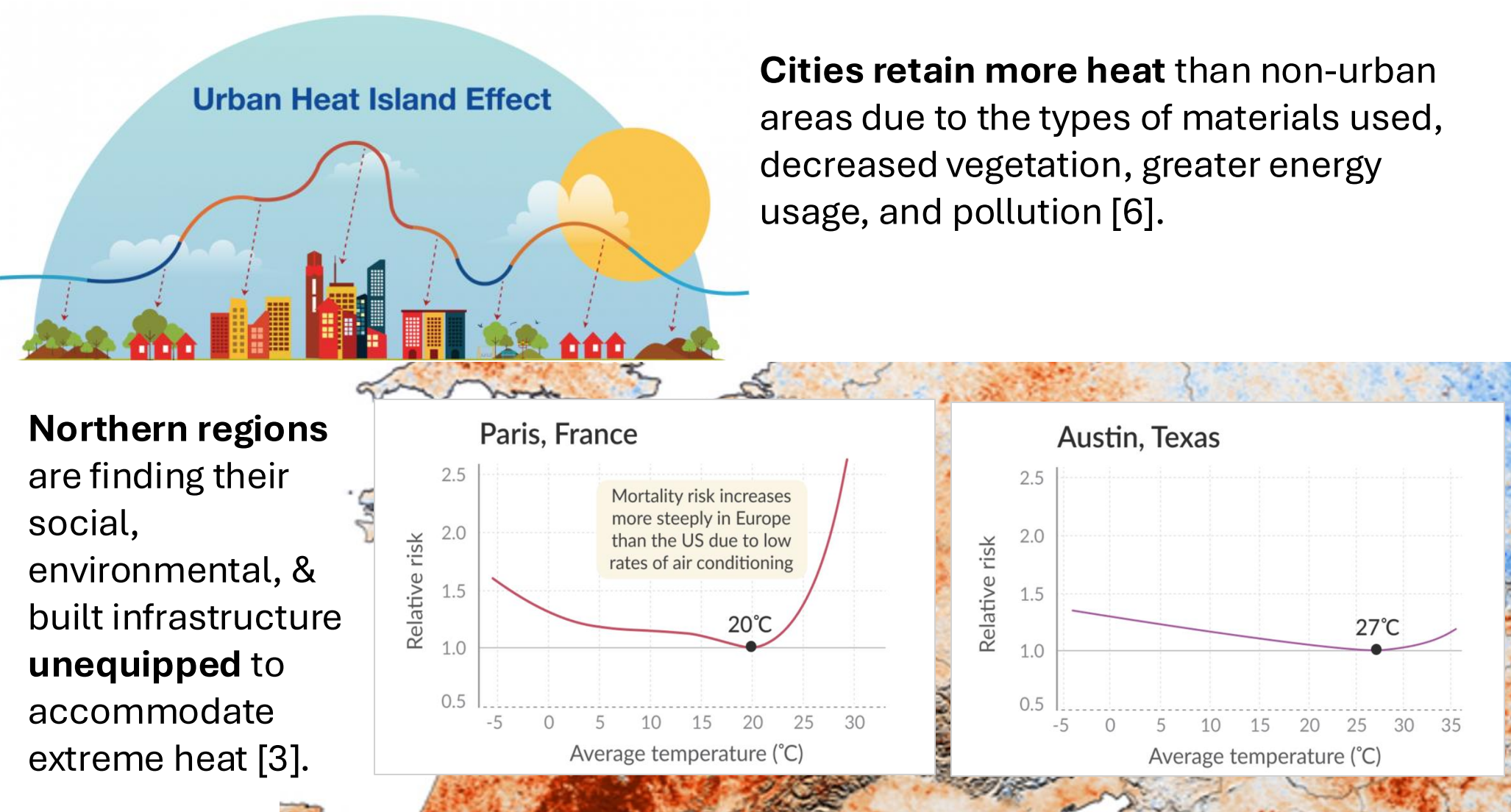


Extreme Heat in Temperate Cities



Heat Vulnerability

How **susceptible** an individual or community is to **heat-related illness** or **death**



Heat Vulnerability in Worcester, MA

Aging housing stock



of Worcester's residence buildings are **triple-deckers**, built between **1880-1930** [5].

