WSROC

TURN DOWN THE HEAT

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STRATEGY AND ACTION PLAN

Summary 2018







ACKNOWLEDGEMENTS

WSROC acknowledges Aboriginal and Torres Strait Islander peoples as the traditional custodians of the lands and waters of this place we now call Metropolitan Sydney. We pay our respect to Elders past, present and future of the Eora, Dharawal (Tharawal), Gundungurra, Dharug (Darug) and Guringai (Kuring-gai) peoples.

This strategy, developed by AECOM, has been published by WSROC with assistance and support from a range of organisations and individuals.

With special thanks to the Turn Down the Heat program Steering Committee:

Western Sydney Local Health District

NSW Government Architects Office

Resilient Sydney

City of Parramatta Council

Western Sydney University

Greater Sydney Commission

NSW Office of Environment and Heritage

And the urban heat working group, consisting of professionals in the areas of planning, environment and sustainability from Blacktown, City of Canterbury Bankstown, Cumberland, Liverpool, City of Parramatta and Penrith City councils.

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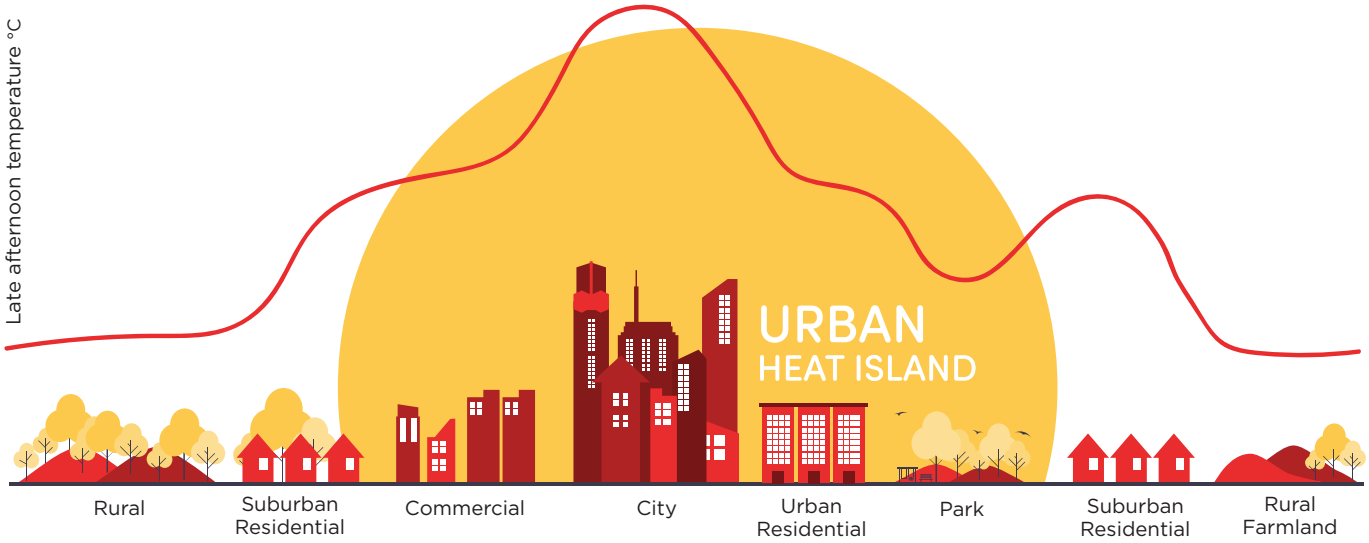
URBAN HEAT

