

11 April 2024

To: Commonwealth Department of Climate Change, Energy, the Environment and Water

Submission in response to Climate Adaptation in Australia: National Adaptation Plan Issues Paper

The Committee for Sydney is the city's peak advocacy and urban policy think tank. We work with our 160+ member organisations – who represent industry, government and the cultural and not-for-profit sectors – to produce research and policy recommendations on key issues for Sydney.

The urgent need for climate adaptation in Greater Sydney is intensified by the reality that over the next decade Sydney's population will grow from 5.3 million to 6.1 million people. Over the same period, our climate is projected to warm by an average 0.7°C, increasing the frequency and severity of floods, storms, heatwaves and droughts.

In 2021, the Committee for Sydney initiated a specific program of research on climate change, equity and urban climate adaptation. We have worked in collaboration with industry, academia, utilities, and all levels of government to develop the following reports:

- [Burning Money: The rising economic costs of heatwaves in Western Sydney](#)
- [Defending Sydney: Adaptive planning for today's floods and tomorrow's climate](#)
- [Nature Positive Sydney: Valuing Sydney's living infrastructure](#)

The findings and recommendations of each report directly relate to and answer the questions raised in the National Adaptation Plan Issues Paper. They each identify barriers to strengthening adaptation and who should take action to strengthen adaptation at a system level. We focus on the role of the private sector in enabling adaptation, and highlight the increasing risks to business, and cascading risks to consumers, supply chains, and therefore productivity and liveability.

1. [Burning Money: The rising economic costs of heatwaves in Western Sydney](#)¹

Heatwaves are already making Western Sydney less productive and reducing economic activity.

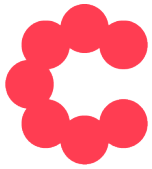
New modelling shows that the annual real costs of heatwaves are already \$1.4 billion today, and these costs will rise by 400% to more than \$6.8bn by 2070. Annual productivity loss across the workforce could climb 470% to around \$2 billion on average per annum by 2070.

The increasing frequency of heatwaves is driving a rapid increase in economic, social and health costs to households and businesses. Population growth in the hottest part of Sydney means a steep increase in cooling energy costs for households and detrimental health costs due to heat stress.

Our recommendations reflect the need to address key challenges in heatwave adaptation including:

- a. *No single agency has whole of government remit to coordinate and lead heatwave adaptation across building codes, land use planning, critical infrastructure resilience, and business and utility continuity. Place based collaborative planning processes across Government are needed to build trusted relationships with business and the community, and allocate responsibilities for reducing heatwave and other risks in Western Sydney.*

¹ https://sydney.org.au/wp-content/uploads/2024/03/Committee_for_Sydney_Burning_Money_March_2024.pdf



- b. *Currently no plan exists for a coordinated approach to heatwave preparedness and adaptation* that considers the growing economic impact on households, businesses and service providers. We need to understand the extend of these direct impacts, and how the expected flow on effects of extended heatwaves would impact the city and economy.
- c. *Insurance for heatwaves.* The growing financial impacts of heatwaves on households and businesses are building the case for enabling access to insurance products to minimise economic losses. We need to therefore explore options available to minimise heatwave risk to the economy, including insurance options to reduce the financial risk to business .

Defending Sydney: Adaptive planning for today's floods and tomorrow's climate²

Data on risk pricing from insurers and banks is not being included in land use planning decision making, undermining future asset values if owners can't afford insurance or to self-insure. We know that **financial services providers are markedly changing loan-to-value ratios for parts of Greater Sydney based on changing hazard risks, making mortgages more expensive or inaccessible.**

We identify the need to better understand the value chain, and who owns the downside risk of changes in flooding and other hazards (noting that many financial services providers assume that government will step in after a disaster and make affected residents financially 'whole'. In short, **data itself is not the issue, but who can access that data and how it is shared, understood and applied.**

Our recommendations reflect the need to address key challenges in climate adaptation including:

- a. *Collaborative governance for critical infrastructure.* NSW has an emergency management coordination structure that enables clear allocation of responsibility and decision making. A similar mechanism is needed for lifeline infrastructure – essential services that enables communities to cope and adapt to changing climate risk, and increasing disruption.
- b. *Without climate risk scenarios* at local government level, we are effectively creating a postcode lottery across the Greater Sydney. Most businesses and households are unaware of the natural hazard and climate risk that they face, or how this risk impacts them and will change in the future. While local governments work hard to share risk information with their communities, many either don't have the resources to update existing hazard modelling to include climate risk, or are reticent to share new information without comprehensive strategies to respond.
- c. *Climate adaptation and urbanisation are intertwined.* As our population grows, some parts of Sydney will adapt to a changing climate, others will experience rapidly increasing risk. We need an approach that identifies the options that enable Sydney to adapt to these changes, and make informed decisions about where and how to grow, and where growing would bring unsustainable risk.

