

Evidence based interventions for urban cooling

COUNCIL NAME

Blacktown City Council

WEB ADDRESS

blacktown.nsw.gov.au

SIZE

246.9 square kilometres

POPULATION

336,962 people

Overview of the project

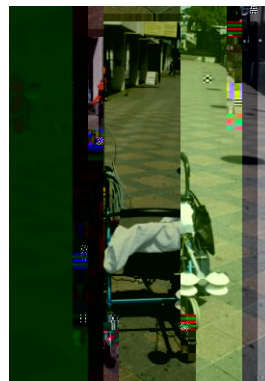
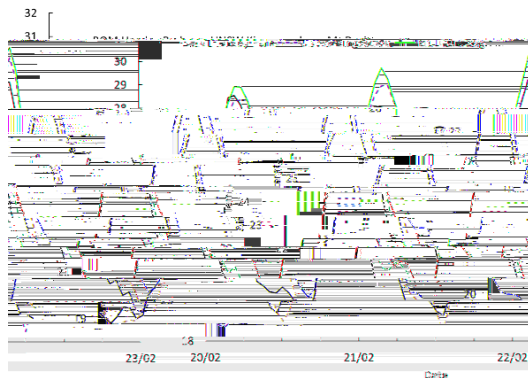
The combination of global climate change and urban overheating are leading to an increase in peak summer temperatures and intensity of heatwaves, especially in Western Sydney. Urban overheating has consequences for human thermal comfort, health, building cooling energy needs, and even the ability to live outdoors in the public space during significant fractions of summertime, especially for the vulnerable population. Here, we studied heat-mitigation and its benefits on ambient temperature, building energy needs, electricity demand and risk of heat-related mortality in Mount Druitt. We focused on increasing the resilience to climate change of Dawson Mall. This is a popular open-air shopping mall where Blacktown City Council may soon consider designs for urban revitalisation.



Unmitigated local climate in Mount Druitt

With a network of six temperature and humidity sensors, we monitored the local conditions for more than one year and observed that in Mt Druitt in peak conditions is 1.2-1.7 °C hotter than the values recorded at the Bureau of Meteorology's station in Horsley Park, which is approximately 10 km south of Mt Druitt, in a

3 locations in Mt Druitt, with mobile weather stations and a drone equipped with a thermal camera. Thus, we used the collected data to validate a microclimate simulation model.



Mitigation scenarios

Upon consultation between Blacktown City Council and UNSW, a microclimate model was calibrated with measured data to assess five design scenarios:



