

Sydney: Resilience by going Blue - Green

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Climate Emergency



- 1170 Councils in 23 Countries have declared Climate Emergency
- Representing 290 million people

Global Extent



- Amsterdam, Boulder, Brussels, Geneva, London, New York, Paris, Parliament of Portugal, Sydney,

Types of Crisis



Slow-Burn Incidents

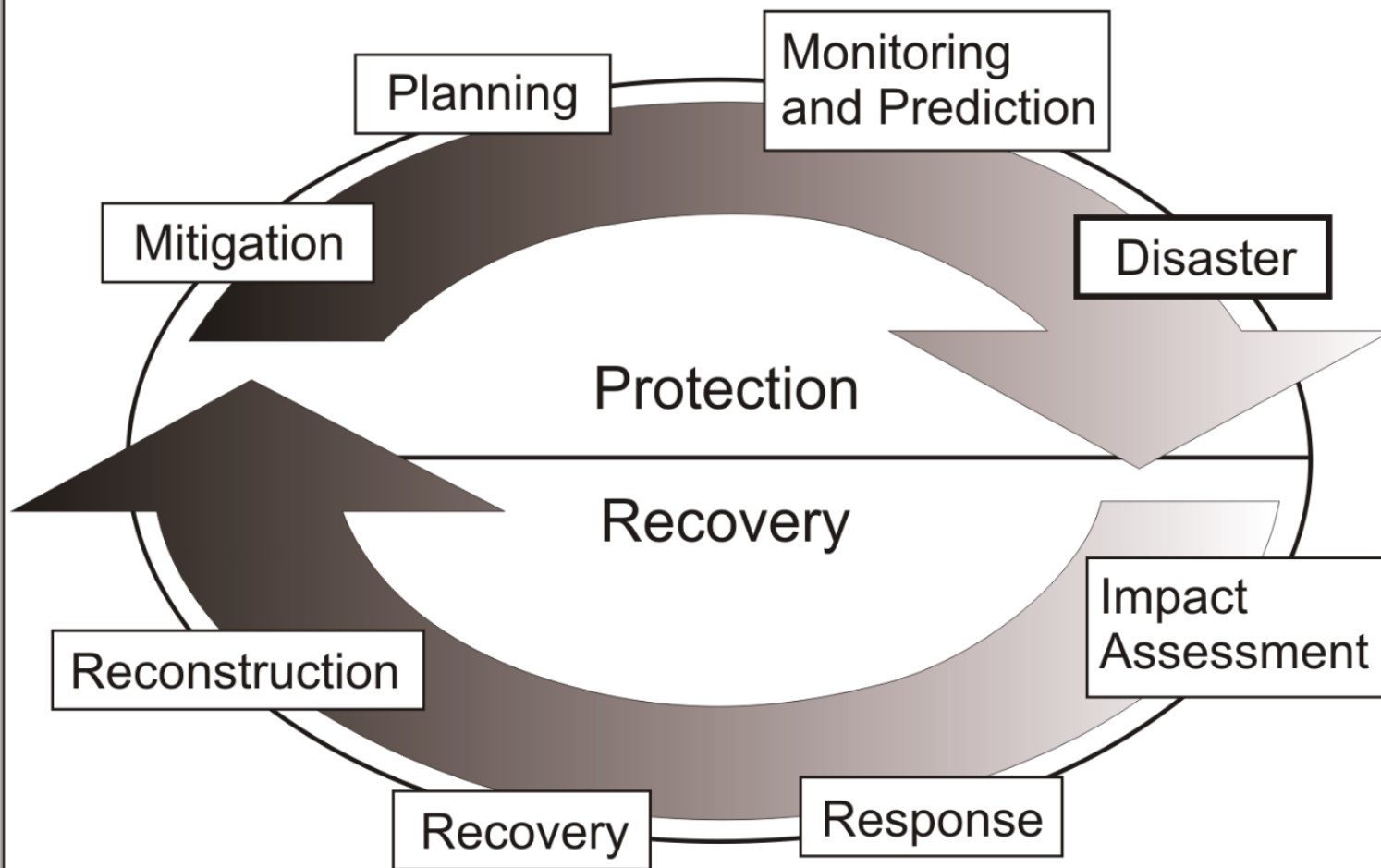
- one of the most difficult types of incidents, often people fail to recognise the warning signs allowing it to become a major incident

Acute Incidents

- damage has already occurred and will get worse the longer it takes to respond



risk management



crisis management



25% of NSW GDP

18% of National GDP

200,000 businesses

4M tourists a year

Climate Change Risk

Why Resilience Matters

- Chronic Stresses
- Health and the Elderly
- Flooding
- Reliable food production
- Extreme Weather
- Increase in drought conditions



Climate Change

Australia's mean temperature has warmed by **0.9°C** since 1910.

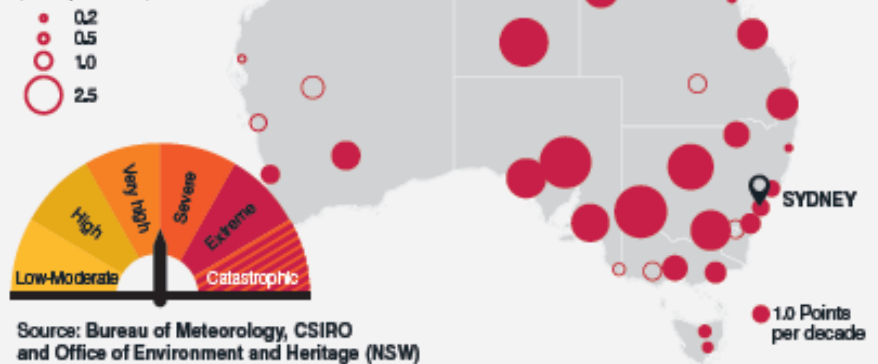
TEMPERATURE CHANGE (°C)



Source: Bureau of Meteorology
Annual mean temperature changes across Australia since 1910.