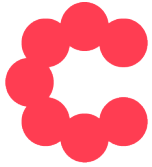
Nature Positive Sydney: Valuing Sydney's living infrastructure³

Nature plays a critical role in both reducing and amplifying climate risks in our cities. **The failure to value living infrastructure appropriately, treat living infrastructure as assets, and the lack of investment in maintaining and restoring terrestrial and aquatic assets and systems, means we miss out on key climate adaptation opportunities** including:

- a. *Reduced heat and improved air quality:* Adding vegetation and trees to create urban forests and parklets can remove air pollution, reducing the frequency and health impacts of respiratory

² <https://sydney.org.au/wp-content/uploads/2023/10/Committee-for-Sydney-Defending-Sydney-October-2023-2.pdf>

³ <https://sydney.org.au/wp-content/uploads/2023/02/Committee-for-Sydney-Nature-Positive-Sydney-February-2023.pdf>



issues from poor air quality which can be exacerbated by bushfires. The cooling and shading benefits of tree canopies in local streets can enhance social cohesion, active transport, and reduce air conditioning bills by as much as \$400 per year.

- b. *Better climate resilience*: Climate-related events, such as flooding, storm surge and sea level rise, can be reduced by providing space for intact floodplains, restoring river and creek basins, and introducing green roofs and depaving urban areas. Together these 'sponge city' style interventions, allow water to infiltrate the ground and improve water quality across the city. The State of Victoria's parks network provides an estimated \$46 million per year in flood protection benefits from avoided infrastructure costs alone. The green roof at Daramu House, Barangaroo, reduced stormwater flows by 99% compared to its sister building.
- c. *Increased health and happiness*: A growing body of research demonstrates that spending time in nature improves our mental as well as physical health. Adults who live in neighbourhoods where 30%+ of the area is covered by tree canopy had more than 30% lower odds of developing psychological distress, which is critical in response to growing climate related anxiety.

The key issues and action plans for each of these three reports are included as an appendix to this submission. We look forward to engaging further on the development of the National Adaptation Plan critical agenda.

Yours sincerely,

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Burning Money – The Economic, Health and Household Costs of Heatwaves

Committee for Sydney Summary 7 March 2024

- **The increasing frequency of heatwaves is driving a rapid increase in economic, social and health costs to households and businesses.**
 - A new report from the Committee for Sydney and Scyne Advisory shows that population growth in the hottest parts of Sydney mean a steep increase in cooling energy costs for households, detrimental health costs due to heat stress and productivity loss for key industries.
 - Other less tangible costs may also include impacts on mental health, education disruption, sport and exacerbated chronic illnesses.
- **Heatwaves will make Western Sydney less liveable and more expensive to live**
 - The population exposed to negative health impacts (no. of people multiplied by heatwave days) will dramatically increase from 14 million today to more than 100 million in 2070. Vulnerable communities will experience nearly a quarter (23%) of total negative impacts.
 - The cooling component on energy bills are set to jump by 37% per households due to the increased amount of air-conditioned cooling required.
 - The health cost of heat stress will create a \$4.1bn burden on households in 2070's, up from \$637million in 2023.
- **Heatwaves will make Western Sydney less productive, and reduce economic activity.**
 - New modelling shows that the real costs of heatwaves will rise by 400%, from \$1.4 bn today, to more than \$6.8bn by 2070
 - Annual productivity loss across the workforce could climb 470% to around \$2billion on average per annum by 2070.
- **These costs will be paid by us – the residents, businesses and taxpayers of Sydney and NSW.**
 - These impacts will not be felt uniformly across Western Sydney. Factors including topography, building construction, age and wealth of the occupants of each building, all contribute to increased risk from heatwaves, as do the extent of underlying health conditions.
- **We can minimise costs to Western Sydney by investing in climate adaptation and decarbonisation today.**
 - Making costs more transparent will help to create the case for change at a household through to industry and government level / influence buying behaviour.
- **There are five initial actions that should be prioritised to begin mitigating the impacts of extreme heat on business and the community:**
 1. Appoint a lead agency to deliver integrated heatwave adaptation (Now – 2024)
 2. Integrate heatwave risk into a new Disaster Adaptation Plans across Greater Sydney (Now – 2024)
 3. Embed the economic costs of heatwaves in the next NSW Intergenerational Report (Next – 2025)
 4. Explore heatwave insurance options for business and households (Next – 2025)
 5. Accelerate action on Decarbonising Sydney and NSW (Now – 2024 onwards)

The recommendations in this report have been strengthened by participation in the Greater Sydney Heat Taskforce, led by WSROC and Resilient Sydney.