EXTREME HEAT SEVERELY IMPACTS OUR HEALTH, INFRASTRUCTURE, ECONOMY AND ENVIRONMENT

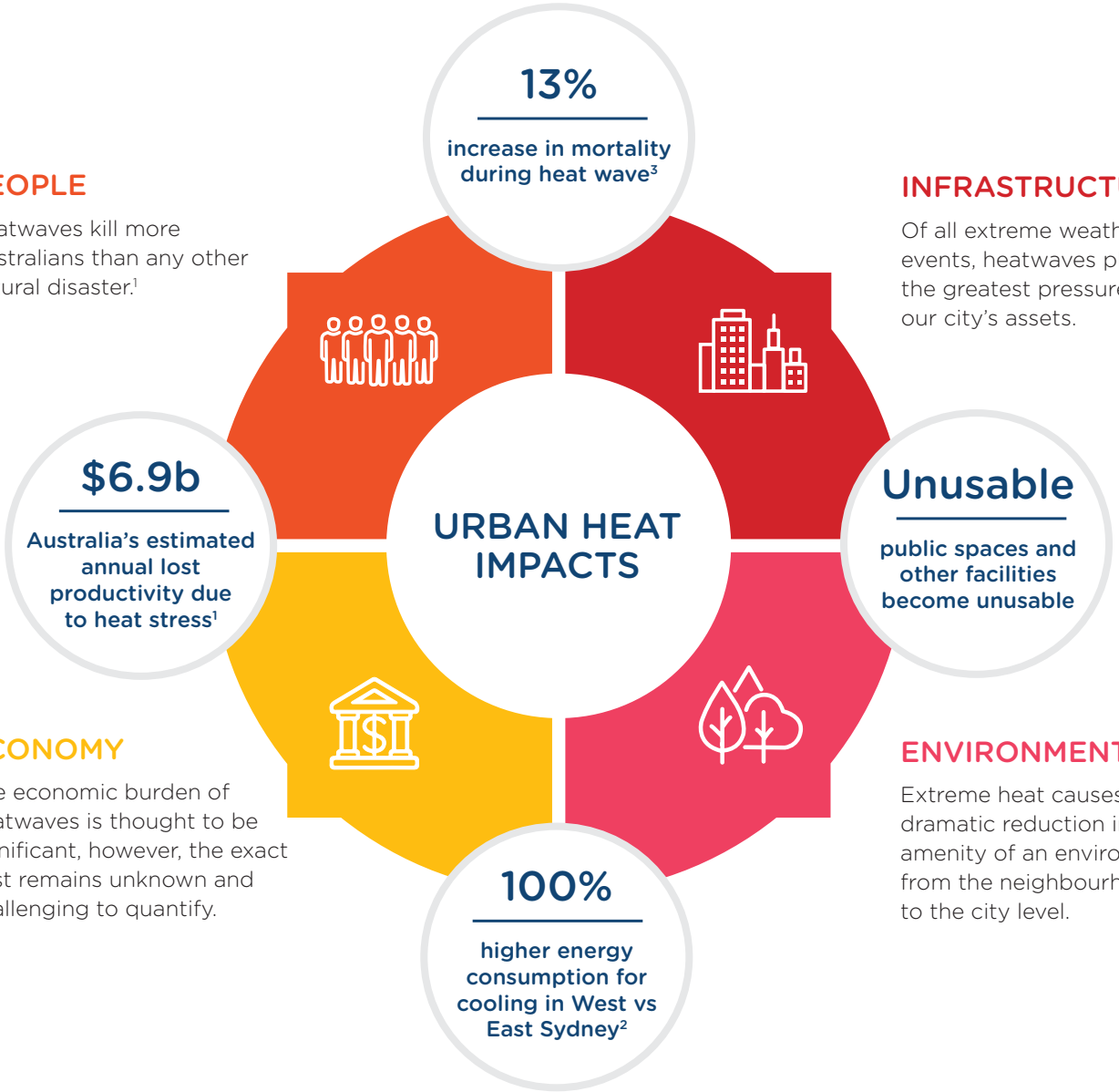
Western Sydney is becoming hotter, and it is having significant impacts on our health, infrastructure, economy and the environment. This is largely due to what scientists call the urban heat island effect – the tendency of cities to be much warmer than their rural counterparts.

Urban surfaces such as roads and roofs absorb, hold, and re-radiate heat; raising the temperature in our urban areas. Human activities such as traffic, industry, and energy usage generate additional heat; adding to the effect.

Urban heat is already impacting the infrastructure and services that support our communities, and the people living and working within them. These impacts will demonstrably worsen if we don't improve our response to the short and long-term challenges of urban heat.



Urban Heat Island Effect (Image credit: City of Parramatta)



[1] Nature climate change, 2015, [2] Santamouris et al. Cooling Western Sydney, 2017
[3] Natural hazards, Public health considerations. NSW Health, 2014

WHY THIS STRATEGY?