The largest increases in fire weather have been in the southeast and away from the coast.

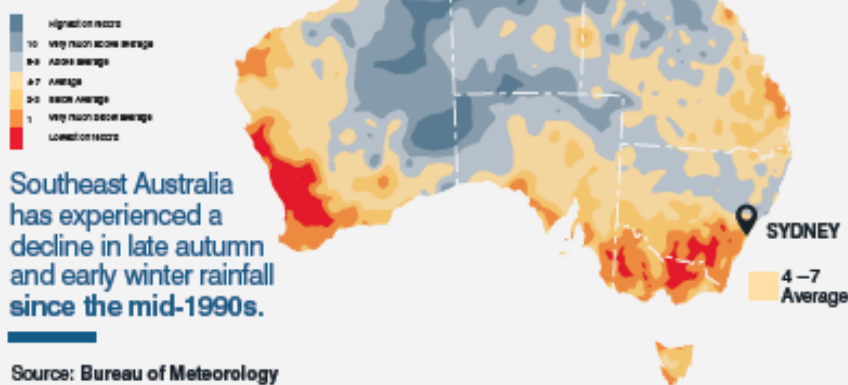
INCREASE DECREASE
(Points per decade)



Source: Bureau of Meteorology, CSIRO and Office of Environment and Heritage (NSW)

Rainfall in the Southwest of Western Australia has been very much below average to lowest on record.

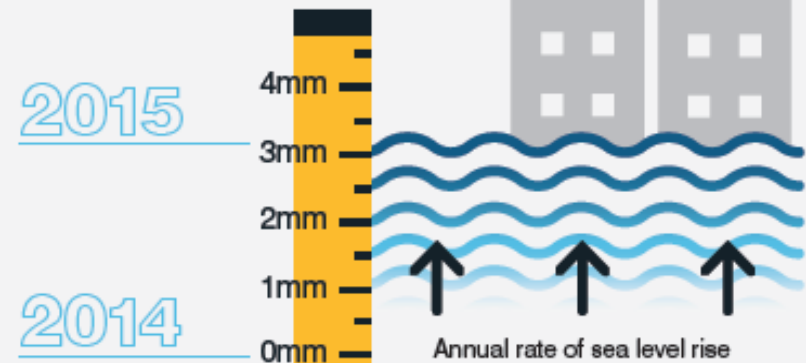
RAINFALL DECILE RANGES



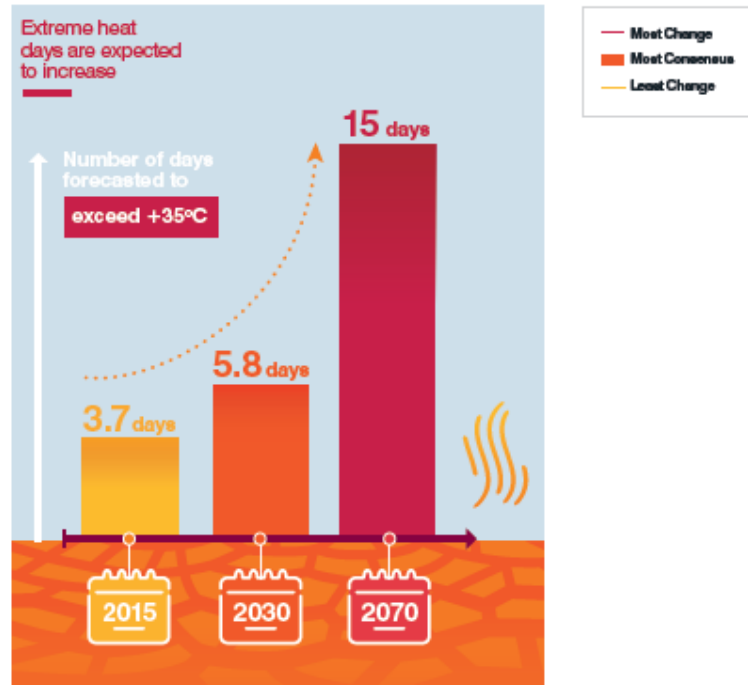
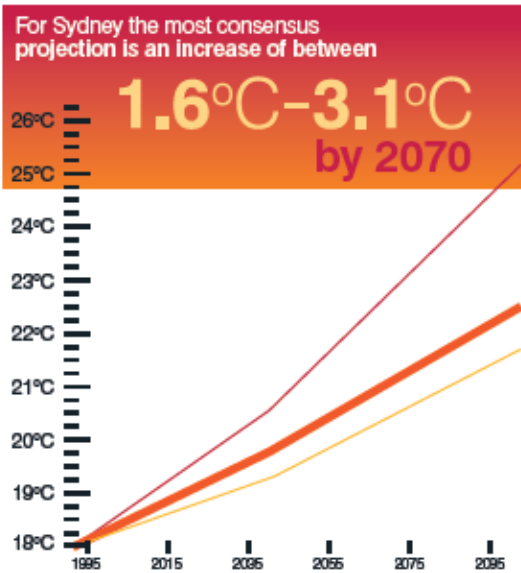
Southeast Australia has experienced a decline in late autumn and early winter rainfall since the mid-1990s.