The Issue	Recommended Actions	Responsibility
1.1. Appoint a lead agency to deliver integrated heatwave adaptation (Now – 2024)		
No single agency has whole of government remit to coordinate and lead heatwave adaptation across building codes, land use planning, critical infrastructure resilience, and business and utility continuity. Collaborative planning processes across Government are needed to build trusted relationships with business and the community, and allocate responsibilities for reducing heatwave and other risks in Western Sydney.	a. Identify a lead agency at NSW Government level to convene and collaborate across Government, and with industry and the community, to drive economic and health preparedness, and consider opportunities to adapt to rising heatwaves, including infrastructure, and existing and new or planned developments.	Proposed Lead: NSW Reconstruction Authority Key Collaborators: • NSW Health • NSW Police • NSW Department of Planning, Housing and Infrastructure • NSW Treasury • NSW Department of Climate Change, Energy, Environment and Water • Infrastructure NSW • NSW Office of Chief Data Scientist
1.2. Integrate heatwave risk into a new Disaster Adaptation Plans across Greater Sydney (Now – 2024)		
Currently no plan exists for a coordinated approach to heatwave preparedness and adaptation, that considers the growing economic impact on households, businesses and service providers. Heatwaves are costing businesses today, by constraining outdoor operations and maintenance, across utility, retail, construction and logistics sectors. We need to understand the extend of these direct impacts, and how the expected flow on effects of extended	a. Integrate heatwave risk into the guidelines and preparation of a Disaster Adaptation Plans across Greater Sydney to drive business, household and service provider preparedness. b. Identify the cascading impacts of infrastructure disruption on business (e.g. prolonged loss of power on operations, total fire bans on welding, road/ rail buckling on supply chains), and the potential flow on effects to the community, service providers and other businesses. c. Develop a consolidated package of policies, investments and actions at local and regional level that identify, support and monitor the most vulnerable communities and businesses to cope, adapt and thrive in a changing climate. d. Include heatwave risk as a key driver of planning and design of new development in local and metropolitan planning	Proposed Lead: NSW Reconstruction Authority Key Collaborators: • Greater Sydney Heat Taskforce • WSROC/ Resilient Sydney • NSW Health • NSW Department of Climate Change, Energy, Environment and Water • NSW Department of Planning, Housing and Infrastructure • NSW Treasury • Universities • Local Government

heatwaves would impact the city and economy.	(including the 6 Cities and Transit Oriented Development plans for Greater Sydney. e. Analyse the costs and benefits of heatwave adaptation actions across vulnerable or front-line sectors including health, construction and manufacturing.	• Utilities • Business NSW • Service NSW Business Bureau • Commonwealth Department of Climate Change, Energy, Environment and Water • National Emergency Management Authority
1.3. Embed the economic costs of heatwaves in the next NSW Intergenerational Report (Next – 2025)		
Heatwave risk is currently missing from the Intergenerational Reporting framework. As the economic costs from heatwave and other climate risks become more defined, there is an opportunity to bring growing costs to business and households into NSW Treasury reporting frameworks to highlight the case for investment in adaptation.	a. Embed the impacts and economic costs of heatwaves into NSW Government decision making, including through the 2026 NSW Intergenerational Report (aggregate risk), and biennial departmental climate change impacts, risks and adaptation statements (enterprise risk disclosure)	Proposed Lead: NSW Treasury Key Collaborators: • NSW Department of Climate Change, Energy, Environment and Water • NSW Reconstruction Authority • NSW Department of Planning, Housing and Infrastructure • NSW Health
1.4. Explore heatwave insurance options for business and households (Next – 2025)		
The growing financial impacts of heatwaves on households and businesses is building the case for enabling access to insurance products to minimise economic losses.	a. Explore options available to minimise heatwave risk to the economy, including insurance options to reduce the financial risk to business .	Proposed Lead: NSW Reconstruction Authority Key Collaborators: • Service NSW Business Bureau • Insurance Council of Australia • Swiss Re • Bureau of Meteorology

1.5. Accelerate action on Decarbonising Sydney and NSW (Now – 2024 onwards)		
The only way to mitigate climate changes that are driving the increased frequency and intensity of heatwaves is to accelerate decarbonisation of our city, and state, to limit to scale of global heating and related local impacts.	a. Implement in full the recommendations of Committee for Sydney report ‘Decarbonising Sydney’ⁱ in order to drive Greater Sydney towards meeting accelerated net zero goals, including: - Convert all state and local government fleets to EVs by 2030 - Support vulnerable households to reduce energy costs through access to rooftop solar, battery storage and more efficient household appliances (heat pump hot water). - Introduce a 2030 modal shift target of 40% with supporting policies and programs to encourage increased active travel, public transport use, car sharing etc. - Set a target and roadmap for battery storage adoption in Greater Sydney to reach ~2.7 GWhs by 2030.	Proposed Lead: NSW Department of Climate Change, Energy, Environment and Water Key Collaborators: • NSW Treasury • NSW Department of Planning, Housing and Infrastructure • Local Governments

ⁱ <https://sydney.org.au/wp-content/uploads/2022/08/Committee-for-Sydney-Decarbonising-Sydney-August-2022.pdf>

Defending Sydney: Adaptive planning pathways for today's flooding and tomorrow's climate risks

The challenge:

Sydney is at a crossroads. We're facing a housing crisis and climate crisis. The success of solving the housing crisis will be judged on whether more or less people are at risk of the climate crisis and its financial impacts. Without clear structures to manage this increasingly scary risk cocktail, the result will be more and more development in areas exposed to floods and climate change.

