Sydney by the high cost of living, housing crisis and impact of frequent shock events on their ability to earn a living.

Young people identified the emergence of an intergenerational divide in wealth. These issues were delaying or even preventing young people from transitioning into adulthood. Many felt that the 'Australian dream' of owning a house and job security, are no longer feasible options without radical intervention.¹⁵

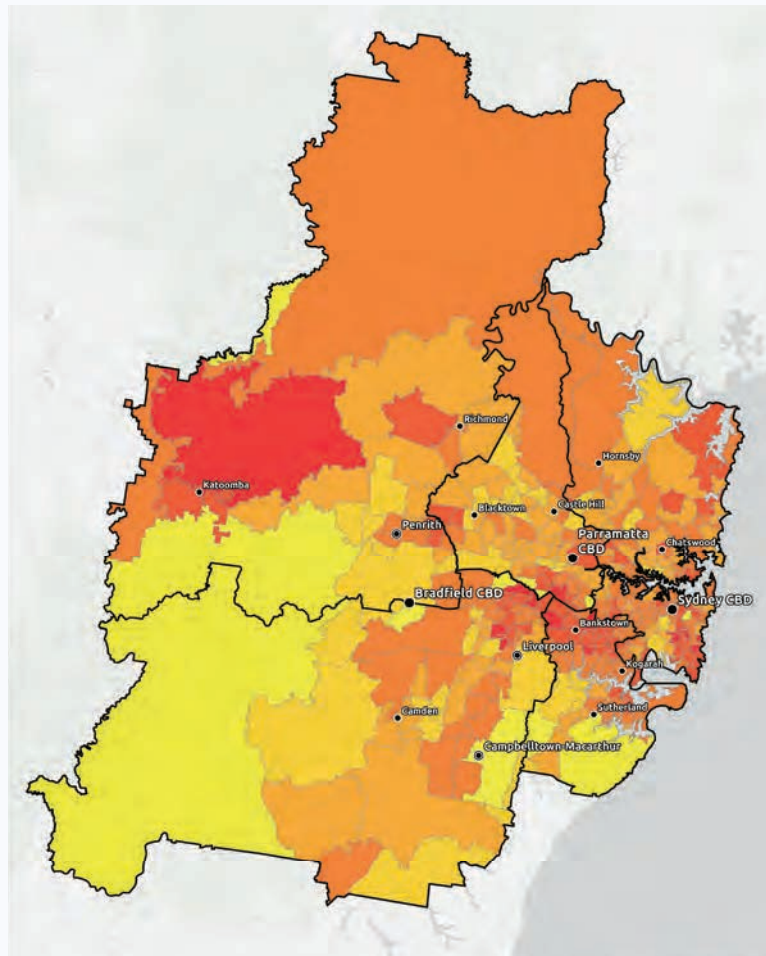


Figure 4
Mortgage costs as a portion of income¹

Mortgage costs as a proportion of income

- 0%
- 0-26%
- 26-29%
- 29-33%
- 33-39%
- >39%

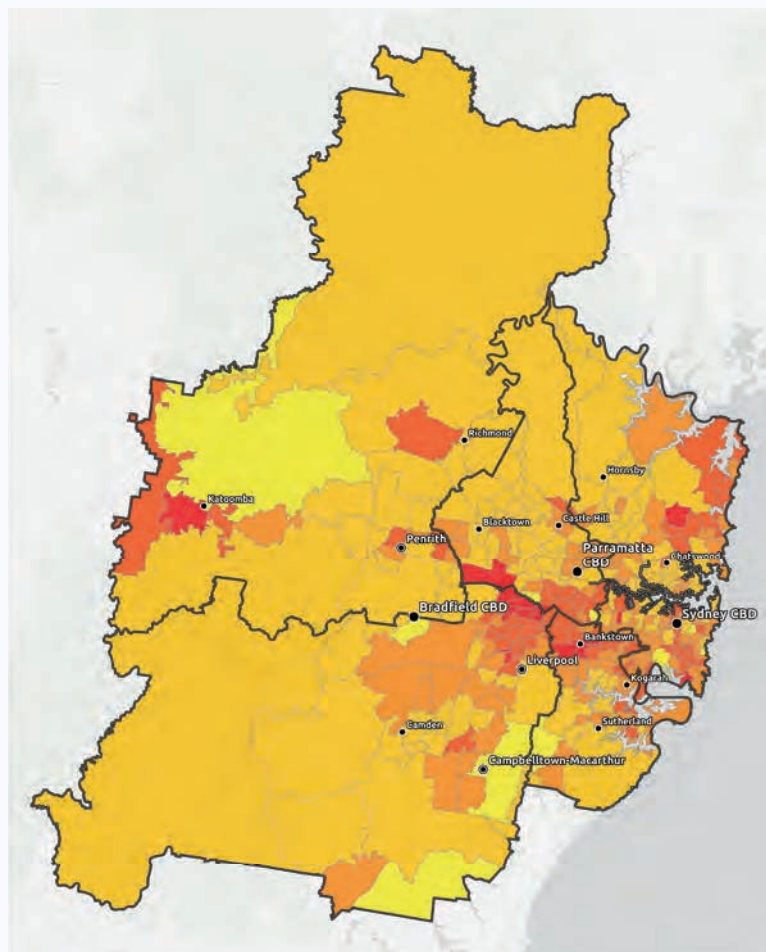


Figure 5
Portion of household income vs median rent¹

Rent costs as a proportion of income

- 0-13%
- 13-22%
- 22-25%
- 25-30%
- >30%

Source: Aecom

WELLBEING

In all our workshops, people across Greater Sydney said fatigue and uncertainty was depleting their personal resilience and wellbeing.

