

Integrating heat research and practice in the nation's hottest large city

NASEM Communities, Climate Change, and Health Equity Workshop | June 20, 2023

David Hondula, ASU School of Geographical Sciences and Urban Planning
& City of Phoenix Office of Heat Response and Mitigation

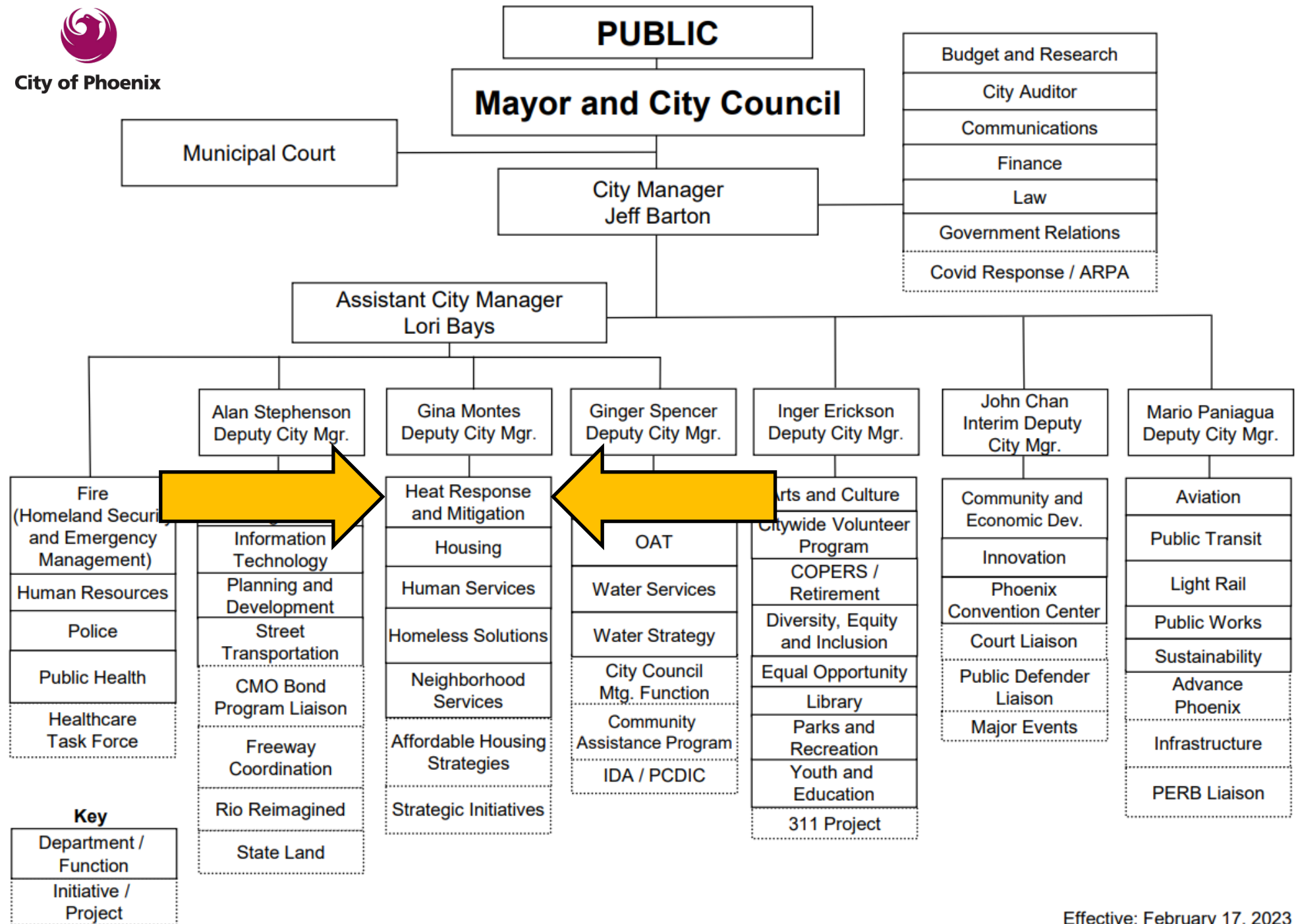
E-mail: David.Hondula@asu.edu Twitter: [@ASUHondula](https://twitter.com/ASUHondula)





*Section 102(2) of the Robert T. Stafford Disaster Relief and Emergency Assistance Act (42 U.S.C. 5122(2)) is amended by inserting “**extreme heat**,” before “or drought”.*

Arizona Republic/AZ Central, June 2023



Knowledge base motivating heat action

- ✓ Significant public health risk
- ✓ Prioritized community concern
- ✓ Climate and urban climate dynamics
- ✓ Environmental + social + technological
- ✓ Environmental justice



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THE HUMAN COST OF HEAT

In 2016, 150 people in Maricopa County died of heat. Here are the stories of 30 of them. Click on a name or photo to read more.



