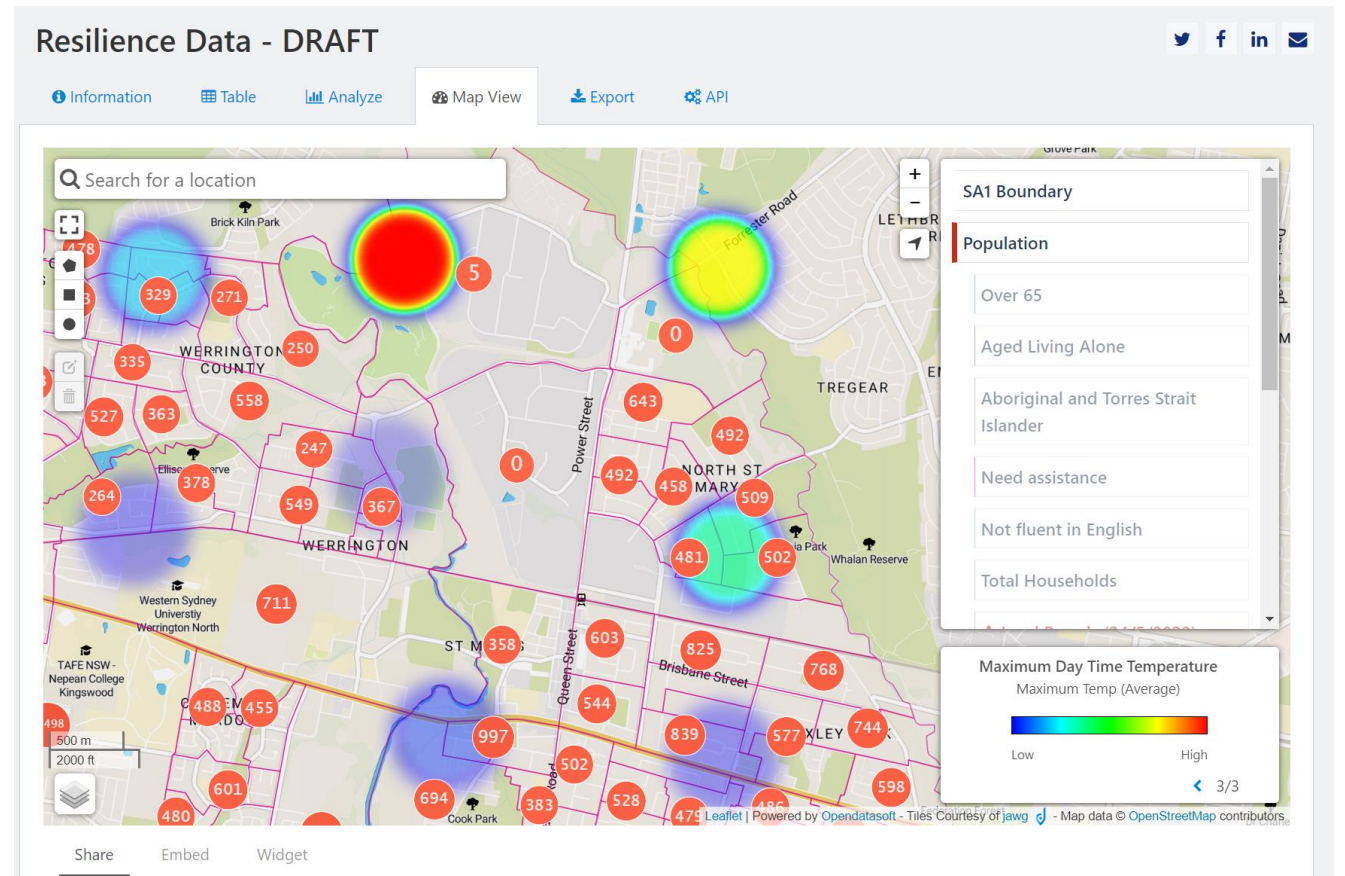




PENRITH RESILIENCE MAPPING PROJECT

Adam Worthington
Manager Data and Visualisation

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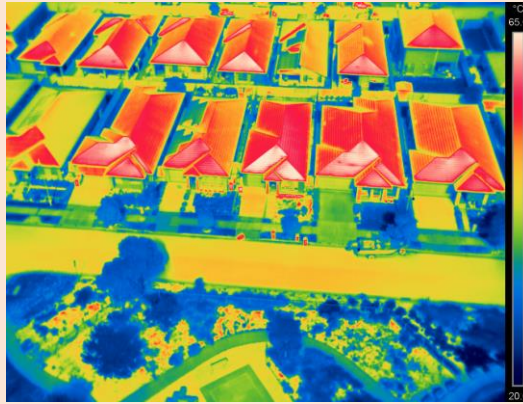


2022 NGAA Research and Practice Symposium
24 August 2022

Project background and purpose

- Penrith is one of 8 Councils in the **Western Parkland City**, one of Australia's fastest growing regions.
- Penrith is located on the Nepean River, at the foot of the Blue Mountains, and **at high risk of climate change-related, extreme weather 'shocks.'**
- Planning for the **Resilient Penrith Action Plan** required integrating GIS data to understand **where** climate shocks are most likely to occur as well as **who** may be most vulnerable to these shocks.