People expressed concern about how physical and emotional fatigue will affect their ability to respond to future shocks and that the long recovery from shock events were becoming ongoing stresses in their lives.



Mental health

Greater Sydney has reported significant increases in depression, anxiety and other mental health illnesses compared to pre-pandemic levels¹.

Mental health disorders experienced by young people have increased by nearly 50% over the past 20 years¹. Youth workshops identified the widespread issue of mental health in relation to community division and social isolation. They felt that the accumulation of daily stresses is reducing their ability to focus on wider community and global issues such as climate

change.

Young people were passionate about environmental issues and expressed a strong sense of urgency to act. Community workshop participants expressed a sense of grief associated with witnessing devastation to the natural environment and native animals and the fear that this will happen again.²



Chronic health conditions

Many Australians have at least one long-term health condition (81%) and 49.9% have at least one chronic condition⁵. The most prevalent chronic conditions experienced in Australia in 2022 were mental and behavioural conditions (26.1%), back problems (15.7%) and arthritis (14.5%)⁵.

While digitalisation of health services has improved access for communities which helps some priority groups¹, it can be limited by lack



of digital access and literacy.

Australia's aging population is increasing the demand for health care services and aged care facilities¹.

Many workshop participants said they found it hard to access health care for ongoing conditions during the pandemic.



Social isolation and lack of community connections

Connections with family and friends is critical for people's wellbeing during shock events. Many workshop participants felt their community comes together in a crisis, but others said that they do not have a relationship with their neighbours and do not feel supported in their community.

Participants noted that living in apartments makes it more difficult to meet and connect with neighbours.

Financial pressures mean that people work and commute longer hours reducing the opportunities to build local connections.

The 2023 Scanlon Report found 66% of 18-24 year olds reported feeling isolated from others¹⁴. Workshop participants spoke about the increased risks for older people, people with disability and those who do not speak English.

People that had experienced natural disasters were clear that the community being able to work together through the recovery was the most important aspect of resilience.



Racism and vilification

The Scanlon report indicated 16% of people said they had been subject to discrimination due to their skin colour, ethnic origin, or religion over the last 12 months^{1,14}. Only 33% of migrants have recognised qualifications and workplace experience¹.

Misinformation about the Voice to Parliament undermined the democratic process and many Aboriginal and Torres Strait Islander people were deeply affected by the result and racist statements and personal attacks

during the campaign. Aboriginal and Torres Strait Islander people continue to face systemic racism and poorer life outcomes as reported through Closing the Gap¹.

Workshop participants raised concerns about the impact of racism and discrimination on their lives, experienced as both a shock as well as an ongoing stress. Youth workshop participants were also concerned about the lack of action on social issues such as gender inequality and racism.



Family violence

There has been a significant increase in reported levels of family violence cases in some parts of Greater Sydney between 2018 – 2022¹.

Family violence is a serious issue that disproportionately affects women and children. Research has shown a correlation between rising temperatures and rates of family violence. On extreme heat days, family violence rates increase while non-domestic violence cases are reduced¹.

GOVERNANCE

These factors challenge our governance system’s ability to respond to shocks and stresses. A complex and multi-level system of government requires a high degree of collaboration to effectively implement action.

Diminishing trust in government and declining social cohesion create challenges for effective decision-making and securing the social licence to change policy.

The natural environment and critical supply chains are very vulnerable to shocks and least effectively protected by government policy and legislation.



Fragmented governance

Greater Sydney has 3 levels of government: local, state and federal, and hosts multiple regional peak bodies. Uncoordinated and disjointed action between these entities contributes to complex decision-making, ineffective outcomes and low levels of trust in government.

People in workshops expressed confusion around the roles of different levels of government and agencies including who takes charge during emergencies and who is the best contact point for assistance

and information. They raised concerns about navigating critical services particularly in times of crisis.

Workshop participants said that state and local governments play an important role in emergency preparedness including hazard reduction burning, urban greening and maintaining storm water systems but more needs to be done to be prepared. There was concern that Greater Sydney – its government agencies, communities and individuals were not properly prepared for future shocks.



Low Trust

Australia is experiencing declining trust in government and institutions with surveys finding the level of trust declined from 52% in 2022 to 45% in 2023¹. Trust in government among Greater Sydney residents, particularly those in Western Sydney has been diminishing. One contributing factor was the state

government’s handling of the Covid-19 pandemic and subsequent lockdowns¹.

Workshop participants were concerned that government decisions do not align with community values and needs. People feel a lack of control in an uncaring system saying they do not have control or influence over decisions that affect their lives. Participants said they wanted more input into decision-making and felt that governments did not genuinely take on board their feedback².

People felt that Government agencies need to listen and learn from disaster impacted communities. There has been an increase in local and regional disaster resilience groups and an increase in community-based knowledge and desire to act.



Declining social cohesion

The World Economic Forum identified “erosion of social cohesion and

societal polarisation” as the 5th most significant global risk in 2023³.

In Australia, the Scanlon Social Cohesion report found that “declines in our sense of national pride and belonging, increasing financial strain and a weakening sense of social inclusion and justice were warning signs” for social cohesion.^{1,14}

The report identified challenges presented to social cohesion in Australia by global conflict, economic pressure and uncertainty and division over issues such as the Voice referendum. Declining social cohesion affects our ability to act collectively in making decisions on difficult and complex issues.

People noted that tension is created when individuals do not comply with government directions or spread misinformation during crisis events. People said that being involved in local solutions strengthens social cohesion and resilience.