Source: Bureau of Meteorology

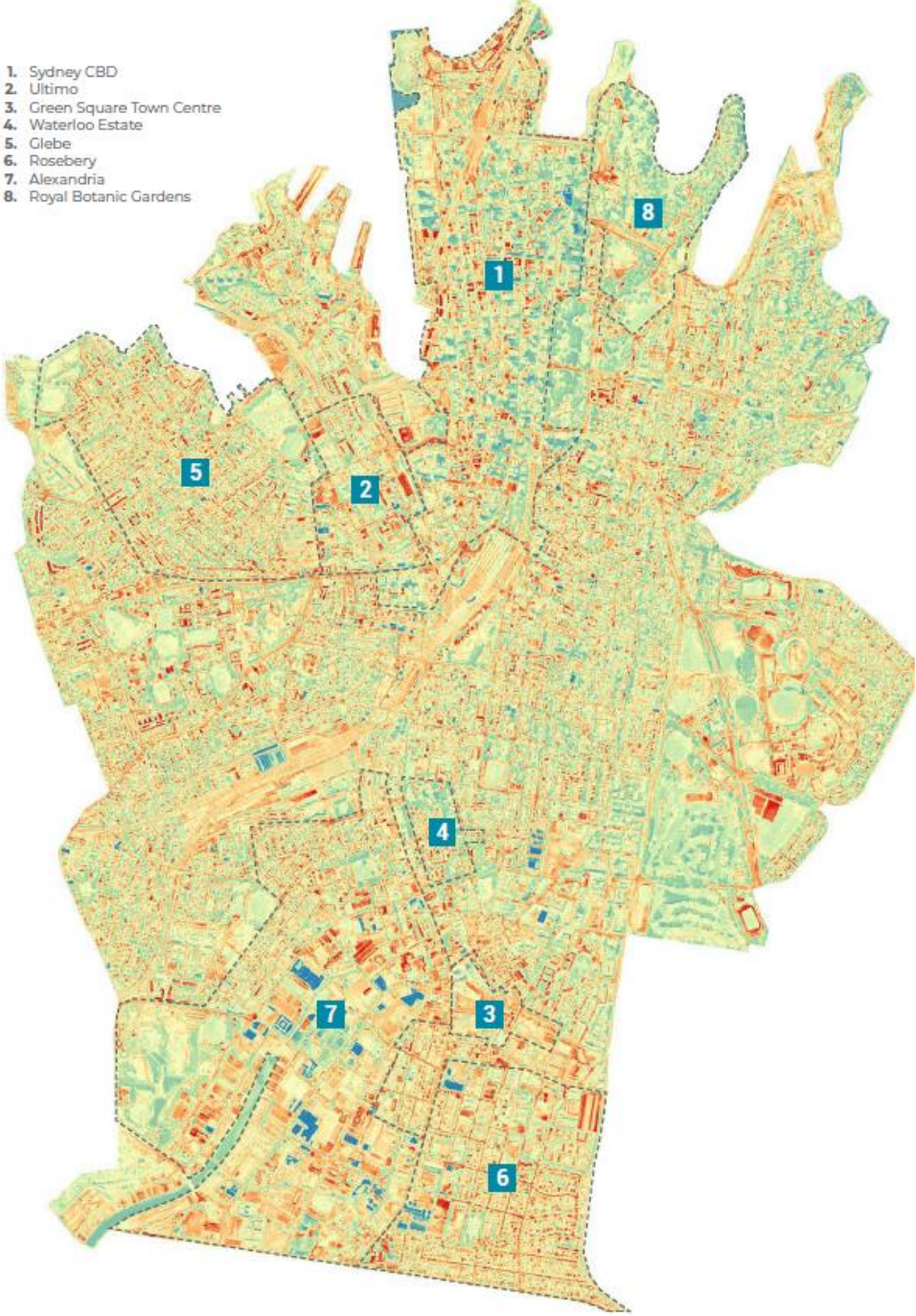
Sea level rose at a rate of **3.2mm per year** in the last 20 years.



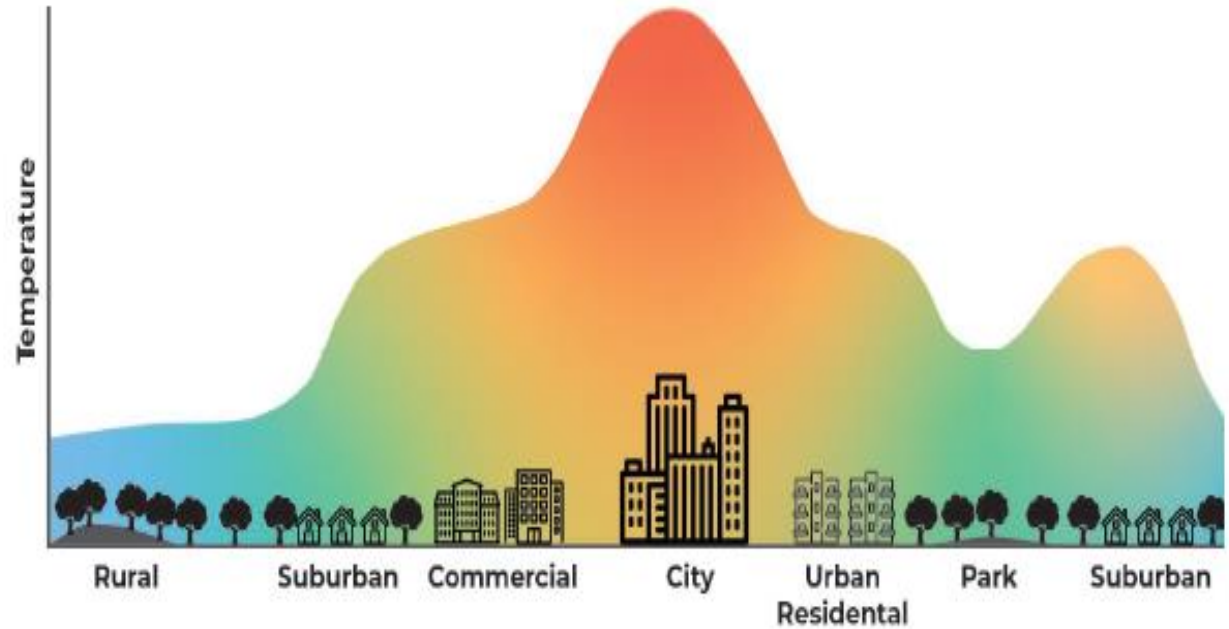
How Hot Will it Be?