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'Climate shocks'

Extreme Heat - In the of summer 2019/20 Penrith was reported as the '*Hottest place on the planet*' with recorded temperatures over 50°C at 6 locations across Penrith on 4 January 2020.

Bush fire - Smoke from Bushfires from Oct-Dec 2019 resulted in 81 days of poor air quality causing widespread health issues respiratory illness.

Flooding of the Hawkesbury–Nepean River

- **March 2021** "the largest flood in 30 years" at 9.0 metres impacted 600 dwellings and 300 buildings.
- **March 2022** a 'moderate' flood at 8.33 metres
- **July 2022** flood peaked at 9.51 metres required 116 flood rescues and 1,593 requests for assistance

Project outline and method

Climate related spatial data owned by Penrith City Council, including:

- **Floods** - Nepean River and South Creek Flood studies
- **Bushfire risk** and buffers
- **Heat sensor** data

is combined with

- **Cadastre** property boundaries

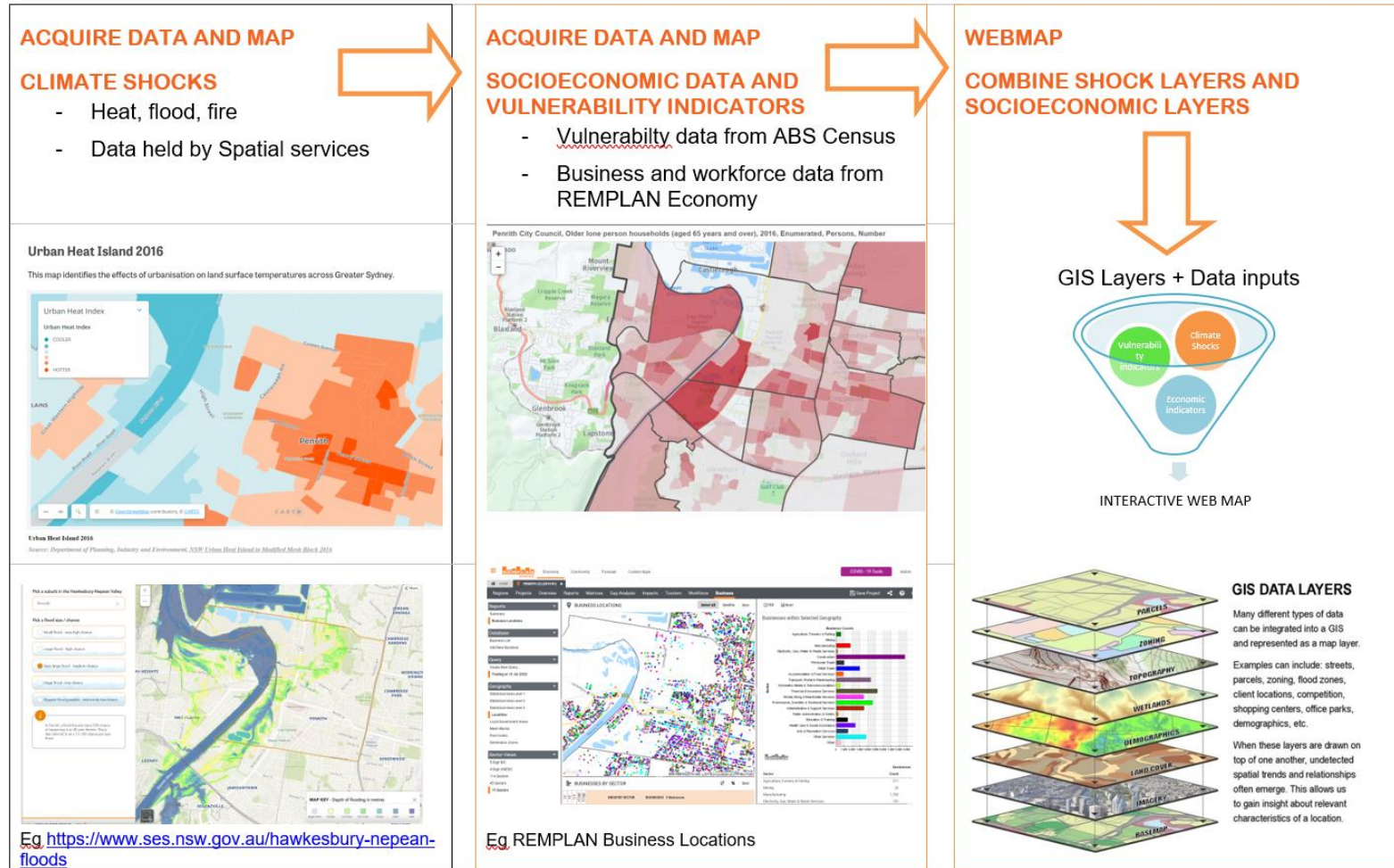
and

- **ABS Census data** to identify distribution of population of 'Vulnerable groups', at the smallest statistical area (SA1)

The identified most vulnerable groups included:

- People with disability
- People aged 65 years and older
- Older people living alone
- People with limited English language skills
- Low-income households
- Households without motor vehicles
- Households without internet

To estimate numbers of people, households or properties in areas at risk of climate shocks.