Environmental degradation

The natural environment in Greater Sydney is in decline due to increased development of infrastructure and the clearing of land for residential developments¹. It is also under pressure from climate change. There are currently inadequate environmental and biodiversity policies and legislation in place in NSW to protect the natural environment.

Greater Sydney has unique and endangered ecosystems and species. One third of Australian threatened species live in our cities – meaning Australian cities are important for the conservation of threatened species¹. Escalating environmental degradation and pollution is adversely

impacting the region’s biodiversity.

Air quality differs throughout Greater Sydney and is poorer in areas of higher urbanisation or industrialisation. Air quality can be significantly reduced during bushfires and other extreme weather events, and lead to health impacts. Extreme storms exacerbate water and coastal pollution, impacting human health and waterways¹.



Disrupted supply chains

The Covid-19 pandemic highlighted Australia’s reliance on the global supply chain for pharmaceuticals, industrial and agricultural supplies.³

Increased interdependencies in global supply chains



allows for goods and services to be low cost. However, this means production is becoming increasingly vulnerable to disruptions due to the lack of local alternatives within the system¹.

Shortages and delays in delivery of construction materials is leading to contractor price volatility and an inability to provide affordable housing. Developers and policymakers are facing the challenges of balancing quality, affordability, and sustainability.

COMPARISON OF STRESSES

Comparison of the ranking of stresses across Greater Sydney from the various evidence sources shows consistent patterns and is summarised in Table 2.

Table 2
Comparison of regional stress rankings by evidence source

Prioritisation of stresses by evidence source	Community Workshops ²	Youth Workshop ¹⁵	Public Survey ¹⁶	Risk Assessment AECOM ¹	Agenda Setting Workshop ¹⁷
	1	Cost of living	Cost of living	Unaffordable housing	Mental health
2	Unaffordable housing	Unaffordable housing	Cost of living	Health services	Climate change
3	Health services	Mental health	Health services	Social isolation / cohesion	Increasing inequality
4	Social isolation	Social isolation	Climate change	Cost of living	Water crisis / drought
5	Lack of Transport options	Economic inequality	Increasing inequality	Unaffordable housing	Health services
6	Climate change	Educational inequality	Environmental degradation	Racism & vilification	Environmental degradation
7	Cumulative stressful events	Misinformation & desensitisation	Social isolation	Low trust	Lack of planning
8	Environmental degradation		Lack of Transport options	Lack of local food supply	Social isolation / cohesion
9	Increasing inequality		Cumulative stressful events	Increasing inequality	Food security
10	Racism		Water crisis / drought	Family violence	Disrupted supply chains