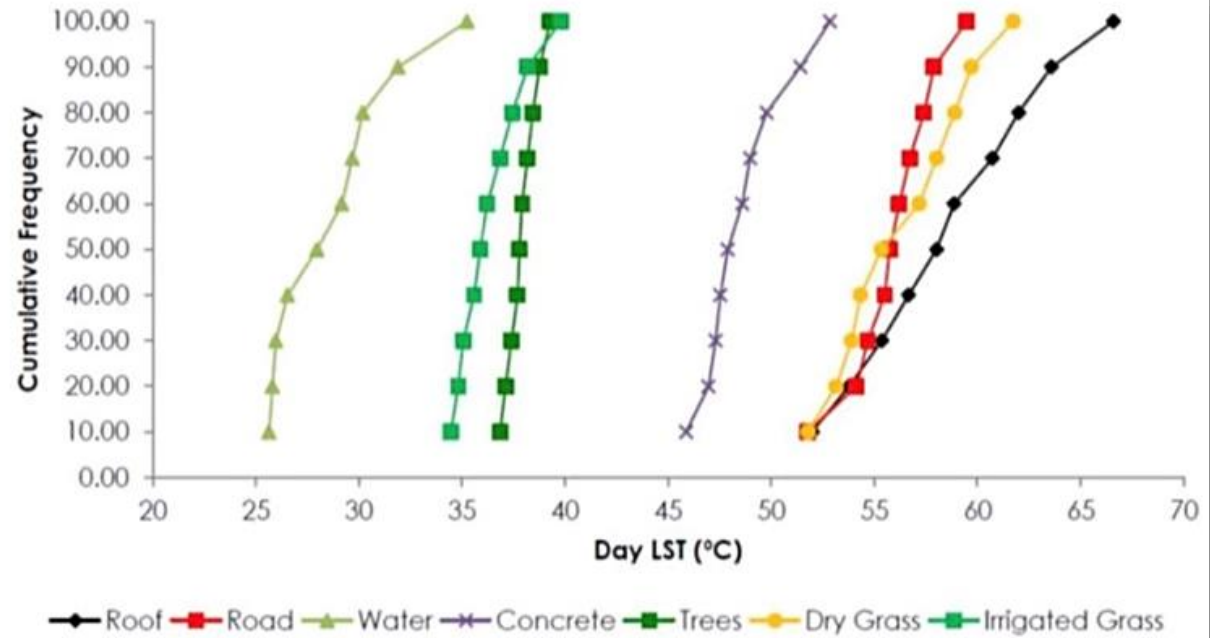
1. Sydney CBD
2. Ultimo
3. Green Square Town Centre
4. Waterloo Estate
5. Glebe
6. Rosebery
7. Alexandria
8. Royal Botanic Gardens



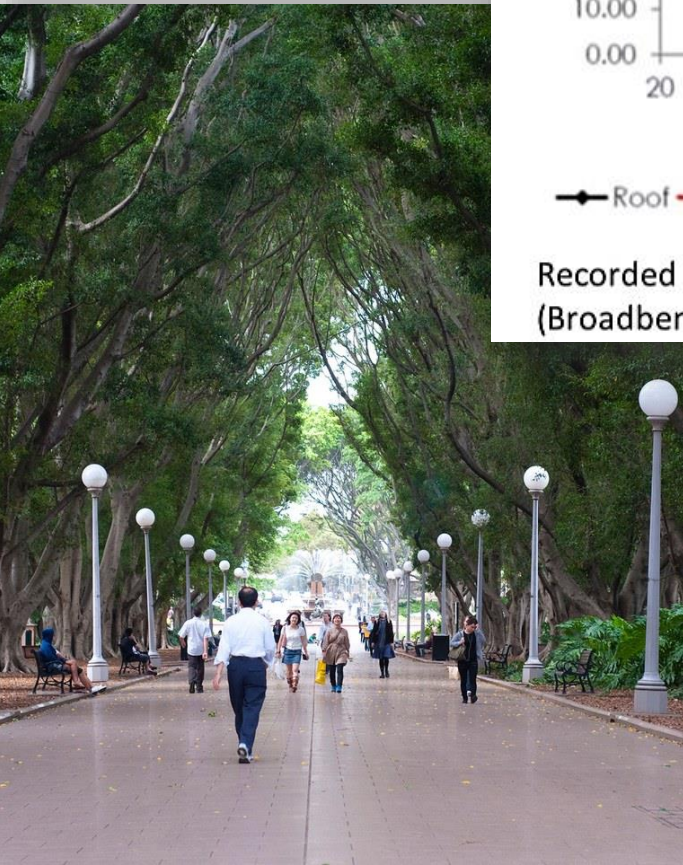
Urban Heat Mitigation Planning



Water for greening and cooling



Recorded land surface temperatures (LST) on extreme 40°C heat day (Broadbent 2017)