Ackenback



Bartashy



Bustillos



Carr



Daniel



Goldman



Gubrud



Hayes



Hedetniemi



Holub



Libby



Mackin



Magos



Makepeace



Morgan



Nemmers



O'Banion



Ortiz



Poure



Ramsdell



Rhodes



Rutenber



Sanchez



Shannon



Slane



Smith



Statom



Sturdivant



Thompson



Tucker

<https://static.azcentral.com/human-cost-heat/>



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NEWSROOM

Applications Open for Third Annual Urban Heat Leadership Academy

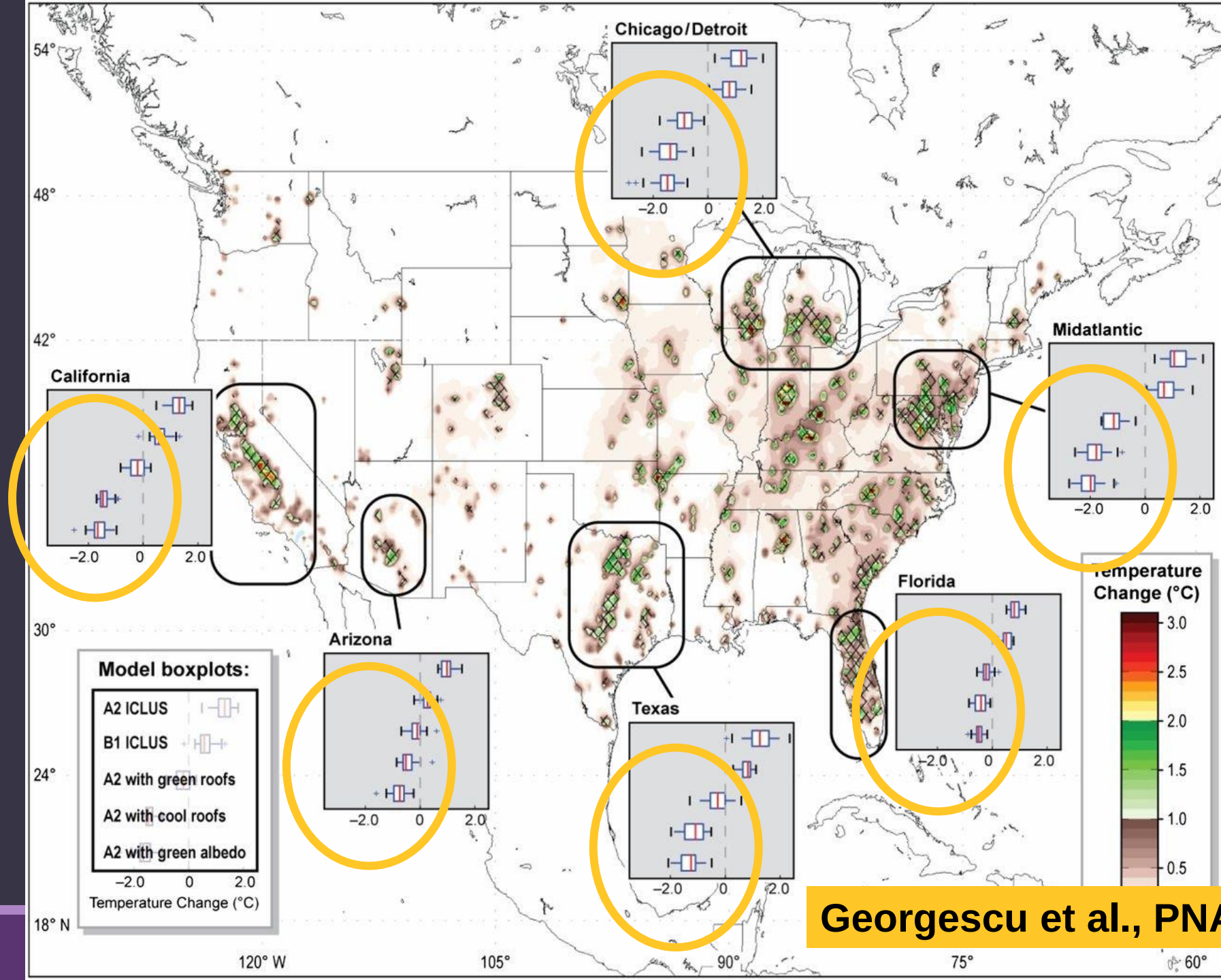
Award-winning grassroots program teaches Phoenix residents to build greener, cooler communities.