Socio-economic challenges

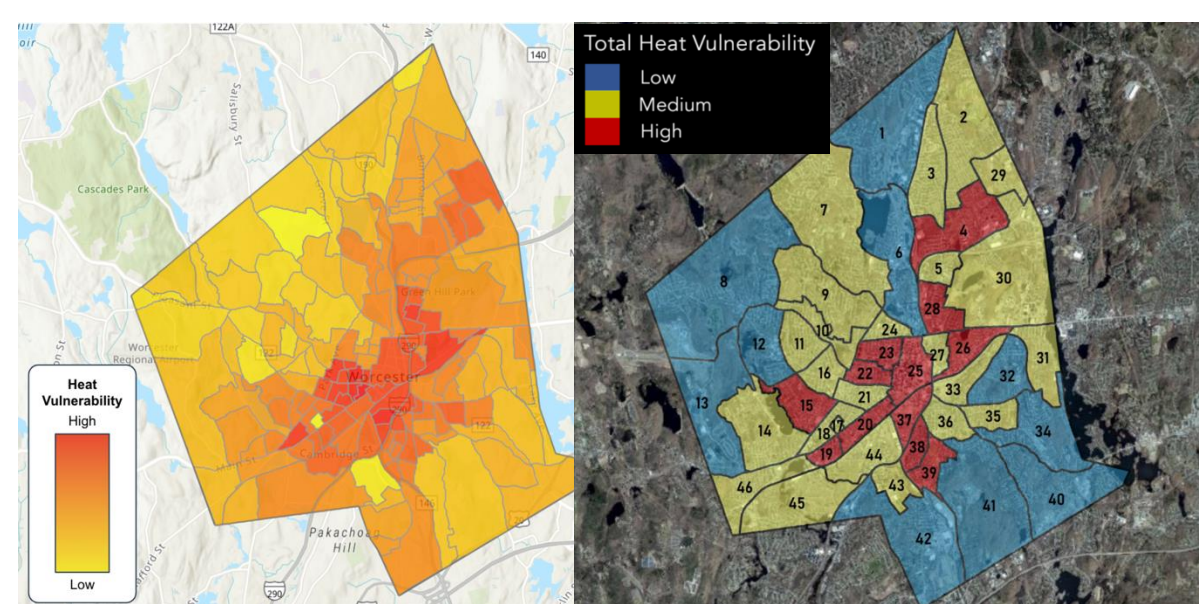
20% below federal poverty line [7]

23% immigrants [1]

Research gaps

Modeling vulnerability through aggregate Census data

- Assumes the factors that shape heat vulnerability are the same in every city
- Overlooks residents' values & experiences



Goal: Identify **interventions** for **alleviating heat vulnerability** in Worcester, MA that would best meet the needs of residents.

Research Instruments

Survey

328 Worcester residents

Interviews

8 residents, 3 landlords, & 5 local experts

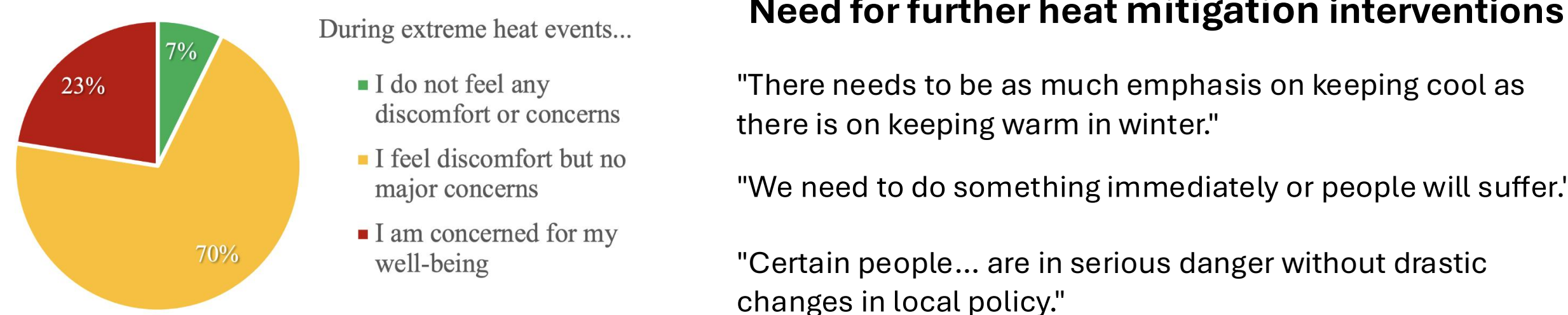
How do Worcester residents **perceive extreme heat** in the city?

Which areas of residents' **lives** are **disrupted** by extreme heat?