Responding to the challenge of urban heat spans the roles and responsibilities of many different organisations and public-sector agencies.

While the need to address urban heat is recognised by many, action remains fragmented often due to differences in administrative boundaries or misalignment of priorities. There is also a very real deficit of understanding the economic, environmental and social impacts of heat across Greater Sydney.



Creating cool and walkable places

The Turn Down the Heat Strategy is designed to complement existing policies and strategies to create coordinated, local and practical and action to address urban heat in the short term.

Turn Down the Heat lays out a five-year framework to support a greener, cooler, more liveable and resilient future for Western Sydney.

It seeks to:

- Represent the interests of the residents of Western Sydney;
- Enhance existing efforts to address urban heat;
- Collaborate across the region to increase awareness; and
- Facilitate a broader and more coordinated response to the challenges of urban heat.

This could not have been achieved without the collaboration of a regional, cross-disciplinary group of stakeholders who are committed to facilitating a broader, more coordinated response to the challenges of urban heat.

The full Turn Down the Heat Strategy is available on the WSROC website. **wsroc.com.au**

55 ORGANISATIONS ASSISTED IN THE DEVELOPMENT OF THIS STRATEGY

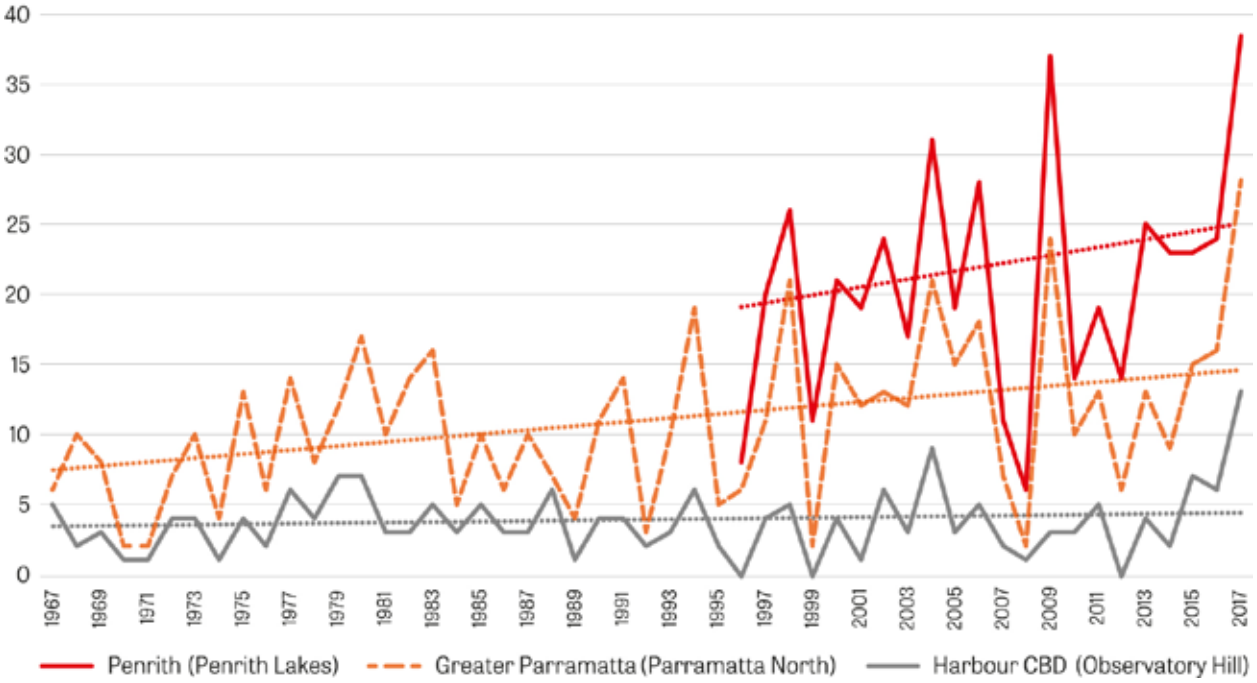
WHY WESTERN SYDNEY?

Urban heat impacts all cities, but Western Sydney is particularly susceptible due to the region's existing climate, geographic position, large and growing residential population, rapid urban development and greater levels of social disadvantage.

During heatwave conditions, Western Sydney suffers three times more heat-related deaths than Sydney's east. Western Sydney temperature records over the last 40 years show that Western Sydney has seen a rise in annual temperatures above and beyond those experienced in coastal parts of Sydney.

The impact of climate change combined with Western Sydney's rapid development is expected to further increase average minimum and maximum temperatures, resulting in more hot days and fewer cold nights overall.

10°C AVERAGE TEMPERATURE DIFFERENCE BETWEEN SYDNEY AND PENRITH ON AN EXTREME HEAT DAY



Source: Greater Sydney Commission (2018) using data from the Bureau of Meteorology

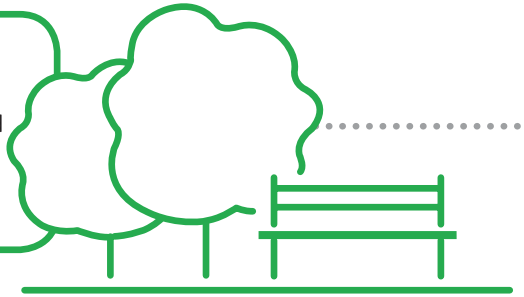
Number of days over 35° in Parramatta and Sydney CBD, from 1967 to 2015[10]

URBAN COOLING STRATEGIES

Listed below are key actions to address the issue of extreme heat. Not one of these interventions alone can solve the issue of heat, all are critical and interlinked. The effectiveness of any strategy will vary according to the location, urban context, geography and climatic zone.

Greening urban areas

Urban canopy cover and green spaces contribute to shade and evapotranspiration. Species selection, planting location and maintenance are critical to ensure optimum cooling benefits.



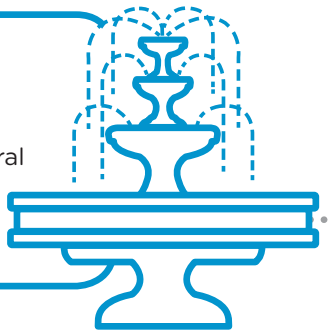


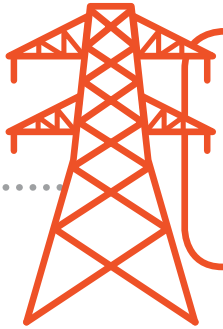
Cool materials

Building materials are major contributors to the urban heat island effect. They store heat and by doing so reduce indoor and outdoor thermal comfort. Choosing materials that prevent solar radiation (heat) from being absorbed can make a significant difference. Examples include light coloured roofs or pavers.

Designing with water

Water is one of the most effective ways to cool an urban environment. Designing with water can consist of a mix of natural water bodies, fountains, ponds, and technologies to integrate urban evaporative cooling systems.



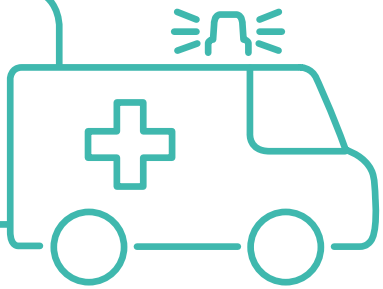


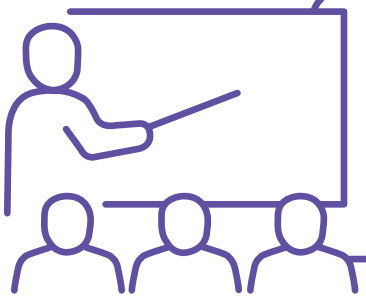
Infrastructure adaptation

Preparing our city's infrastructure to cope with extreme temperatures is critical for our economy and to ensure the community has access to cooling, water and transport when they need it most.

Emergency and health response

While mitigation is crucial, we must also prepare for extreme heat events and heatwaves by ensuring we have appropriate emergency and health responses in place.





Education

It is critical that communities understand the health risks of extreme heat and can take action accordingly. Ensuring that people stay healthy and look out for others, but also equipping communities with the knowledge and resources to minimise their contribution to the problem.

Research

We must continue to build our understanding of impactful interventions and ensure information is accessible to key decision makers.



WHAT CAN WE DO?

180 stakeholders from 55 organisations assisted in the development of the following targets and actions, which were identified as the most critical in tackling urban heat across Western Sydney.