Green Square Urban Renewal Area

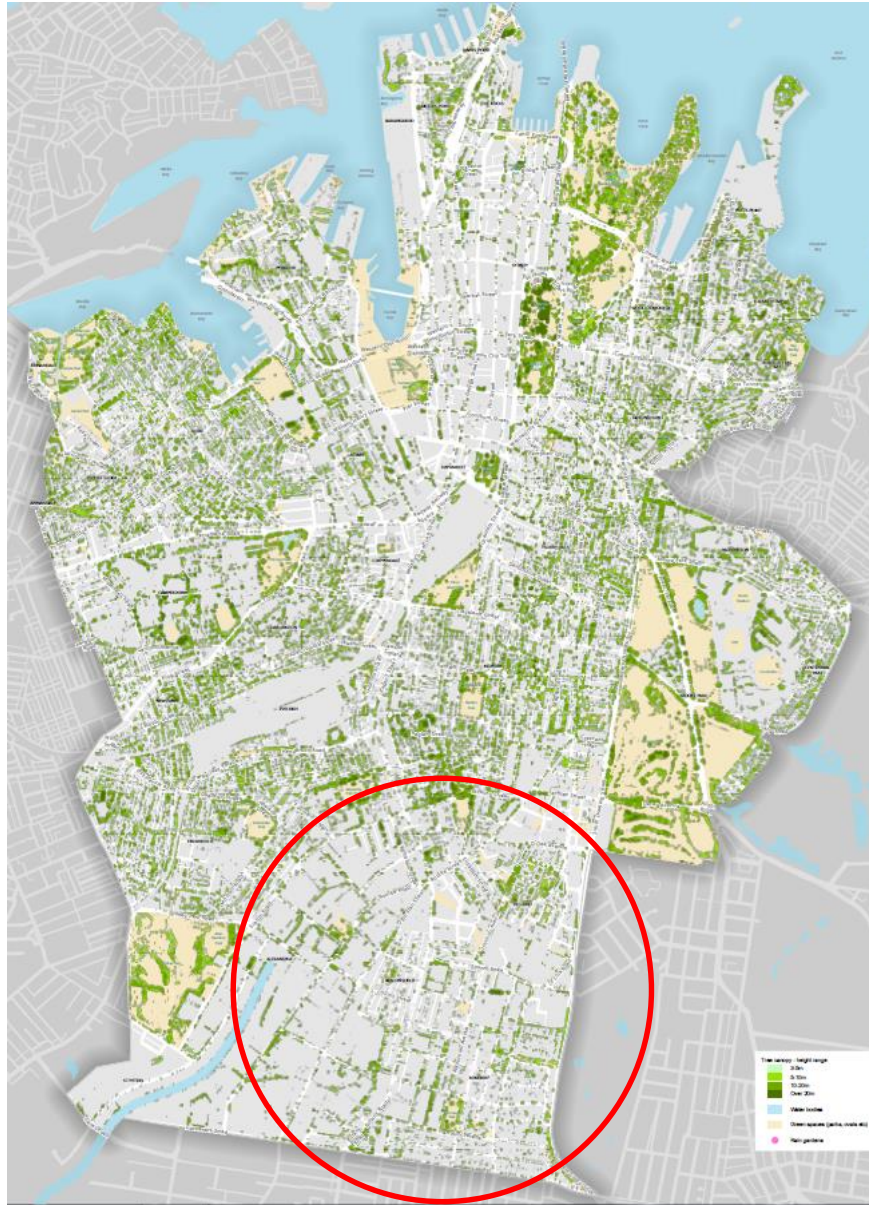
Location

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4 kilometres south of the Sydney CBD and 3.5 kilometres north of the Sydney Airport

Green Cover vs Heat Map







Green Corridor – Sustainable Urban Forest

Strategic Direction 1 - Protect and maintain the existing urban forest

- The City will prioritise the maintenance and protection of existing trees

Strategic Direction 2 - Increase Canopy Cover

- The City will increase the canopy cover from 15.5% to 23.25% by 2030, and then to 26.35% by 2050

Strategic Direction 3 - Improve urban forest diversity

- Increase species diversity of more than 40% for a family, 30% for a genus, and 10% for a species

Strategic Direction 4 - Increase community knowledge and engagement

- The City will educate the community on the benefits of trees and their management requirements,
- Assist community participation in the greening of Sydney.