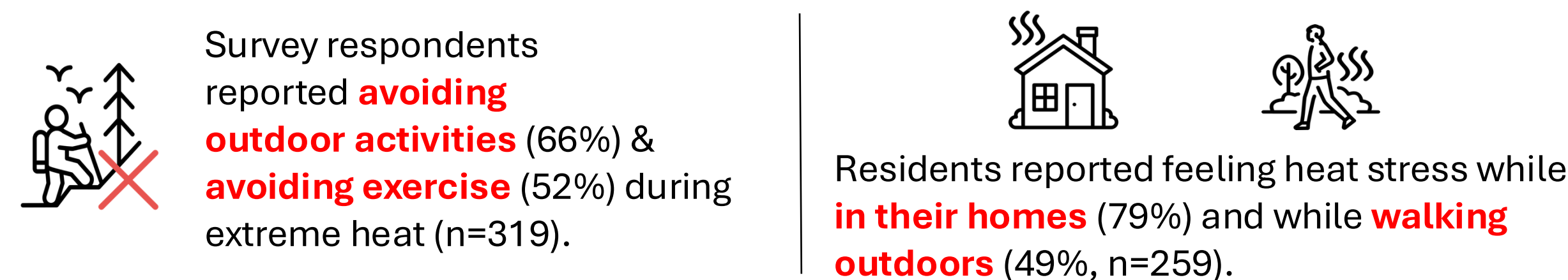
Which **populations** in Worcester **feel vulnerable to extreme heat**?

What **cooling measures** do residents **rely on** and what **barriers** impede cooling?