May 08, 2023 | Phoenix, Arizona

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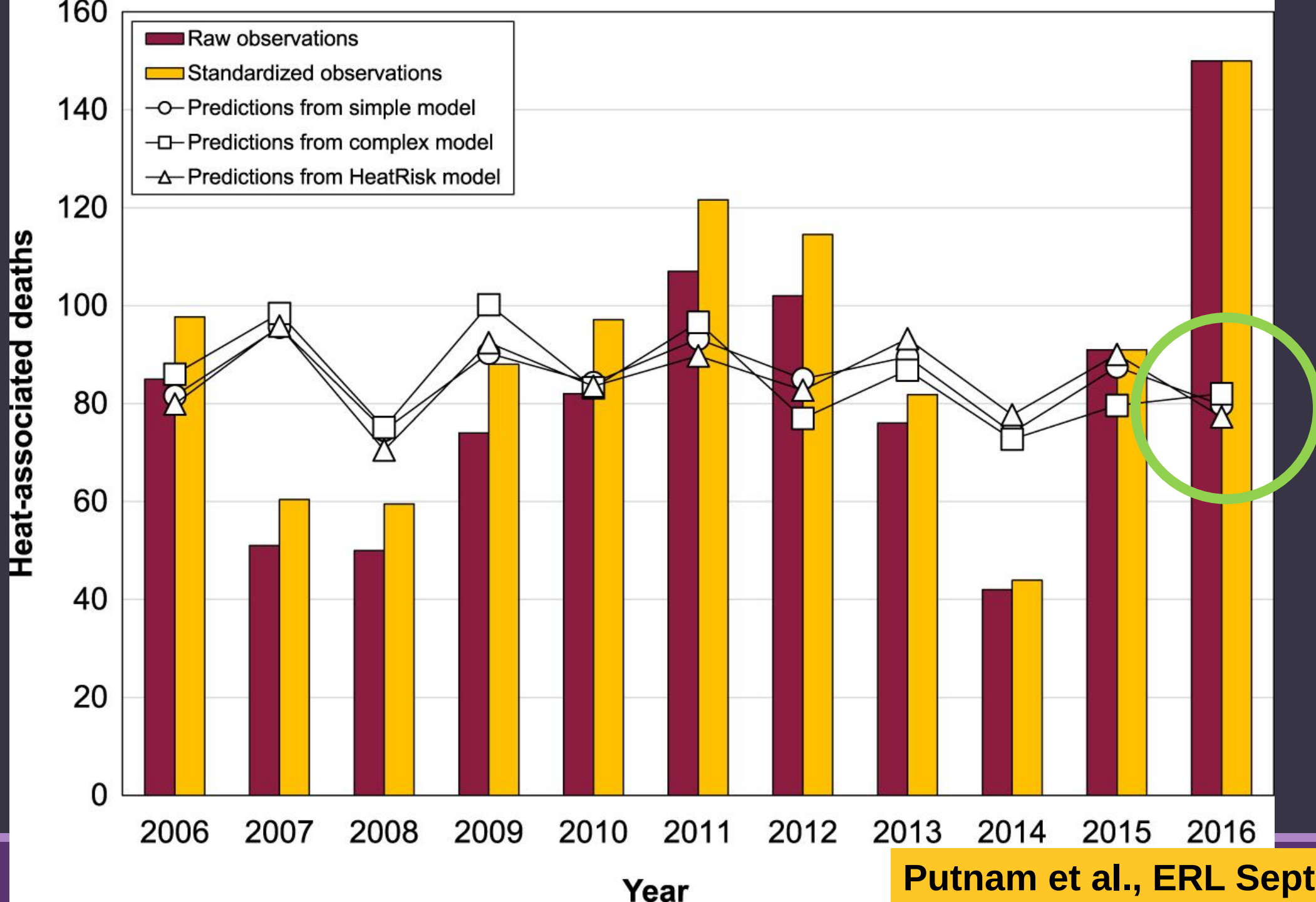