- **Climate related risk is getting worse** - Over the next decade, Sydney's population will grow from 5.3 million people today to about 6.1 million people. Over the same period, our climate is projected to warm by an average 0.7°C, increasing the frequency and severity of flooding and other natural hazards.
- **Costs of disasters are rising** – Households, businesses and government are experiencing more frequent and intense floods, increasing annual insurance and recurring recovery costs. The 2022 East Coast Floods had insured costs of \$6bn, and uninsured costs of \$15bn.
- **The planning system is being challenged by rapid change.** There is a disconnect between strategic land use planning and disaster risk reduction in NSW. While we do develop hazard and climate risk maps, very little of this informs decision making, pushing more housing into areas of growing risk.
- **Assets and infrastructure are not designed or funded to withstand future hazard risk.** State and Federal funding frameworks do not match up with the need to prepare critical infrastructure, and their business cases, for the growing impact of climate change.
- **Current risk transparency and governance arrangement are unfit for a changing climate.** Local Governments and Utilities are financially constrained, while adaptive planning requires trade-offs between housing, cultural values, risk tolerance and competing budgetary constraints.

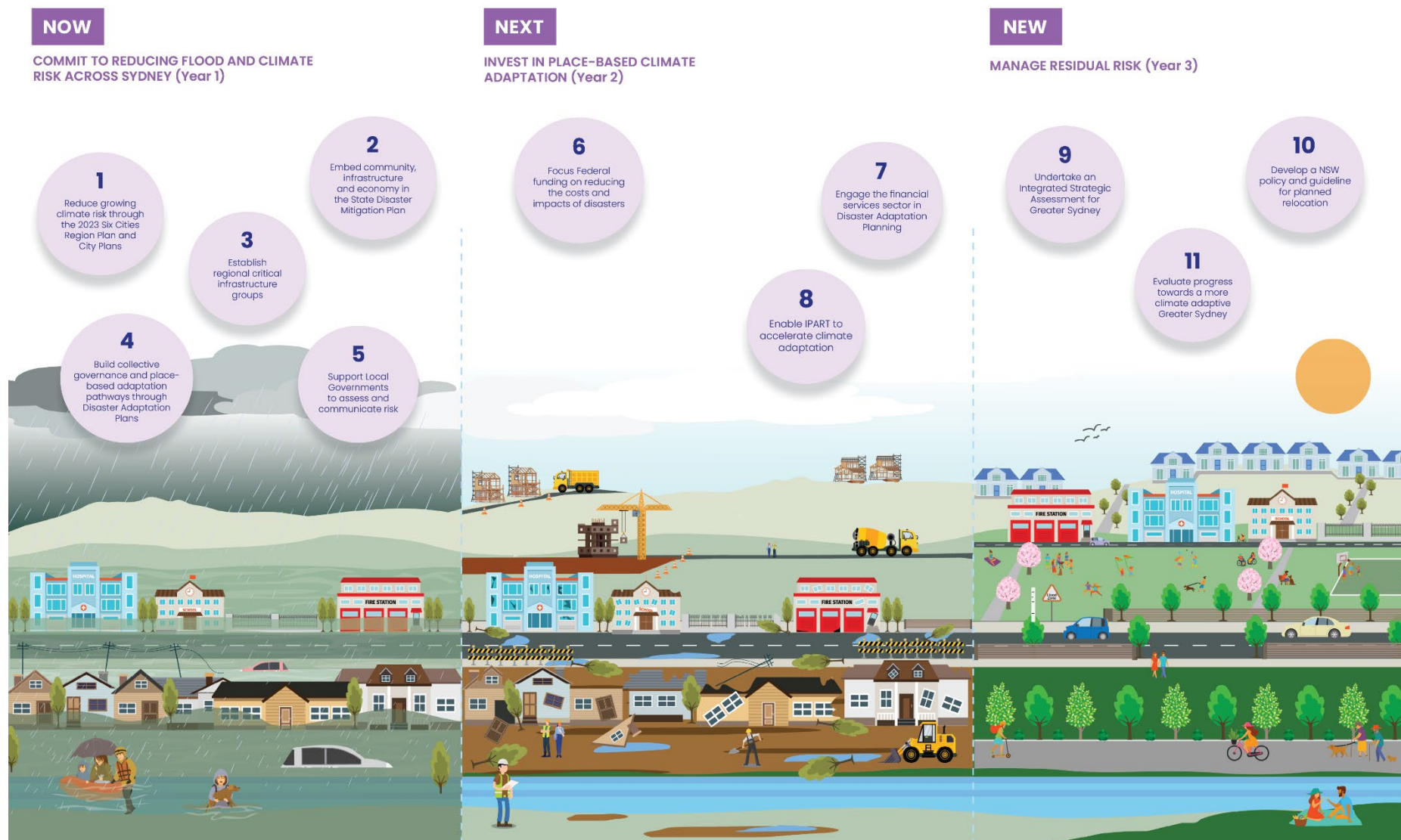
New approaches to address these challenges:

- **Place based adaptive planning:** We recommend following a Dutch approach, which has been adopted by countries around the world to enable policy makers and communities to understand risk tolerance across the community, infrastructure providers, and with insurers and banks.
- **Climate responsive land use planning:** We recommend following examples such as New York (climate risk zones), and Norfolk Virginia (Vision 2100 Land Use Plan), that have worked with communities to establish dynamic land use planning tools, signalling changing risk, and enabling relocation.
- **Collaborative decision making:** This is essential to ensure business and community continuity in the face of natural disasters, bringing forward a way to engage communities in decision making about the future of their place and test their willingness to live with those risks against other available options.

Recommendations: This report proposes 11 recommendations for government and businesses to proactively build adaptive capacity, which aim to:

- **Six Cities Region Plan and City Plans:** embed a high, medium and low climate risk overlay, that considers projected future climate risk; Focus future urban growth in infill areas, close to transport and social infrastructure, and away from areas of growing climate risk
- **State Disaster Mitigation Plan:** Develop a consistent methodology for establishing risk tolerance across communities, service providers and Government; Provide guidance on how to integrate land use planning, and cost/ benefit analysis of alternate mitigation options in Disaster Adaptation Plans; Introduce a specific climate risk land use zone for high risk areas; Convene lifeline infrastructure providers to prioritise investment plans.
- **Disaster Adaptation Plans:** Develop sub-regional scale adaptation pathways with community, business, critical infrastructure providers, First Nations communities and other stakeholders; Fund the delivery of deep community engagement across Greater Sydney to inform the adaptive pathways.
- **Drive risk transparency:** Require and fund mandatory climate risk assessments to inform Local Government flood risk assessments (through the NSW Flood Manual); Update quarterly rates notifications to include all hazard exposure.
- **Convene the financial services sector** (particularly insurers and banks) to share data and insights in planning for climate and natural hazard risk.

Defending Sydney: Visual Roadmap



Defending Sydney: Action Plan

<i>The Issue</i>	<i>Recommended Actions</i>	<i>Responsibility</i>
NOW: COMMIT TO REDUCING FLOOD AND CLIMATE RISK ACROSS SYDNEY (Year 1)		
1. Reduce growing climate risk through the 2023 Six Cities Region Plan and City Plans		
The number of people and assets exposed to natural disasters is rising as we build into areas of existing and projected climate risk. The most effective way to reduce future climate risk is to stop building new dwellings and assets in these locations.	a. Embed in the Six Cities Region Plan, a high, medium and low climate risk overlay, that considers projected future climate risk b. Focus future urban growth in infill areas, close to transport and social infrastructure, and away from areas of growing climate risk c. Measure and report how the Six Cities Region Plan reduces the number of people, dwellings and assets exposed to climate risk. d. Develop a climate risk policy maturity framework in the Six Cities Region Plan and City Plans to show how land use policy and planning is responding to a changing climate.	Proposed Lead: Greater Cities Commission Key Collaborators: • NSW Reconstruction Authority • NSW Department of Planning • Local Governments
2. Embed community, infrastructure and economy in the 2023 State Disaster Mitigation Plan:		
Preparing plans to reduce the impact of floods and other disasters will require trade-offs between and within communities, and decisions by service providers about when and how to invest. Approaching these essential challenges needs to be framed at a state level to ensure consistency across Sydney and NSW.	a. Develop a consistent methodology for establishing risk tolerance across communities, service providers and Government b. Provide guidance on how to integrate land use planning, and cost/ benefit analysis of alternate mitigation options into Disaster Adaptation Plans c. Introduce a specific climate risk land use zones for high risk areas and identify areas for possible application	Proposed Lead: NSW Reconstruction Authority Key Collaborators: • NSW Department of Planning • NSW Treasury • Utilities/ Telcos
3. Establish regional lifeline infrastructure¹ groups		
NSW has an emergency management coordination structure that enables clear allocation of responsibility and decision making. A similar mechanism is needed for lifeline infrastructure – essential services that enables communities to cope and adapt to changing climate risk, and increasing disruption.	a. Build on experience from Queensland and New Zealand to co-design a long-term regional adaptation approach for lifeline infrastructure. b. Identify risk ownership and needs from a place and system perspective, to inform investment planning across lifeline infrastructure. c. Enhance the role of green infrastructure solutions in contributing to climate adaptation	Proposed Lead: NSW Reconstruction Authority Key Collaborators: • Utilities (Ausgrid, Sydney Water, Endeavour Energy) • INSW • Office of Local Government • Local Government • NSW Health

¹ Lifeline infrastructure includes, but are not limited to transportation, telecommunication and utilities such as power and water.