Worcester residents' perceptions of extreme heat



How extreme heat impacts Worcester residents

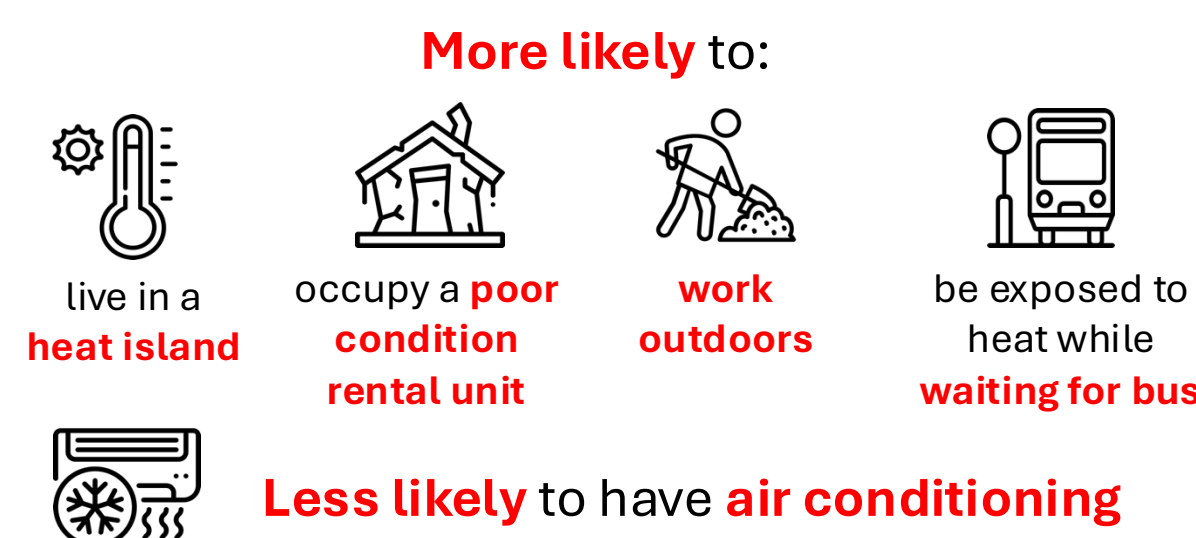


Heat vulnerable populations in Worcester

Individuals of **low-income** status



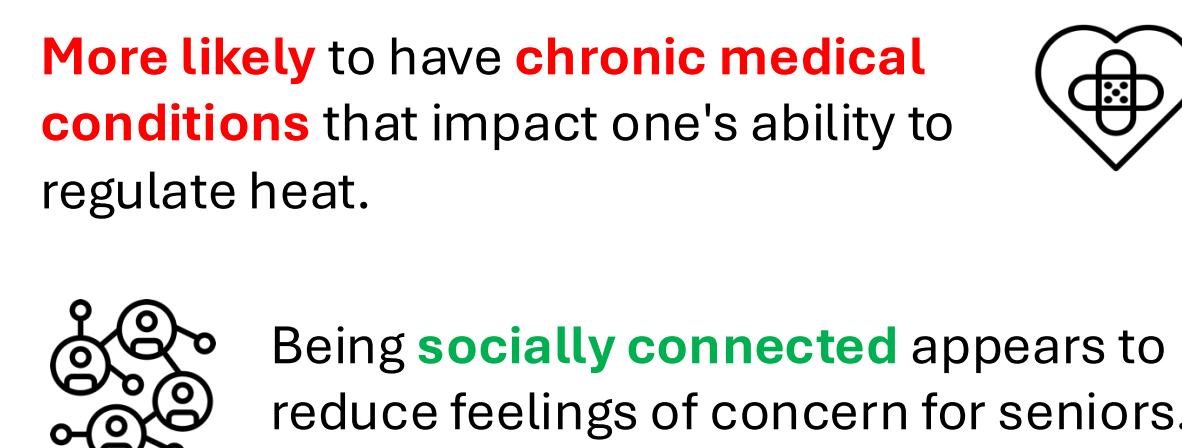
of survey respondents with incomes **<\$25,000/year** reported feeling **concerned for their well-being** during extreme heat (n=44) vs. 18% of those making over \$25,000 (n=217).