Global drivers and national trends

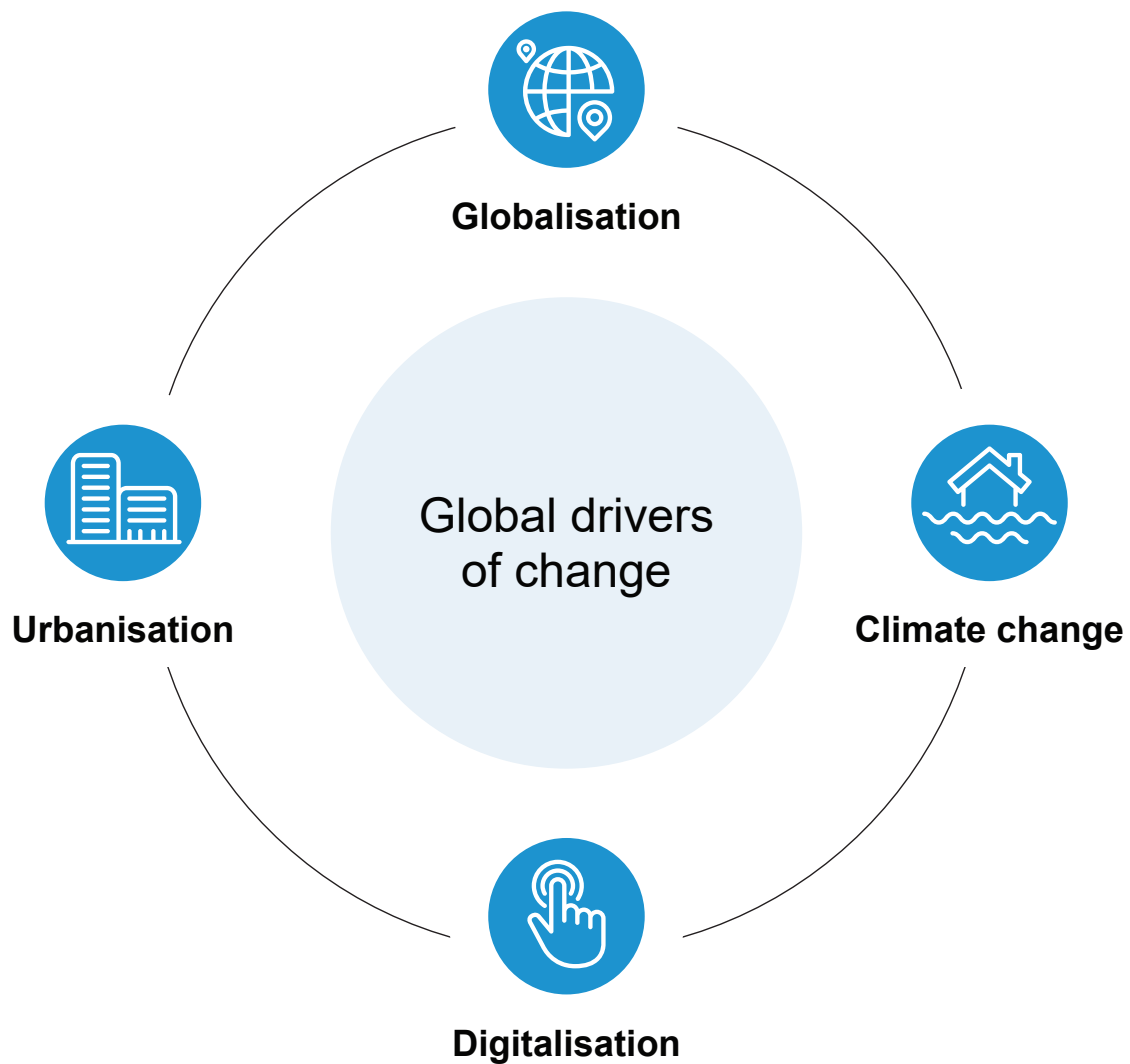


Figure 6
Global drivers of change

The Resilient Cities Network previously identified three drivers, climate change, urbanisation and globalisation, that are shaping society today and drive risk across global cities. These drivers were discussed with stakeholders in workshops across Greater Sydney and revealed the emergence of a new global driver, digitalisation.

SUMMARY OF NATIONAL TRENDS

Government policy and decision-making at all levels, affect how global drivers impact the community’s vulnerability to shock events in Australia. The drivers influence national trends. National trends were used to develop future scenarios to inform the likelihood and consequence of shock events in the next 5 years.



Increasing climate risk

Global warming has already reached 1.5°C in some regions with consequences for biodiversity, food, water, health, and infrastructure.

Extreme weather events are increasing¹. Greater Sydney has faced repeated extreme climate events including bushfires, storms, flooding, drought, and heatwaves.



Increasing digital and electrical dependence

Australia has experienced rapid digital transformation. E-commerce, hybrid work models, AI adoption, and blockchain technologies are reshaping essential services, work and communication.

There is unequal access to digital services across Greater Sydney¹.

The way essential services are now delivered means they are easily disrupted by digital and power outages¹.



Reliance on global supply chains

Global supply chains allow for goods and services to be low cost. However, global supply chains are becoming increasingly vulnerable to disruptions and there are fewer local alternatives¹.

A reliance on global supply chains is leading to shortages of construction materials and reducing capacity to address Greater Sydney’s need for housing.



Transitioning the economy from carbon fuels

The global economy is moving towards decarbonisation. This has significant implications for industries and jobs and requires reskilling of the workforce¹.

The transition to a carbon neutral economy, is creating new job opportunities in renewable energy installation, energy efficiency and carbon management. Greater Sydney is struggling to match worker skills and availability with job location and opportunities¹.



Biodiversity and ecosystem collapse

The degradation of natural environments is increasing in Greater Sydney¹. Increased development and urbanisation is leading to a loss of biodiversity and there are inadequate laws to protect nature in the face of increasing threats including climate change.



Increasing diversity and social complexity

Cultural diversity in Greater Sydney increased from 54% in 2006 to 64% in 2021⁷. Awareness of racism as a problem in Australia, increased substantially from 40% in 2020 to 61% in 2022¹.



Rising inequality

Sustained economic growth has improved Australia’s living standards but some members of society still experience poverty.

Inequality is increasing in wealth and income and access to housing, healthcare, transport, education, skills development and other services.



Truth telling and recognition of First Peoples of Australia

There are growing calls for truth-telling and treaty-making. These actions seek to properly acknowledge the sovereignty of First Nations peoples and Australia’s history of colonisation and its ongoing impacts. The way forward after the failed Voice to Parliament referendum is unclear.



Changing needs of increasing urban populations

The population of NSW is expected to reach 10.57 million people by 2041, with most growth in Greater Sydney¹. Greater Sydney has over 5.2 million residents and is predicted to reach 6.1 million residents by 2041⁶.

Adequate infrastructure and services are needed to support growing communities. Community workshop participants identified the need for a stronger focus on providing cool, green and sustainable places as more people live in high density communities.



Misinformation, polarisation and desensitisation

There is a global trend of increasing social and political polarisation. Misinformation has contributed to public attacks against First Nations, culturally diverse and LGBTIQ+ communities.

Youth workshops identified that exposure to traumatic content on social media is creating desensitisation.

Vulnerable assets and services

The risk assessment evaluated the impact of shocks and stresses on the critical assets and services that support Greater Sydney. Table 3 shows the asset or service type ranked in order of vulnerability to regional shocks and the impact on community and city resilience.

Evaluation of the interdependencies between regional shock events highlighted that power transmission and distribution, health infrastructure, and food and retail logistics supply chains are most vulnerable and have the greatest flow on effects that could disrupt the function of the city.

Table 3
Priority assets and services ranked from most to least vulnerable across Greater Sydney¹

Rank	Asset or Service	Why / How
1	Health infrastructure	Capacity and increased demand and susceptible to numerous shocks
2	Social and community housing	Poor quality, lack of availability, and homes to vulnerable people
3	Residential buildings & structures	Predominantly old stock, not fit for the future climate and needed by all
4	Food and retail logistics	Last minute delivery, reduced local food production and needed by all
5	Digital infrastructure	Capacity and widespread reliance and increasingly targeted by deliberate attacks
6	Railways & rail infrastructure	Aging infrastructure, maintenance backlog and widespread reliance
7	Airports	Widespread reliance and lack of alternatives (until Western Sydney airport is operating)
8	Power transmission & distribution	Well maintained but widespread reliance and susceptible to numerous shocks
9	Financial products	Need for more transparency and accountability, uncertainty related to global stability and economy
10	Waste management	Limited long-term strategy and market failure for a service we all need. High priority issue raised by councils in risk workshops

DEFINITIONS

City Resilience

The capacity of individuals, communities, businesses and systems in a place, to survive, adapt and thrive no matter what shocks and stresses they experience.