Green Corridor – Sustainable Urban Forest

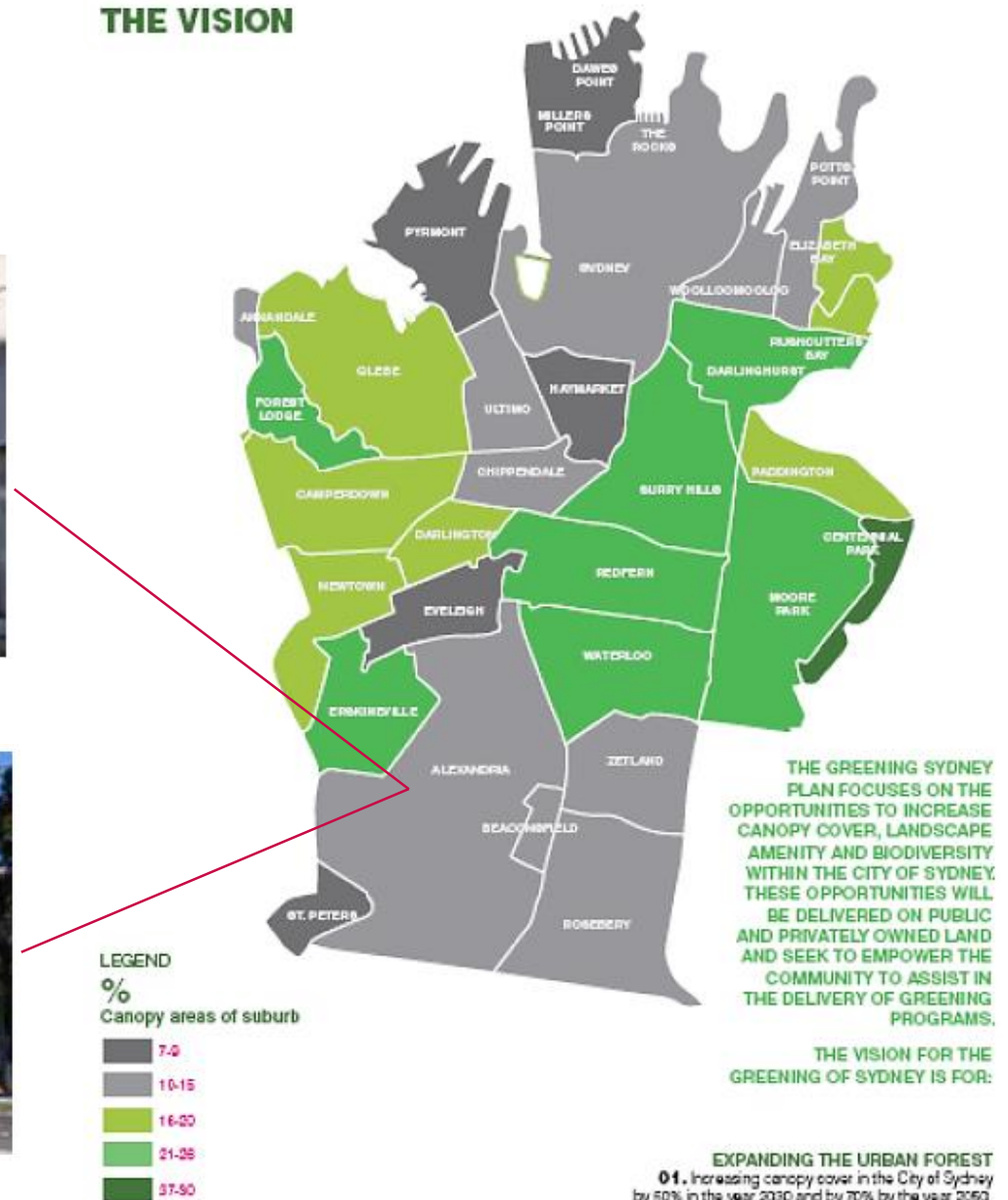
Current



Vision



THE VISION



Green Corridor

THE VISION

Current

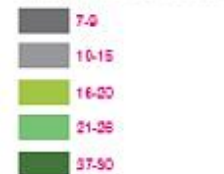


Vision



LEGEND

%
Canopy areas of suburb



THE GREENING SYDNEY PLAN FOCUSES ON THE OPPORTUNITIES TO INCREASE CANOPY COVER, LANDSCAPE AMENITY AND BIODIVERSITY WITHIN THE CITY OF SYDNEY. THESE OPPORTUNITIES WILL BE DELIVERED ON PUBLIC AND PRIVATELY OWNED LAND AND SEEK TO EMPOWER THE COMMUNITY TO ASSIST IN THE DELIVERY OF GREENING PROGRAMS.

THE VISION FOR THE GREENING OF SYDNEY IS FOR:

EXPANDING THE URBAN FOREST
01. Increasing canopy cover in the City of Sydney by 50% in the year 2030 and by 70% by the year 2050.

Heat Refuge

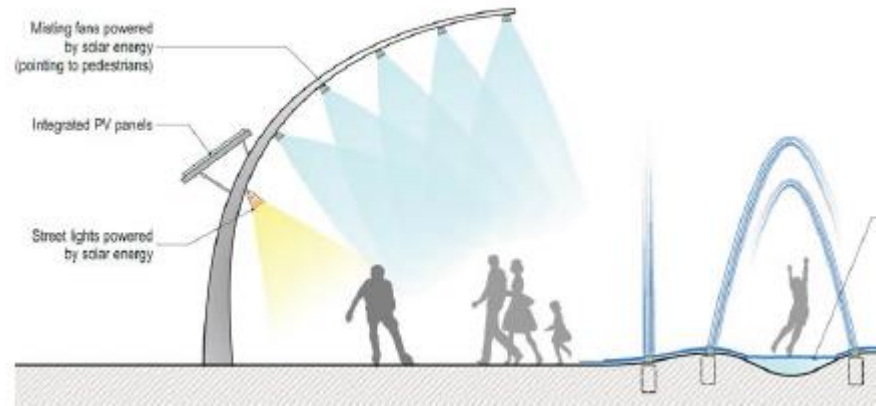
Green Square Town Centre Mitigation Action

- Reduced average ambient temperature by 1.3°C
- Reduced localised temperature by 6°C