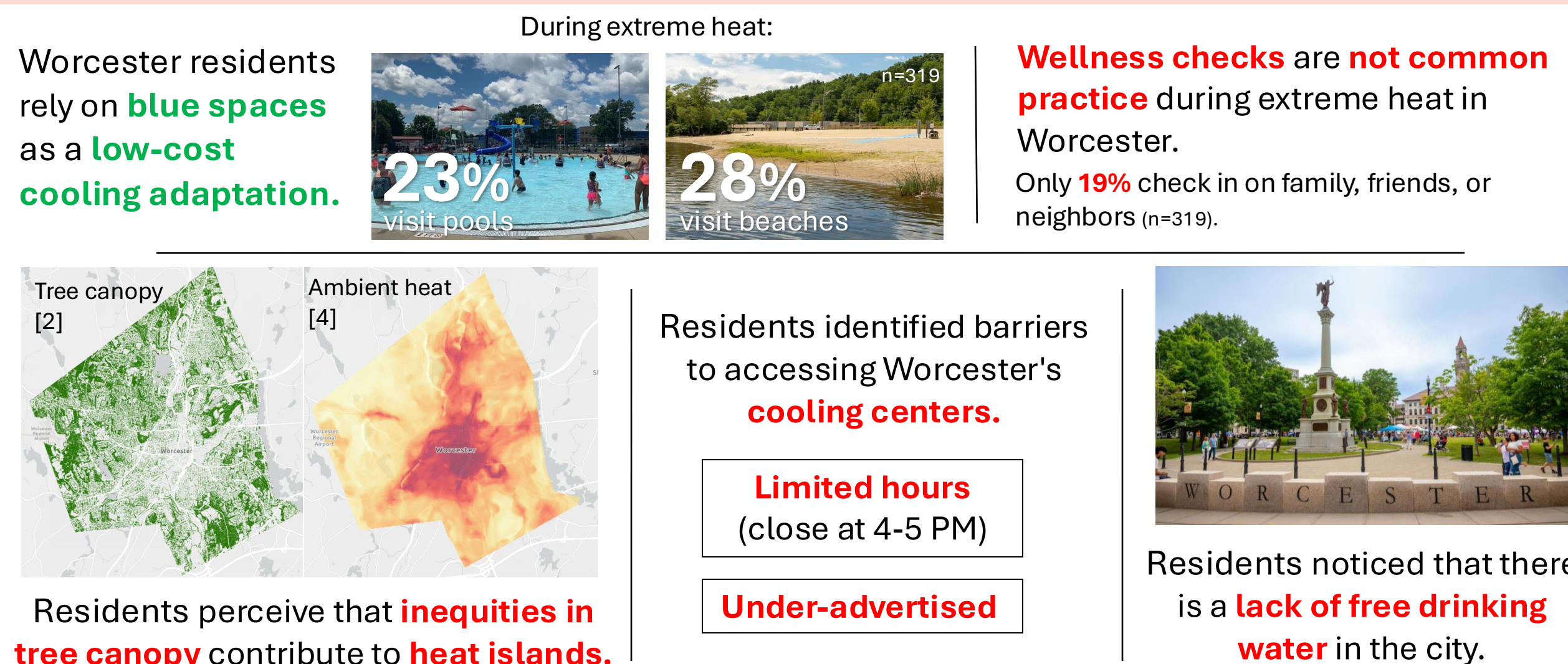
Elderly individuals



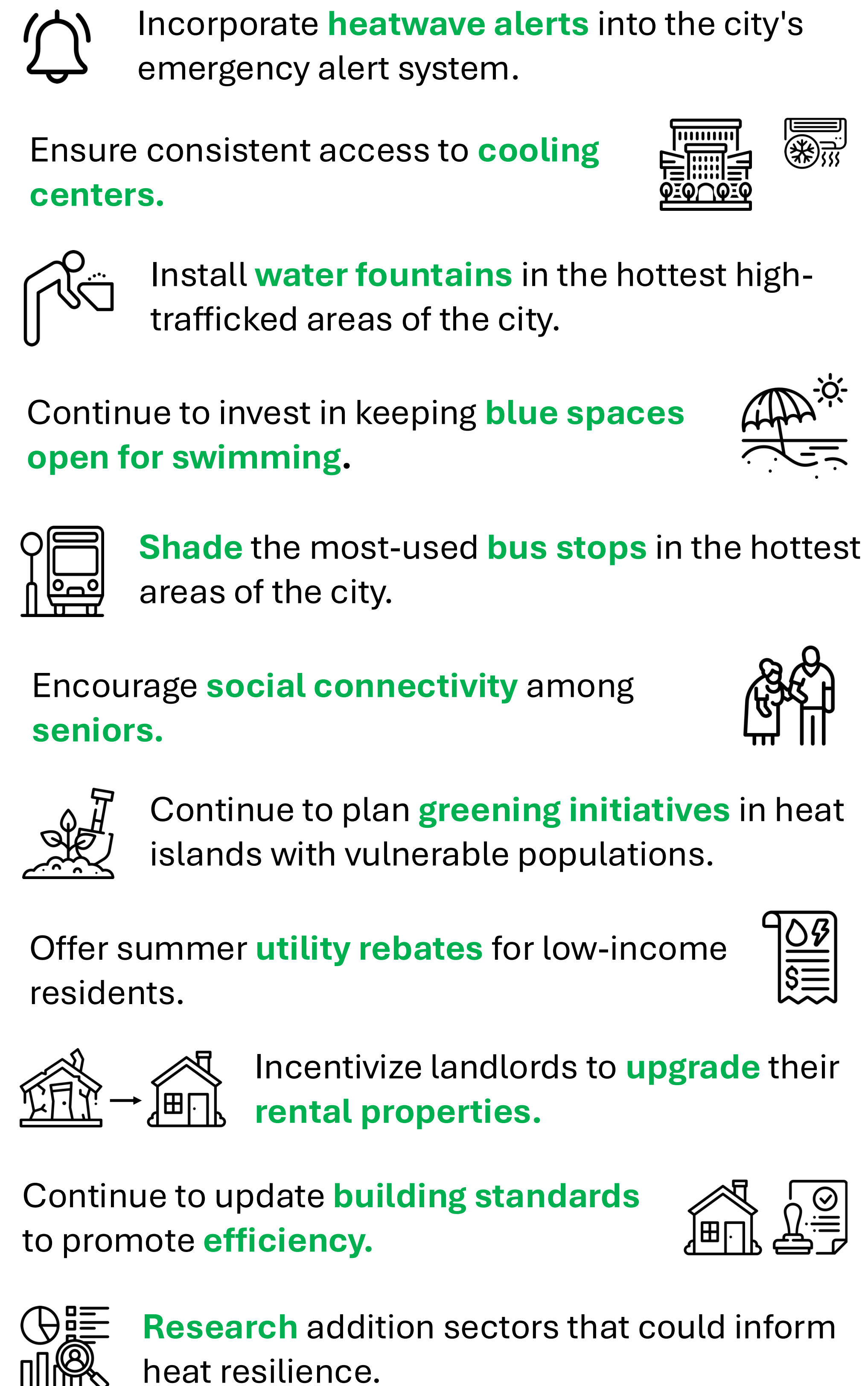
of survey respondents **older than 65** reported feeling **concerned for their well-being** during extreme heat (n=26) vs. 19% of those 65 and younger (n=226).



Cooling measures & barriers to cooling



Recommendations



Acknowledgements

I would like to thank **Professor Stephen McCauley** for his guidance throughout all stages of the project, **Varun Bhat** and **Sol Giesso** for directing the creation of the research instruments and aiding in the data collection process, and the **Worcester Department of Sustainability and Resilience** for providing feedback on the findings and recommendations of this report. This project would also not have been possible without the invaluable insight provided by the **research participants**.

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