Shock

Acute natural or human-made events resulting in major loss of life or damage to assets and a city's ability to function and provide basic services.

Stress

Stresses are chronic or cyclical conditions that weaken the fabric of the city and reduce an individual, community, service or asset's ability to withstand a shock.

Vulnerability

The characteristics which increase the susceptibility of an individual, community, asset or system to the impact of hazards.

Exposure

The magnitude of the things adversely affected by shocks. These include people, ecosystems, services, resources, infrastructure, or economic, social, or cultural assets.

Assets

An asset is an item or property owned by a government or company, regarded as having value and/or needed to service a city's needs, commitments, or other physical, social or economic function.

Services

Offerings that cannot be held or owned like physical goods. They are typically performed by individuals or companies to meet the needs of others.

Sydney

The total area of Greater Sydney including 33 local government areas.

Resilient cities methodology

The City Resilience Framework was developed by the Rockefeller Foundation as part of the 100 Resilient Cities initiative to assess the strengths and weaknesses of cities. Over 100 cities internationally have applied the framework.

The framework describes the characteristics of a resilient city by assessing city systems across the four dimensions of health and wellbeing, economy and society, natural and built environments and, governance and planning⁸. Resilient Sydney has adapted the resilience framework for the Sydney context, as shown on the following pages, and applied it in the risk assessment.



CITY RESILIENCE FRAMEWORK

Health and wellbeing

The health and wellbeing of everyone living and working in the city.

Resilience goals

Affordable and climate resilient housing.

Clean and affordable food and water and efficient waste services.

Accessible and affordable health and social support services (both mental and physical).

Access to nature, recreational and creative spaces.

Society and economy

The systems within the society and economy that enable urban populations to live peacefully and sustainably.

Resilience goals

Social, cultural and ecological connections to each other and place.

Society is inclusive of cultural diversity.

Education and training opportunities.

Strong small business and local economies.

Jobs and income to support people's needs.

Equity in the distribution of resources.



Natural and built environments

The quality of the ecosystems and built infrastructure connecting and supporting the city.

Resilience goals

Country is respected.

Protection of the natural environment and biodiversity. Degraded environments are restored.

Essential utilities are maintained and well operated.

Accessible and inclusive transport and public places.

Secure and effective communication and digital services.

Mitigation infrastructure is used to lessen the impacts of hazard events.



Governance and planning

Appropriate leadership, governance and strategy enabling the city to learn from the past and take timely action.

Resilience goals

Government is accountable and provides accurate public information.

Different levels of government work well together.

People participate in decisions and can influence outcomes for their communities.

Regional adaption and mitigation plans to decrease exposure and vulnerability to shocks and increase preparedness.

Long-term city plans include land use and services for new communities.

City plans respond to increasing climate risk and are underpinned by sustainability.

First Nations knowledge and resilience of place

The care of this place that we now call Sydney has been guided by the Aboriginal concept of Country for thousands of generations. A Country-centred approach is based on a circular network of integrated relationships between land, nature and people. This is a strong resilience-based approach. Actions in the strategy should look to new ways of working and learning from a Country-centred approach (see Figure 7).

Figure 7
Taking a Country centred approach⁹

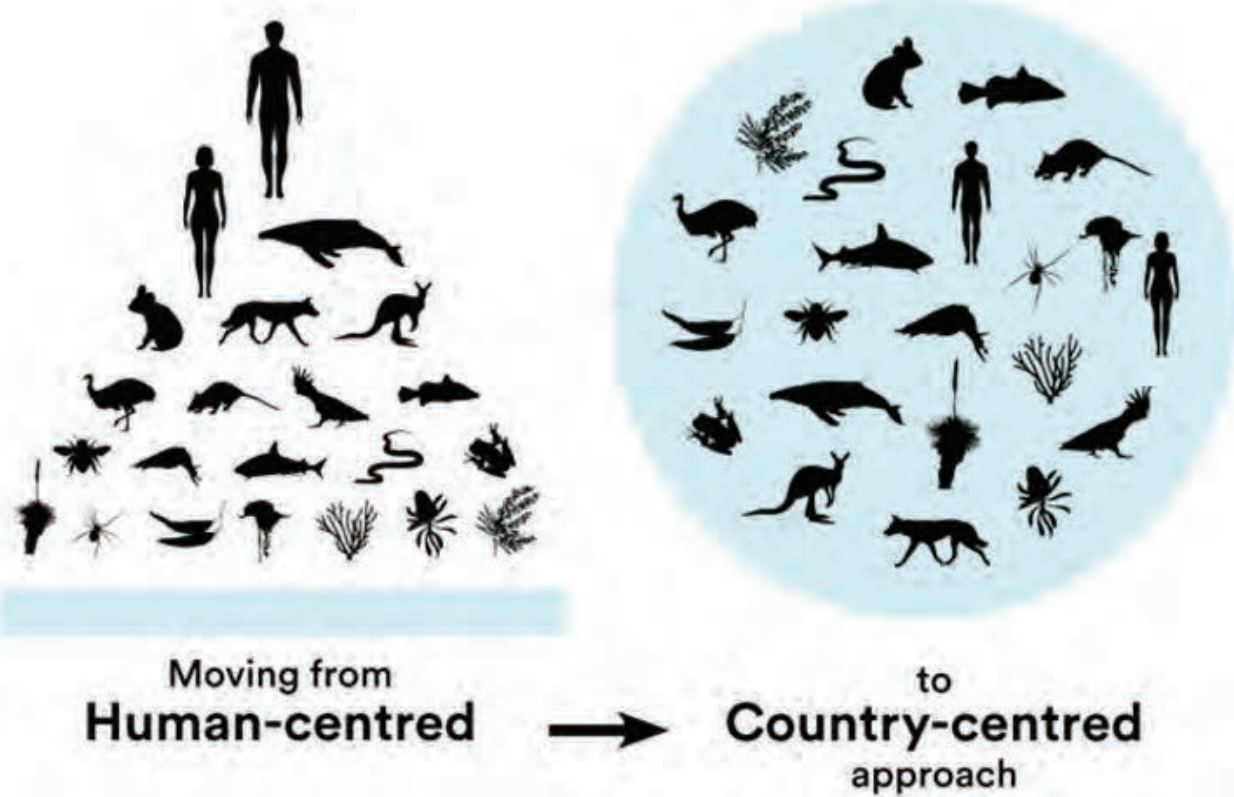
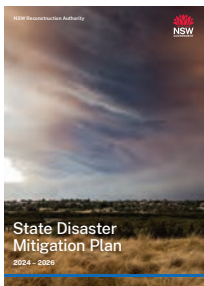