Georgescu et al., PNAS Feb. 2014

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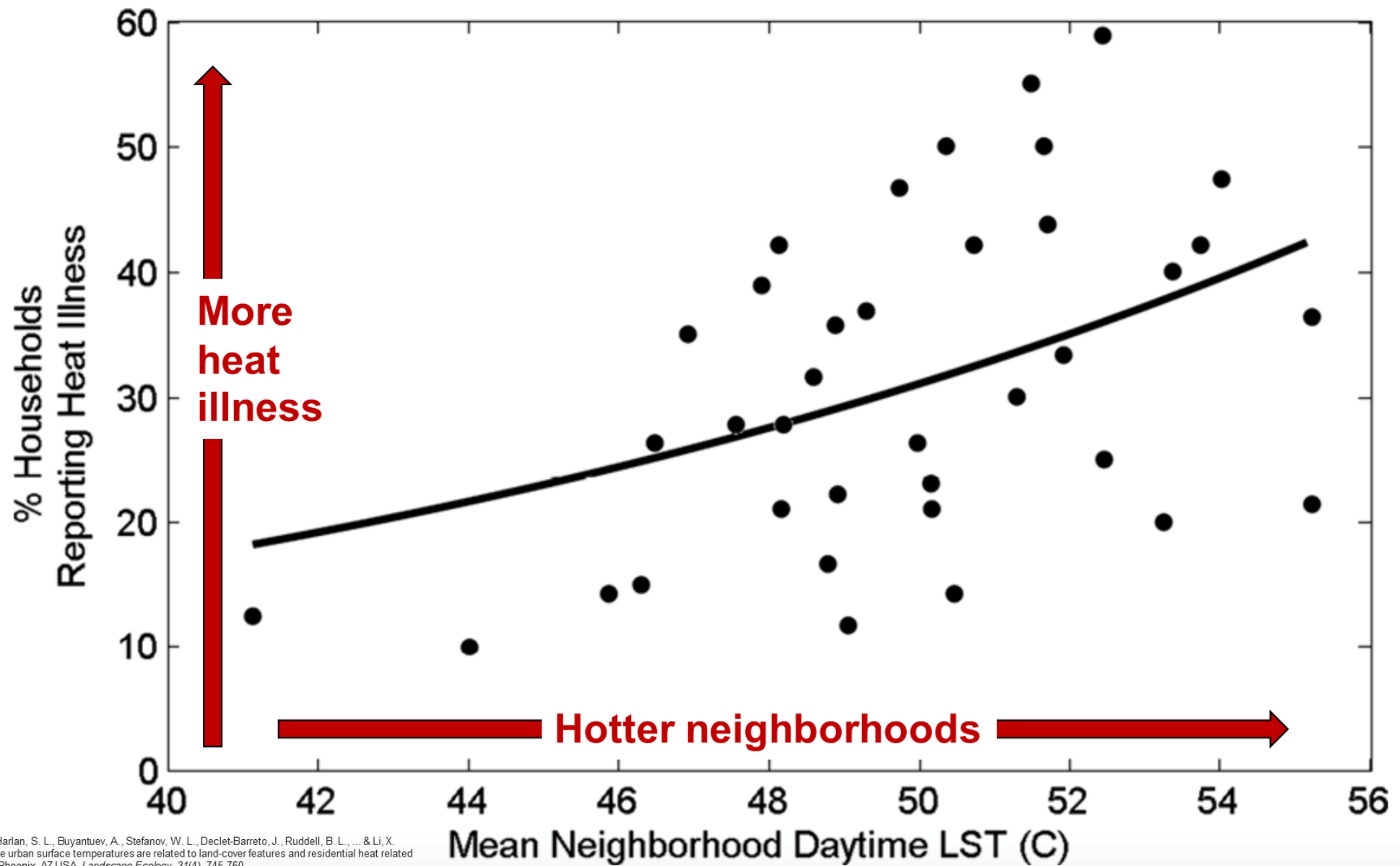




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Jenerette, G. D., Harlan, S. L., Buyantuev, A., Stefanov, W. L., Delet-Barreto, J., Ruddell, B. L., ... & Li, X. (2015). Micro-scale urban surface temperatures are related to land-cover features and residential heat related health impacts in Phoenix, AZ USA. *Landscape Ecology*, 31(4), 745-760.