TARGETS

The following provisional targets have been developed based on existing literature, policy and strategies in this area.

- Increase multi-sectoral collaboration and investment to deliver more projects to address the impacts of urban heat in Western Sydney by 2023.
- Reduce average peak ambient temperatures in Western Sydney by 1.5°C through water, greening and cool materials strategies by 2023.
- Zero net increase in economic impacts of heatwaves by 2023.
- Zero net increase in morbidity and mortality impacts of heatwaves in Western Sydney by 2023.

ACTIONS

Take action together



1. Develop a state of the issue study	A scoping study will clearly outline the existing evidence base and targets for urban heat mitigation and adaptation measures and create access for decision makers to relevant data sets.
2. Establish an Urban Heat Research Consortium	Establish an annual urban heat research summit that brings together academics, industry, and local government to discuss critical gaps in research around the topic of urban heat and to facilitate relationships across traditional boundaries.
3. Monitoring and evaluation of proposed actions	Develop project specific monitoring and evaluation programs to ensure that actions are evidence based and success is measured, which will allow resources to be put toward the most effective actions.

Design and plan to cool the built environment



4. Land use and design controls that prioritise resilience	Develop land use and design controls that prioritise resilience. Appropriate changes to building codes, land use, development and design controls to prioritise green space and green infrastructure.
5. Existing building retrofit programs	A program to retrofit existing buildings will include funding and outreach around cool roofs and improved home insulation.
6. Social housing retrofit program	Collaborate with social housing providers to work toward appropriate retrofits to social housing, such as installing appropriate cooling units for vulnerable residents.

Cool with green space and water



7. Adoption of Sydney's Green Grid	Support greater adoption and collaboration to implement the Greater Sydney Green Grid, which promotes the creation of a network of high-quality open spaces that supports recreation, biodiversity and waterway health and connects strategic, district and local centres, public transport hubs, and residential areas.
8. Urban forest strategy	Management of Western Sydney's urban forest requires a coordinated and clear strategy for keeping trees healthy in stress conditions and for identifying and supplementing areas that lack adequate tree canopy.
9. Recognition of blue and green infrastructure as critical urban infrastructure	Integrate construction and maintenance of blue and green infrastructure and the urban tree canopy into investment and maintenance planning. Recognise and invest in green infrastructure to the same level as hard infrastructure, to maintain the cooling capacity and other benefits of green infrastructure.
10. Green infrastructure planning	Increase and expand green infrastructure on public land, in particular by developing sustainable funding sources and maintenance programs.

Build a community that is healthy and prepared



11. Preventative heat response framework	Develop a preventative heat response framework to integrate emergency management procedures and preparation with outreach to the community service providers that interact with vulnerable populations.
12. Urban heat community engagement strategy	Develop a regional community engagement strategy for Greater Western Sydney to raise awareness around the dangers of heatwaves, inform decision making, and help create more prepared, resilient communities.
13. Urban heat risk and impact research	Coordinate appropriate research projects to understand community and social impacts of disaster, inform better decision making, and provide an evidence base to justify investment in action.

Innovative and responsive infrastructure



14. Critical infrastructure provider forum on urban heat	Facilitate collaboration between utilities, infrastructure and essential services providers in Greater Western Sydney, and better clarify roles in continuity of services and interdependencies during urban heat events.
15. Climate adaptive transport infrastructure and services	Raise awareness among transport infrastructure providers regarding the role of transport to keep people cool and opportunities to provide places of respite during urban heat events.
16. Development of innovative funding models for cooling	Explore application of value capture principles to understand the beneficiaries of urban cooling infrastructure and how they might contribute to its construction.