Image: Diagram from Connecting with Country Framework adapted from German architect Steffen Lehmann's 'Eco v Ego' diagram, 2010

Current national and state frameworks

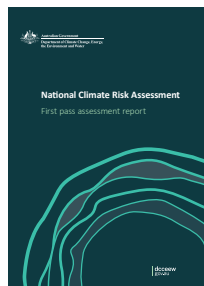


State Disaster Mitigation Plan

The State Government is implementing a disaster mitigation and adaptation framework⁴ directed by the NSW Reconstruction Authority Act 2022.

The multi-hazard, technical risk assessment that informs the State mitigation and adaptation planning measures natural hazard risk across 4 domains – built, natural, social and economic. These domains have been applied to this risk assessment across the region of Greater Sydney.

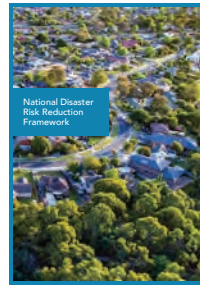
The plan identifies regions and local government areas most vulnerable to natural hazard risk and provides a tool kit for reducing exposure and vulnerability.



National Climate Risk Assessment

The Australian Government has released its “first pass” National Climate Risk Assessment, providing an assessment of current and future climate change risks¹⁰.

It assesses risks across 10 priority natural hazards - bushfires, grassfires and air pollution, drought and changes in aridity, changes in temperatures including extremes, extratropical storms, coastal and estuarine flooding, ocean warming and acidification, coastal erosion and shoreline change, riverine and flash flooding, convective storms including hail, and tropical cyclones.



National Disaster Risk Reduction Framework

The National Disaster Risk Reduction Framework (NDRRF) guides national, whole-of-society efforts to proactively reduce disaster risk to minimise the loss and suffering caused by disasters¹¹. The NDRRF is designed to reduce disaster risk from natural hazards across areas that align with the City Resilience Framework adopted as part of this resilience risk assessment.



Critical Infrastructure Resilience Strategy

The 2023 Critical Infrastructure Resilience Strategy¹² provides a framework for how industry, state and territory governments, and the Australian Government work together to mature the security and resilience

of critical infrastructure, and to anticipate, prevent, prepare for, respond to and recover from all-hazards.



State Emergency Management Plan (EMPLAN)

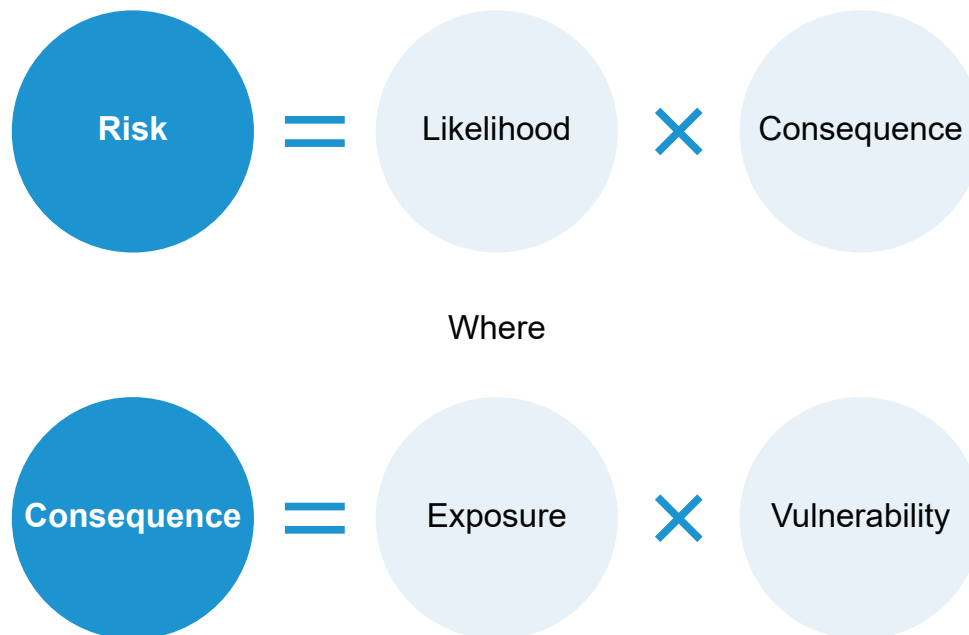
The State Emergency and Rescue Management Act 1989 (SERM Act) governs the states emergency management arrangements.

