**BRIEFING NOTE**

# Research study: Benchmarking summer heat across Blacktown's diverse urban landscapes

April 2025

## 1. Background

The LGA of Blacktown City is in a part of Greater Sydney that historically has higher summer air temperatures compared to urban areas further east. Increasing summer heat as result of broadscale warming and rapid urban development accelerate the issue.

Blacktown City is a leader in heat adaptation programs involving urban greening programs and piloting heat shelters. Yet it lacks information about the variability of microclimates across the LGA and has no information about thermal environments experienced by residents and workers. There is no official BoM weather station at any location in Blacktown. This is a limitation when developing strategies that aim to keep Blacktown's population safe in increasingly hot summers of the coming decades.

## 2. This study

During the summer 2023/24, this study documented air temperature at 198 locations across the LGA, recording a total of more than 2.5 million measurements. The results from this novel work provide a detailed understanding of air temperature variation across Blacktown City, which form a robust evidence base to inform the development of effective cooling interventions and strategic heat adaptation and mitigation planning and underpin heat emergency policies and procedures.

## 3. Key findings

During regular summer days, microclimates across the LGA differed by 5°C (e.g., 32-37°C). With a summer mean of 24.4°C, the warmest suburbs were Marsden Park (residential) and Arndell Park (industrial) while Shanes Park (peri-urban) was the coolest (22.7°C). Temperature differences during heatwaves were regularly more than 7°C and rose to 15°C with the arrival of the southerly change at the end of heatwaves.

There were 27 hot days (air temperatures ≥35°C) in Eastern Creek and Schofields, but in Minchinbury here were only six hot days. The number of days of 'extreme' heat (air temperatures ≥40°C) varied greatly too: there were six days of extreme heat in the suburbs of Eastern Creek, Schofields, Willmot and The Ponds, but only one in Minchinbury. These results demonstrate the wide variation of air temperatures across short distances inside the Blacktown LGA.

## 4. Recommendations

The report provides 10 clear recommendations. Listed here are 4 examples:

→ Develop and implement surface- and air-cooling strategies in the Blacktown DCP and LEP with specific focus on greenfield developments and revitalisation project of town centres and transport hubs (e.g., Mt Druid Hub, Seven Hills Station).

→ Lobby the NSW Government to accept and implement all recommended changes to the NSW planning system proposed by WSROC and the Greater Sydney Heat Taskforce, including amendments to the Standard Instrument LEP to cover issues related to urban heat, create an Urban Design Guide for cooling, introduce measurable urban heat controls in State Environmental Planning Policies and modify BASIX to cover indoor and outdoor thermal safety, among others.

→ When assessing DAs for approval, request that results from a WSROC Cool Suburbs Tool are included to show best practice to mitigate heat from development.

→ Greener suburbs were identified as cooler suburbs, providing a clear mandate to improve tree canopy cover for the purpose of improved thermal comfort of the public.

## 5. Conclusion

Global warming, land use change, urban densification and population growth are realities that Blacktown City is facing now. All of them will further amplify summer heat across the LGA. Science has established that any conventional urban development results in additional warming and loss of cooling capacity. Hence, new, effective and inspiring strategies and designs are needed to reduce the risk of heat harming people, nature, infrastructure and business. Today, communities across western Sydney, including those in Blacktown, are paying $1.4 billion annually to account for the impacts from extreme heat, and the costs continue to increase. Results of this research project can assist Blacktown City to demonstrate leadership in the establishment of climate-resilient suburbs and communities. Moreover, the report can be used to inform discussions about the heat-related outcomes of contemporary planning tools at different levels of government.

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