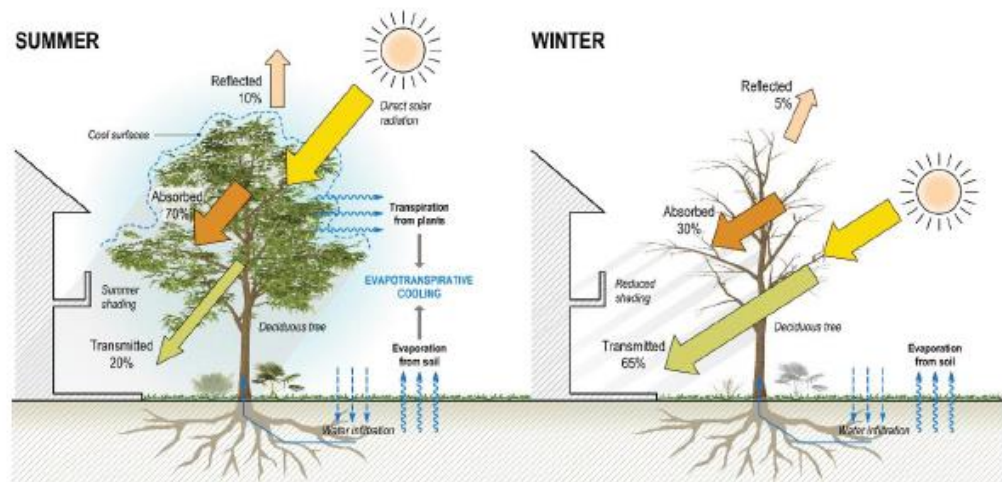
Green Open spaces (Parks) more for mixed dwellings

- Reduced radiant temperature by 2°C to 4°C
- Reduced ambient temperature by 1°C to 4°C
- Reduced surface temperature by 15°C

Water Features & Evaporative Cooling



Street Trees & Planting



Blue Corridor - Water in the Urban Form

Using urban design to create places that:

- Respond to water
- Express water and its cultural value
- Draw people to waterways
- Slow down and clean stormwater
- Provide greening, cooling and amenity benefits
- Promote biodiversity.



Blue Corridor - Recycled Water Implementation

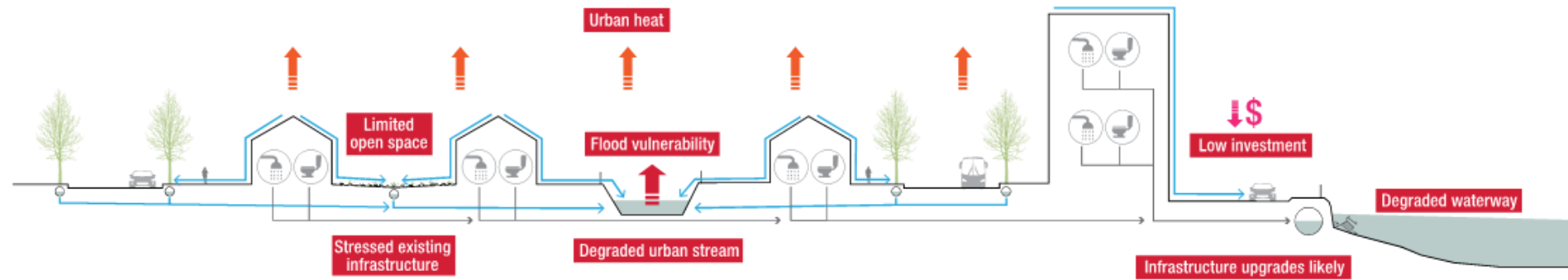
Park-scale stormwater harvesting

- Anticipated 52% increase in green space area by 2030

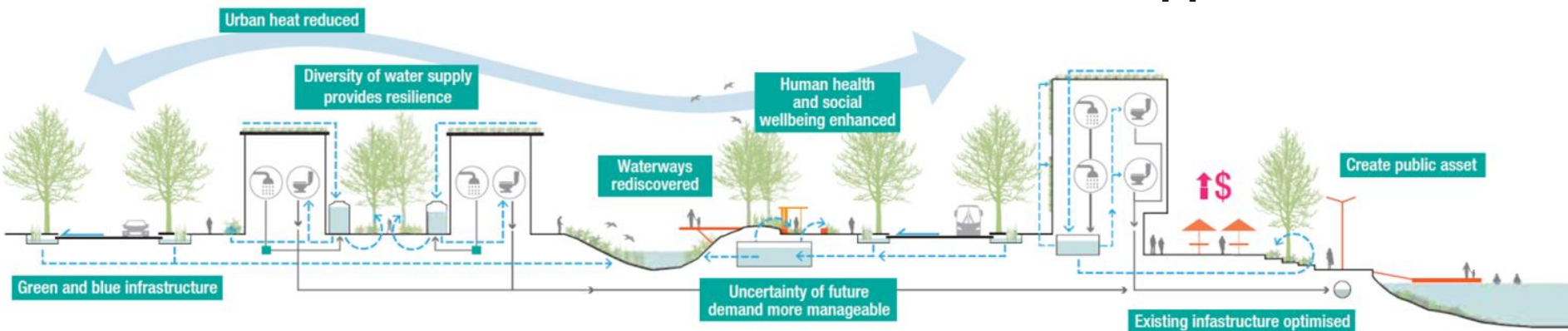


Blue Corridor - Integrated Water Management

- Current Approach



- Water Sensitive Approach



Blue Corridor – Water Demand by 2030

Figure 2.11: 2030 Growth in water demand

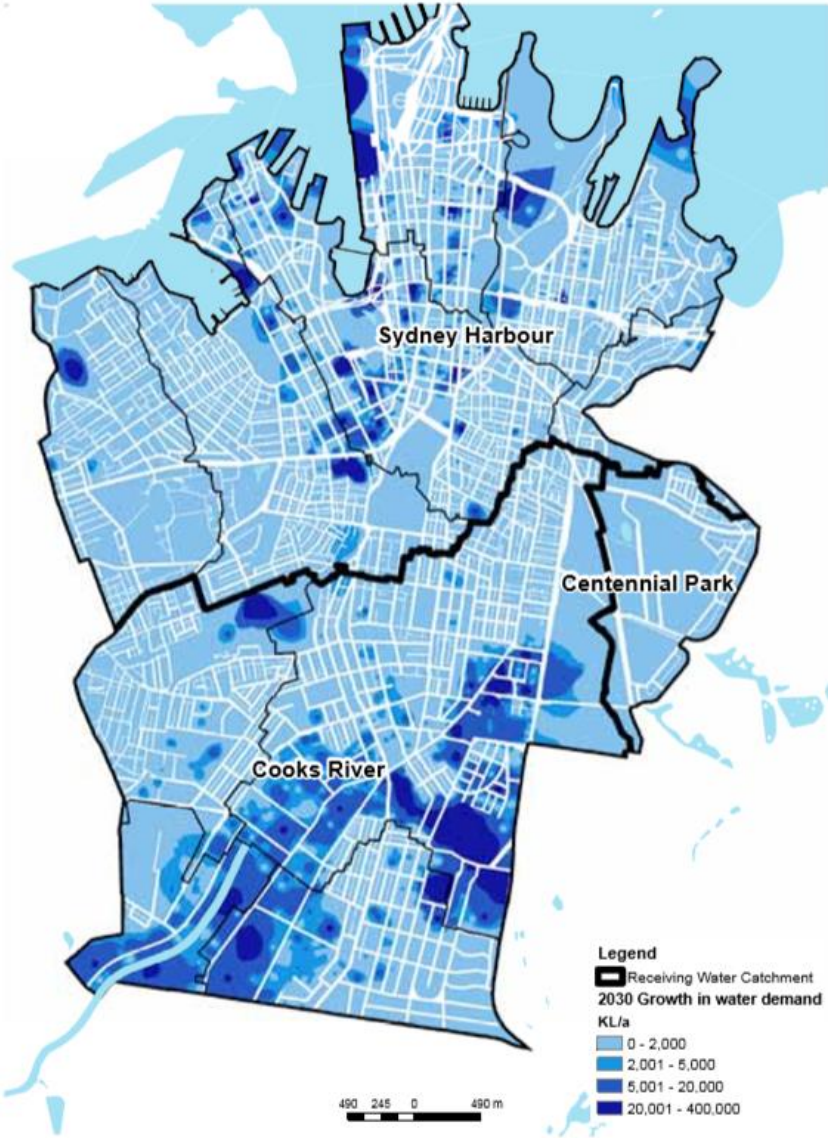
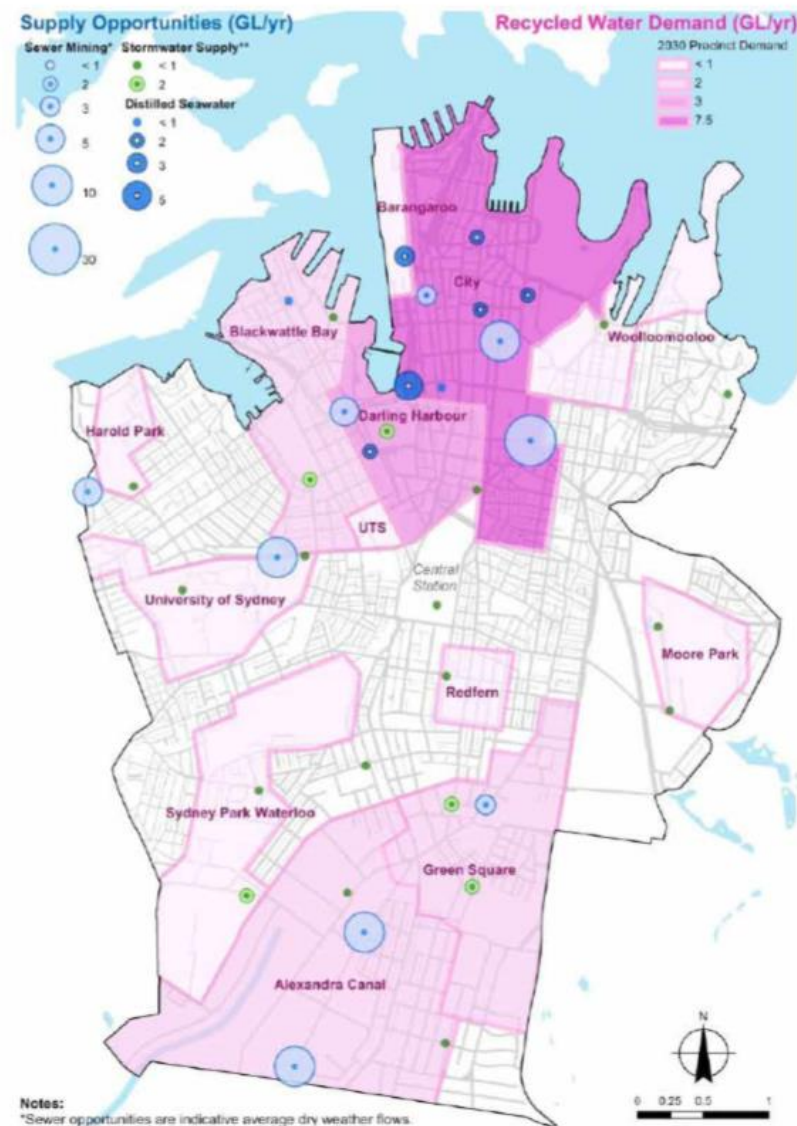


Figure 3.6: Precinct scale recycled water solutions across the city



Blue Corridor - Green Square Water Reuse

Stage 1.

- stormwater harvesting

Stage 2.

- wastewater recycling



Implementing Resilience

Improved resilience will occur when our organisations and communities:

- Understand community risks
- Emergency Managers' roles in managing and mitigating risks
- **Collaborate** with others to make decisions and have a seat at the table,
- Invest resources to take action.



Sydney
WATER

CITY OF SYDNEY 