The Act directs the preparation of the State Emergency Management Plan (EMPLAN)¹³, that guides emergency management in NSW. It also provides the NSW framework for planning, prevention, preparation and recovery to disasters and takes an all-hazards approach.

Risk assessment methodology

The risk assessment methodology was developed for the Rockefeller Foundation by AECOM and the process was enabled by the Assets and Risks Tool (ART). The method uses an all-hazards approach and estimates risk as outlined in Figure 8.

Figure 8
Risk assessment process



Information of shocks (hazardous events) and stresses that represent a risk to the resilience of Greater Sydney was collated from reviewing the literature, data analysis and expert elicitation from three risk assessment workshops.

The risk to the city is then determined by the likelihood of the event occurring in that place and the consequence to the city across four domains: society, economy, built and natural environment.

Consequence is determined by the vulnerability of the domains to shock multiplied by the exposure (magnitude of the impacts).

Vulnerability can be described as sensitivity plus adaptive capacity. Vulnerability to risk can be reduced by increasing the adaptive capacity of communities to respond to shocks.

The risk assessment also considered the interrelationship between different shock events and between shocks and stresses. The way stresses increased vulnerability to shocks was considered in determining the top shocks for Greater Sydney.

Australian Bureau of Statistics data was used to identify exposure to the priority regional shocks through a place-based analysis which estimated the vulnerable populations that would be most impacted by the shocks.

These populations were identified by factors that influence a person's access to resources, opportunities, and overall well-being. For instance, elderly people, people with disabilities, or those living in rented housing might face additional challenges in responding to a heatwave.



Photo: Jacquie Manning

Community engagement methodology

Community insights for the development of the strategy were informed by three streams of activities.

- community workshops (including with apartment dwellers)
- youth workshops, and
- an online survey.

Engagement commenced with a workshop on 6th September 2023 where information on resilience and shocks and stresses was gathered from the network of Greater Sydney Councils.¹⁷

Community workshops

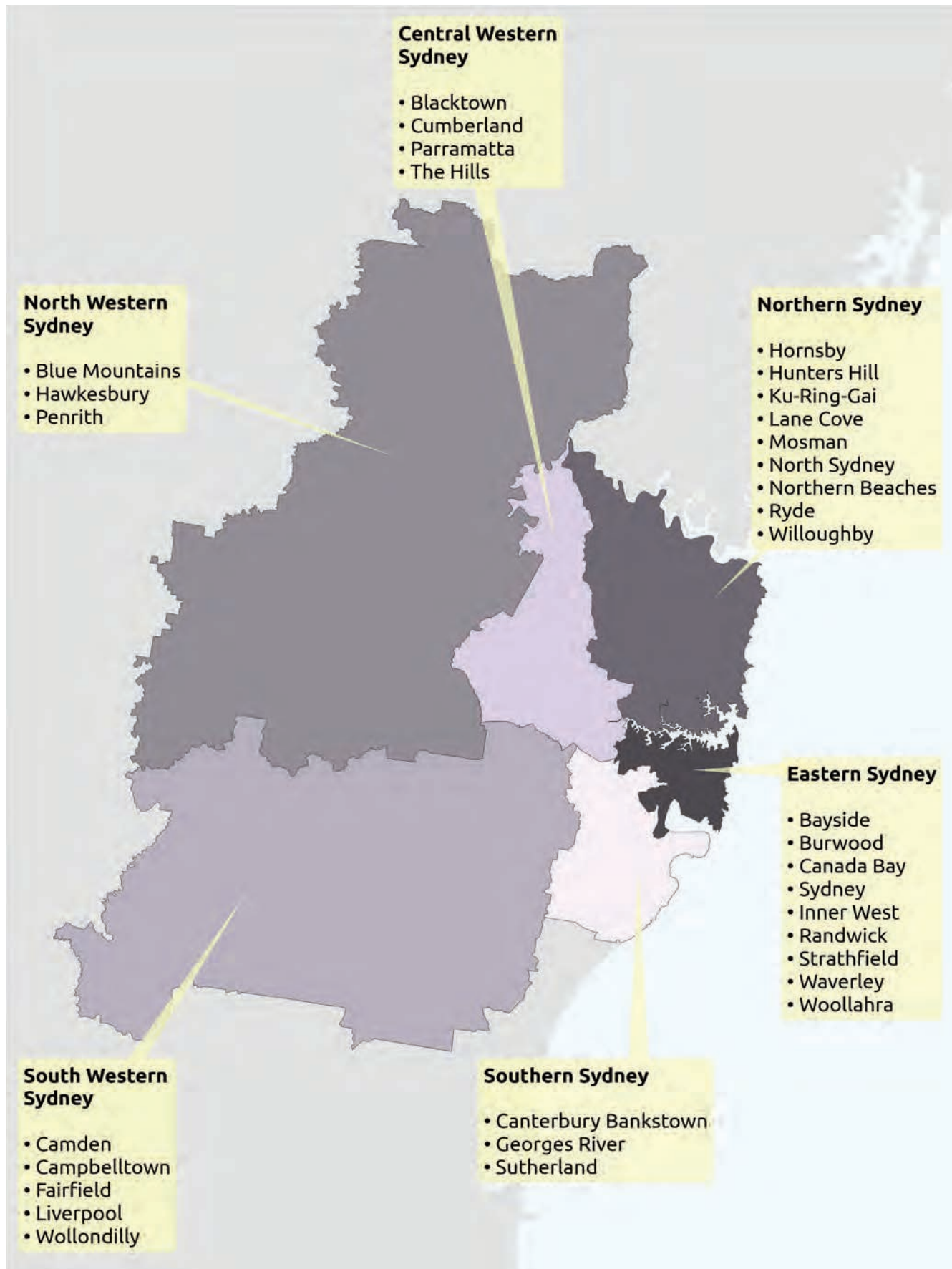
In November and December 2023 Cred Consulting with Resilient Sydney conducted 6 one-day community workshops with residents of Greater Sydney.²

The workshops explored the experiences of residents across Sydney, of shocks and stresses and their views on community strengths and vulnerabilities and ideas to build resilience.