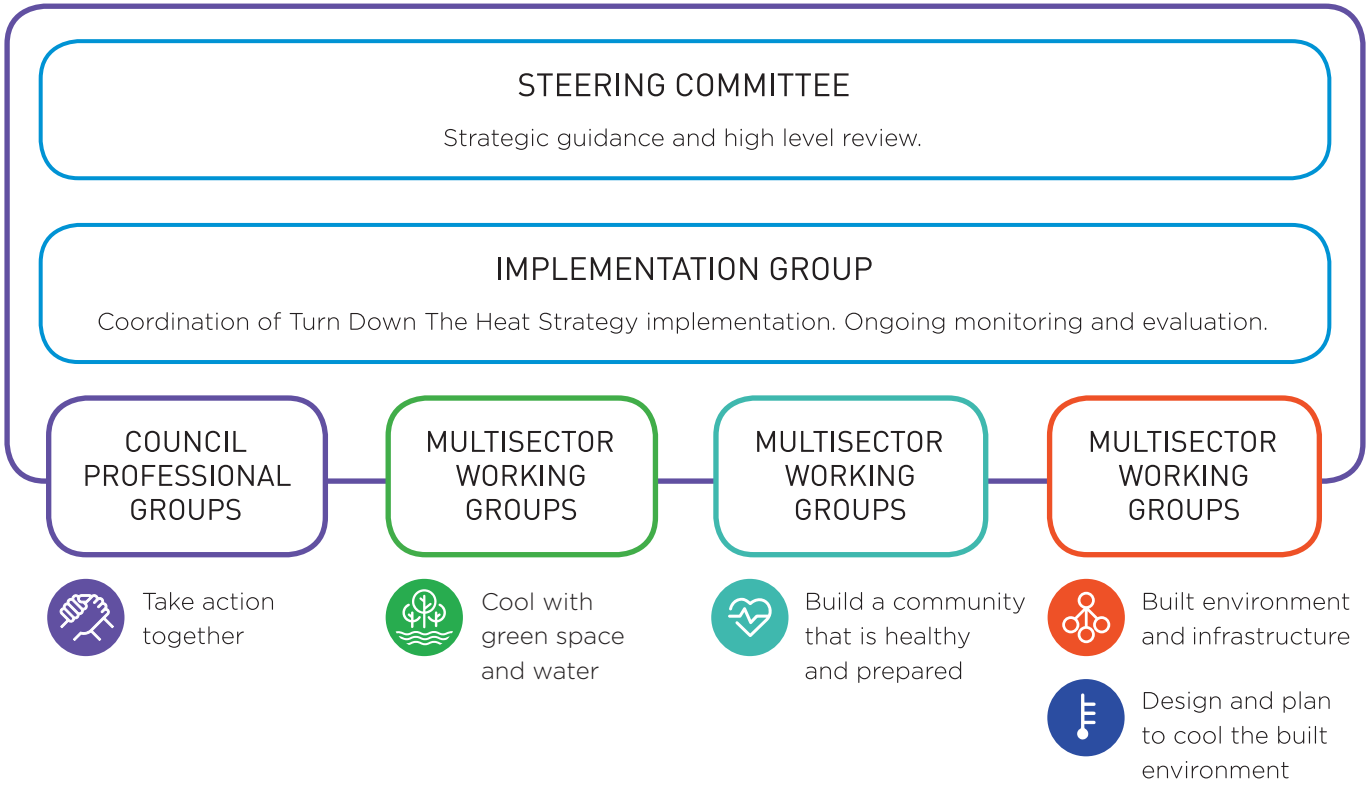
THE WAY FORWARD

Urban heat is a complex and far-reaching issue that will require a combination of immediate and longer-term, coordinated action and leadership to achieve the desired outcomes for Western Sydney and the broader city.

We need to:

- Develop new approaches to save lives and reduce the burden on our health system.
- Better manage the impacts of heat on the systems of our cities.
- Quantify the true costs of heat to our economy.
- Reduce the impact of heat on our environment and animals.

Implementing the Turn Down the Heat Strategy and Action Plan





Parramatta CBD

GET INVOLVED

Turn Down the Heat seeks to encourage and empower champions across a range of organisations. We welcome contributions from anyone seeking to build a greener, cooler, more liveable and resilient future for Western Sydney.

What you can do:

- Advocate for urban heat to be recognised as a priority issue for Western Sydney.
- Share successes and lessons learnt on addressing urban heat with others across Metropolitan Sydney.
- Join us by participating in our working groups to develop and implement the priority actions.




GREEN SPACE

WSROC

The Western Sydney Regional Organisation of Councils' (WSROC) mission is to build collaboration between local governments across Greater Western Sydney, promoting Western Sydney, its people and places, through advocacy, business improvement, strategic leadership, research and partnerships. WSROC has facilitated the development of this strategy.

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