4. Build collaborative governance and place-based adaptation pathways through Disaster Adaptation Plans:		
The Resilient Sydney Strategy 2018 called out the complex governance for managing natural hazard and climate risk in Sydney, identifying that no single organisation has responsibility or power to reduce flood and any other risk. Collaborative planning processes are needed to address this gap to build trusted relationships, and allocate responsibilities, for reducing natural hazard and climate risk in Greater Sydney.	- Fund the delivery of deep engagement to enable community led Disaster Adaptation Plans to be created across Greater Sydney. - Identify climate informed medium and high risk locations, and share findings with Local Government - Generate and incorporate consistent data on social capital, social cohesion and social infrastructure to identify high-risk communities - Develop sub-regional scale adaptation pathways with community, business, critical infrastructure providers, First Nations communities and other stakeholders - Pilot a cost-benefit methodology to identify alternate risk reduction and investment scenarios	Proposed Lead: NSW Reconstruction Authority Key Collaborators: - NSW Department of Planning - NSW Treasury - Universities - Local Government - Resilient Sydney - Utilities - NSW Office of Chief Data Scientist
5. Support Local Governments to assess and communicate risk		
Without climate risk scenarios at local government level, we are effectively creating a postcode lottery across the Greater Sydney. Most businesses and households are unaware of the natural hazard and climate risk that they face, or how this risk impacts them and will change in the future. While local governments work hard to share risk information with their communities, many either don't have the resources to update existing hazard modelling to include climate risk, or are reticent to share new information without comprehensive strategies to respond.	- Require and fund mandatory climate risk assessments to inform Local Government flood risk assessments (through the NSW Flood Manual). - Update quarterly rates notifications to include all hazard exposure, linked to asset design standards where possible, and identify sources of further information about risk to life and property in each location. - Update S.107 certificates to include all hazard exposure, and how global warming is expected to change or exacerbate these hazards. - Use climate and climate risk data to support small and medium sized business preparedness and continuity plan development	Proposed Lead: NSW Department of Planning Key Collaborators: - Office of Local Government - Local Governments - NSW Treasury - Resilient Sydney - NSW Office of Chief Data Scientist

NEXT: INVEST IN PLACE-BASED CLIMATE ADAPTATION (Year 2)

6. Refocus Federal Funding towards reducing the costs and impacts of disasters

The Federal Disaster Ready Fund allocates \$200m per year for preparedness, with funds allocated based on a competitive grants process. A new funding logic is needed that takes a more strategic approach to make best use of this limited funding.	- Set funding criteria at Federal level that incentivises land use and development decisions that reduce total asset exposure and enhance life safety, prioritising high risk locations - Make Federal and State betterment funding available to strengthen assets and dwellings in at-risk locations prior to disasters occurring - Support and enable cooperative approaches to adaptation funding to improve outcomes through multiple benefits and shared funding models	Proposed Lead: National Emergency Management Agency Key Collaborators: • NSW Reconstruction Authority • NSW Department of Planning • NSW Treasury • Commonwealth Treasury
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7. Engage the financial services sector in Disaster Adaptation Planning

Access to data on flooding and climate scenarios is consistently raised as a barrier to risk informed decision making. Data on risk pricing from insurers and banks is not being included in decision making, potentially undermining future asset values if owners can't afford insurance or to self-insure. There is a need to understand the value chain, and who owns the downside risk of changes in flooding and other hazards.	- Create a Financial Services Forum to bring the knowledge, data and perspective of financial services providers into place-based risk tolerance discussions and Disaster Adaptation Plans - Engage with financial services providers to identify viable and affordable mitigation options at the household scale to improve asset resilience and insurance affordability in medium risk zones - Work with financial services and State Government to Government to build on existing data sets and create an accessible climate and climate risk data asset that enables risk informed infrastructure, asset management and land use planning decisions. This data set would be built from existing data assets including what is created by the Hazard Insurance Partnership. - Partner with financial services providers and State Government to identify who owns the financial risk in the next major flood disaster.	Proposed Lead: NSW Reconstruction Authority Key Collaborators: • Committee for Sydney • Private Sector / Insurers • Resilient Sydney • Financial Services Regulators • Universities • CSIRO/ Australian Climate Service
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8. Enable IPART to accelerate climate adaptation