Workshops were held in central western, eastern, northern, southern, south western and north western regions of Greater Sydney (Figure 9). The detailed findings of the community workshops, including a report for each region is available on the Resilient Sydney webpage.

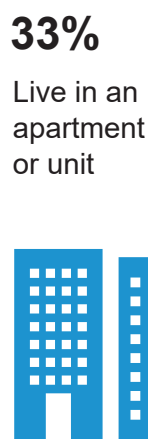
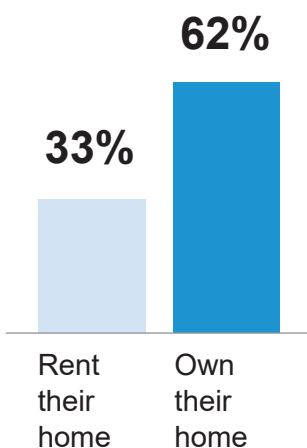
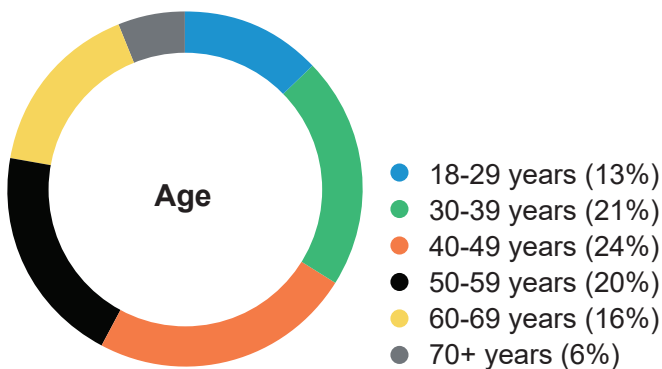
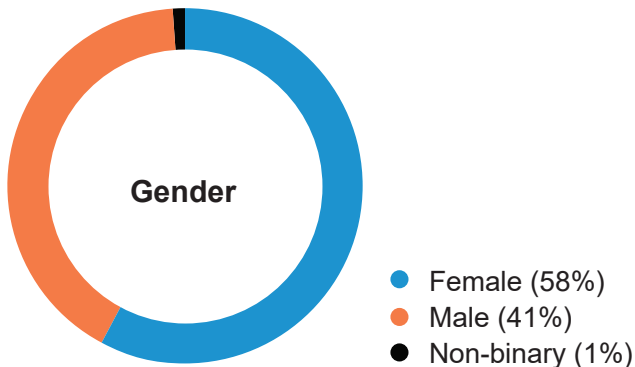
A total of 282 participants attended the six workshops. Participants were recruited to ensure a demographically representative group attended. An overview of the demographic profile of participants across all workshops is provided in Figure 10.

Figure 9
Community consultation regions²



Source: City of Sydney

Figure 10
Demographic profile of community consultation participants²



41%
 Were born overseas



56%
 Speak only English

44%
 Speak a language other than English



13%
 Identified themselves as having a disability



9%
 Are LGBTQIA+

Apartment residents workshops

A key theme that arose from the community workshops was that residents who live in apartments experience unique challenges when it comes to resilience to shocks and stresses including emergency preparedness and social connections.

Resilient Sydney and Cred Consulting ran two follow-up focus groups with residents of high-density apartments who attended the community workshops to understand their experiences.

The first focus group with 13 participants was with people who rent their apartment. The second focus group was with 15 participants who own their apartments. A report of the detailed findings of the apartment dweller online workshops is available on the Resilient Sydney webpage.

Online survey

An online survey¹⁶ was conducted from mid-October 2023 until March 2024. Councils promoted the survey via social media, e-newsletters, and 'Have your say' webpages. 1,501 complete surveys were received with responses from all 33 local councils in Greater Sydney. A report of the survey outcomes is available on the Resilient Sydney webpage.

Youth workshops

Resilient Sydney worked alongside university interns from UTS and young employees from the Resilient Sydney Office and City of Sydney to design, develop and facilitate five workshops and an online survey¹⁵.

The workshops were held in Redfern, Blacktown, Campbelltown, Dee Why and Sutherland in partnership with local councils. Sutherland Council hosted the workshop as part of their Youth Week activities with high school students.

A total of 116 participants aged 15 to 26 attended. There were 127 responses to an online survey. A report of the findings of the youth workshops and survey is available on the Resilient Sydney webpage.

The workshops examined 4 questions:

- Why listen to young people?
- What does resilience mean to you?
- Shocks, stresses, and megatrends - What is trending now?
- Manifest a resilient future: You're in charge of the city, what would you do to make Sydney a better place to live?



Youth resilience workshop
Photo: Resilient Sydney

Stakeholder engagement agenda setting workshop

To commence the strategy development process, Resilient Sydney held an agenda setting workshop attended by 32 out of 33 Greater Sydney councils. The workshop discussed the success and challenges in building resilience, explored shocks and stresses and identified new areas for action. There were 79 participants at the workshop and a follow up survey was completed by 92 respondents¹⁷.



Photo: Cassandra Hannagan



Photo: Jacquie Manning

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