Live Demo links

The data is now being integrated into Penrith City Council's new data portal

- Data.Penrith.city
- [Penrith Insights —
Data.Penrith.City](https://Data.Penrith.City)

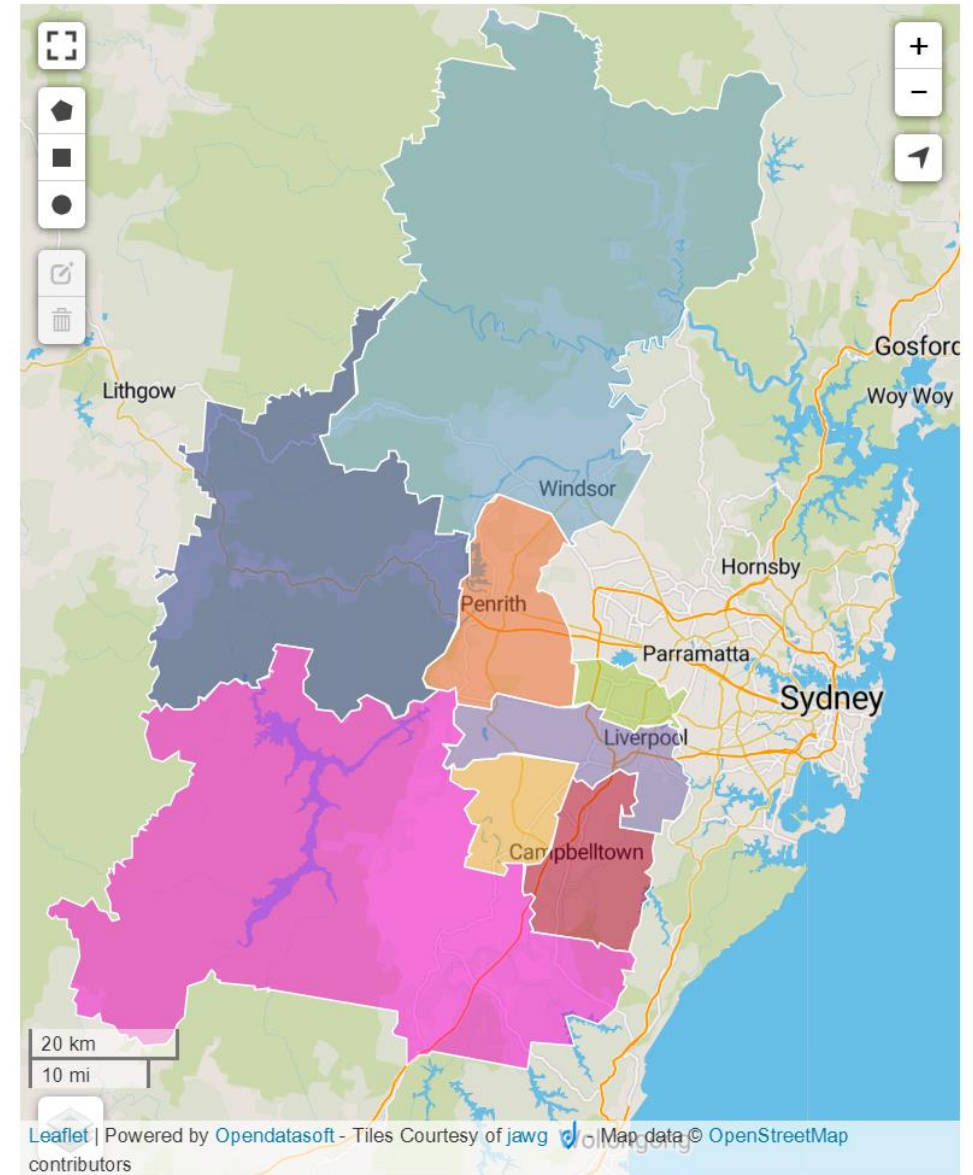
Next steps will be

- Updating the ABS data with Census 2021 data
- Including latest flood mapping
- Seeking user feedback and further improvements

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Western Parkland Councils

Map highlights the boundary of 8 Western Parkland Councils



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Dashboard development

The next phase of the project is the development of a dashboard that will allow users to

1. Explore each climate shock
2. Select population group
3. Select areas at different scales by geography:
 - Suburb
 - SA1or by drawing a polygon

The dashboard will calculate and show an **estimated** number of properties, people and/or households in the selected area that **may be at risk** of being impacted by a climate event, that is either heat, bush fire or flood, to help Council plan and prepare for future events.



Explanation of resilience, climate shocks and vulnerable groups



Explore maps by climate-related event

Select population group

Select geography



Summary information about area impacted and population groups for selected geography in charts

Questions and Discussion