The Independent Pricing and Review Tribunal (IPART) can review reasonable funding allocations for many of the key actors responsible for disaster preparedness, including utilities and Local Governments. As findings emerge from Disaster Adaptation Plans, it will be critical to identify the role IPART can play in funding actions that key service providers need to implement to enable place-based adaptation.	- Update IPART Terms of Reference to include mandatory consideration of climate change adaptation - Engage with IPART on the findings of Disaster Adaptation Plans, to determine how IPART can play a more of a leading role in addressing adaptation to natural disaster and climate change, especially relating to funding of local government and pricing of key infrastructure services	Proposed Lead: NSW Minister for Planning Key Collaborators: • IPART • NSW Office of Local Government • Utilities • Local Government • NSW Department of Planning • NSW Treasury
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NEW: MANAGE RESIDUAL RISK (Year 3)

9. Undertake an Integrated Strategic Assessment for Greater Sydney

As our population grows, some parts of Sydney will adapt to a changing climate, others will experience rapidly increasing risk. We need an approach that identifies the options that enable Sydney to adapt to these changes, and make informed decisions about where and how to grow, and where growing would bring unsustainable risk.	- Undertake an integrated strategic assessment for Greater Sydney that builds on Disaster Adaptation plans and enables adaptive planning pathways for the region. - Embed deliberative decision making with First Nations groups, community and other stakeholders around emerging problems and possible solutions - Determine the costs and benefits for risk mitigation at household, suburb, catchment, LGA and region scale, including by connecting housing and asset typologies to hazard exposure	Proposed Lead: NSW Reconstruction Authority Key Collaborators: • NSW Treasury • NSW Department of Planning • Local Government • Utilities / Telcos • Private Sector/ Insurers • Local Aboriginal Land Councils/ Aboriginal Corporations
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10. Develop a NSW policy and guideline for planned relocation

Tens of thousands of homes in Sydney are currently at risk, and this number is only expected to grow. Moving communities out of the way of climate risk will both reduce risk to life and to property, and reduce the future burden on funding response and recovery.	- Develop a State level policy and guideline for planned and community led relocation, informed by lessons from the NSW Northern Rivers, Brisbane and overseas - Identify criteria and receiving areas for possible future relocation of residents of high risk climate zones. - Create alignment between planned relocation and local government housing targets. - Identify and pilot financial mechanisms to transfer development out of high risk zones	• Proposed Lead: NSW Reconstruction Authority Key Collaborators: • NSW Department of Planning • NSW Treasury • Local Government • Insurers/ Banks
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11. Evaluate progress towards a more climate adaptive Greater Sydney

There are many programs underway to respond to, and prepare for, changing natural hazard and climate risk. Given the growing risk to life and assets, there is a clear need to review to what extent these efforts are contributing to a more adaptive city, and reducing the risk to communities across Greater Sydney.	- Review the effectiveness of Disaster Adaptation Planning across Sydney, including changed awareness of flooding and climate risk. - Evaluate the progress of lifeline Infrastructure agencies in coordinating, funding and delivering climate adaptive investment plans - Monitor progress on dwelling and asset exposure through land use planning in the 2023 Six Cities Region Plan and City Plans to inform the development of the 2028 revisions. - Identify how changes in funding decisions – at State and Federal level – have contributed to enabling or constraining key service providers	Proposed Lead: NSW Reconstruction Authority Key Collaborators: • NSW Department of Planning • Greater Cities Commission • Resilient Sydney Office • Local Government • IPART • NEMA • Utilities
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Nature Positive Sydney: Valuing Sydney's Living Infrastructure

1. **Sydney is defined by its natural environment** – from its rivers, to the national parks, urban green spaces and world renowned harbour. This living infrastructure has been curated, cared for, and valued by traditional custodians for tens of thousands of years. 'Nature-positive' is the term used to describe a city where nature – species and ecosystems – are being restored and regenerated rather than declining.
2. Despite the provision of living infrastructure being elevated as a priority across the city (especially open space, trees and canopy cover), **there is not adequate investment in trees, plants, parks and waterbodies in Sydney.**
3. **Lack of investment means we miss out on five key benefits of having more nature in urban areas**, including:
 - i. *Reduced heat and improved air quality*: More shading will reduce heat and the associated heat stress of those living in areas impacted by the urban heat island effect. The cooling and shading benefits of tree canopies in suburban streets can reduce air conditioning bills by as much as \$400 per year. Further, each year approximately 2500 deaths in Australia are attributable to urban air pollution.
 - ii. *Better climate resilience*: Victoria's parks network provides an estimated \$46 million per year in flood protection benefits from avoided infrastructure costs alone.
 - iii. *Increased health and happiness*: Adults who live in neighbourhoods where 30%+ of the area is covered by tree canopy had 31% lower odds of developing psychological distress and 33% lower odds of developing fair to poor general health.
 - iv. *Enhanced biodiversity*: Selecting native flora that are adapted to the local conditions has led to the creation of Australia's first Indigenous rooftop farm for urban food production in Sydney using 2,000+ edible, medicinal and culturally significant plants
 - v. *Reinforced connected city systems*: Waterways and green spaces can deliver carbon capture, water filtration and stormwater capture – the green roof at Daramu House, Barangaroo, reduced stormwater flows by 99% compared to its sister building.
4. **The solutions are in our hands – individually and collectively.** There are many place-based opportunities for growing Sydney's living Infrastructure, from our own backyards and balconies, to parklands and pocket parks; from our streets, laneways and leftover spaces to infrastructure corridors, railways, rivers and waterways; from schools and hospitals, to the rooftops and facades of existing and new buildings across the city; and the opportunity to protect and restore nature in greenfield development areas.
5. **So, what do we need to do to change how we value natural infrastructure across our city?** The Committee for Sydney's Nature Positive Sydney Action plan sets out the following actions:
 - a. **Enable community education and Indigenous knowledge** by stepping up education and awareness programs for communities, including establishing a Centre for Urban and Indigenous Ecology
 - b. **Set metropolitan and local targets** for living infrastructure – not just trees - and monitor and evaluate progress towards those targets.
 - c. **Manage living infrastructure as an asset**, at all levels of government, and embed living infrastructure outcomes in public sector procurement systems.
 - d. **Drive structural investment** in living infrastructure by introducing a green factor tool to incentivise new development; establishing a living infrastructure fund; and adopting a framework for valuing living infrastructure in major projects.

Nature Positive Sydney Action plan:

Action	Lead Agency
1. Enable community education and Indigenous knowledge	
1.1. Step up education and awareness programs for communities that are Government-led or funded. The programs should: - connect existing citizen group networks - adopt new ways of engagement in and across suburbs - create educational campaigns for organisations and individuals that explore the bioregions they live in and the functions and benefits of living infrastructure.	Department of Planning and Environment , with • Resilient Sydney • Local governments • NSW Department of Education
1.2 Establish a Centre for Urban and Indigenous Ecology The Centre would: - Integrate First Nations knowledge into government and private sector project cycles, and project site planning - Develop trade training programs with Indigenous elders, and university/ TAFE courses integrating nature-based solutions to landscape architecture, horticulture and engineering programs.	Royal Botanic Gardens and Domain Trust , with • IndigiGrow • NSW Department of Education • Sydney universities • Australian Green Infrastructure Network
2. Set clear living infrastructure targets, and monitor progress	
2.1 Set targets at the metropolitan and local government scale. Set science based targets for living infrastructure, including tree planting and canopy increase, vegetation, biodiversity and clean waterways.	Greater Cities Commission , with • Resilient Sydney • Local governments • Department of Planning and Environment
2.2. Monitor and evaluate progress. An annual monitoring report to track progress on goals, directions, impact and actions.	
3. Align asset management and procurement	
3.1 Manage living infrastructure as an asset class. Local government and state government agencies should resolve to: - Establish an asset register (just like grey infrastructure) - Regularly value assets using an agreed valuation framework - Standardise an inventory system connect the benefits each asset is generating to the local and metropolitan targets.	Infrastructure NSW, with • Department of Planning and Environment • Local governments • the Australian Green Infrastructure Network
3.2 Embed living infrastructure outcomes in public sector procurement systems. Make provisions in all government procurements requiring the consideration of living infrastructure alternatives to standard infrastructure. Tender processes should require a landscape architect to lead the relevant design pieces.	NSW Treasury, with • Department of Planning and Environment • Regional organisations of councils
4. Drive structural investment in living infrastructure	
4.1 Introduce a green factor tool to incentivise living infrastructure in new development. Introduce incentives for private landowners, including an increase in Floor Space Ratio (FSR) tied to a green factor tool, and regulations that ensure any loss of living infrastructure is met with a net positive replacement.	Department of Planning and Environment, with • Local governments • Developers
4.2 Establish a living infrastructure fund. Incentivise living infrastructure in new and existing buildings in targeted locations by covering some upfront capital costs and ongoing maintenance expenses for living infrastructure.	NSW Treasury, with • Department of Planning and Environment
4.3 Adopt a framework for valuing living infrastructure in major projects. Living infrastructure benefits should be a mandatory part of all business cases, including valuing green and blue living infrastructure as alternatives to grey infrastructure, and economic quantification of the benefits to air quality, reduced heat, social cohesion and biodiversity.	NSW Treasury, with • Department of Planning and Environment • NSW Reconstruction Authority • Transport for NSW