“...the **kids don't really go outside to play because it's too hot.** So, they'd rather stay indoors and watch movies, and play on Xbox, and watch Netflix, **and that brings about illnesses, or obesity,** and that kinda stuff.”

-S. Phoenix Resident



What is needed to improve heat action?

- Clearer and community-rooted goals
- Consistent and accessible health data
- Investment in evaluation
- City-embedded and supported researchers
- Heat portfolio management (How much? Who?)



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Riverview Park, Mesa AZ



Sky Harbor Airport, Phoenix AZ

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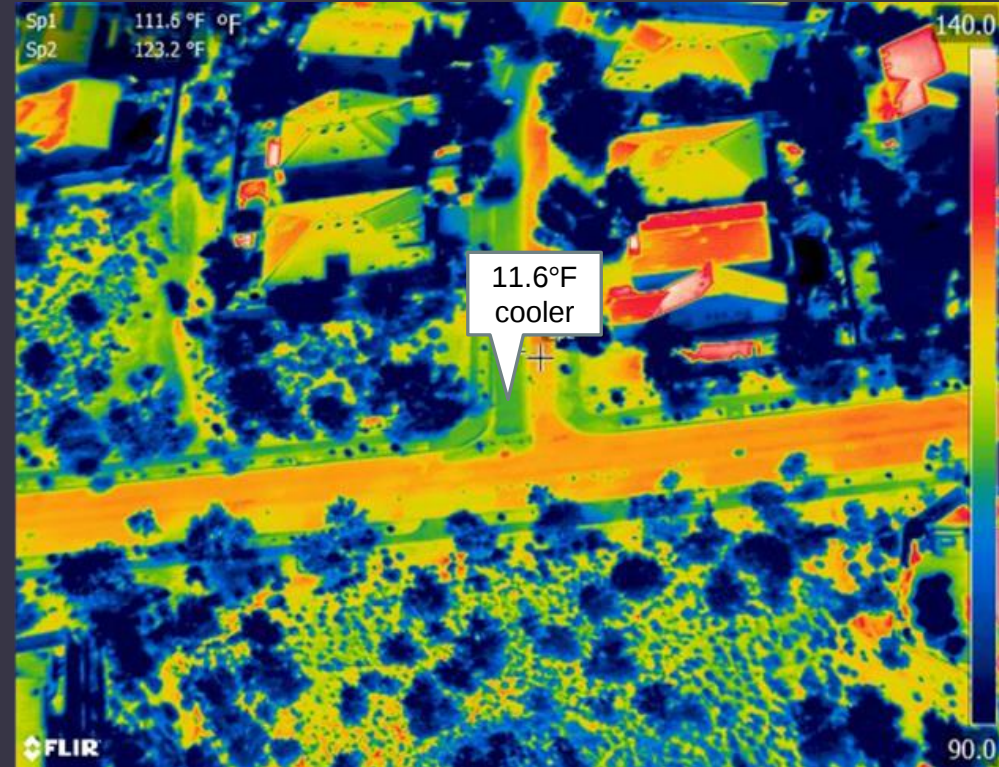


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Cool Pavement Program – Streets Dept.



Sept 10, 2020
12:45pm



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Article | Open Access | Published: 16 March 2023

Evidence-based guidance on reflective pavement for urban heat mitigation in Arizona

Florian A. Schneider, Johny Cordova Ortiz, Jennifer K. Vanos, David J. Sailor & Ariane Middel

Nature Communications 14, Article number: 1467 (2023) | Cite this article

568 Accesses | 14 Altmetric | Metrics

Abstract

Urban overheating is an increasing threat to people, infrastructure, and the environment. Common heat mitigation strategies, such as green infrastructure, confront space limitations in current car-centric cities. In 2020, the City of Phoenix, Arizona, piloted a “cool pavement” program using a solar reflective pavement seal on 58 km of residential streets. Comprehensive micrometeorological observations are used to evaluate the cooling potential

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Sections

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References

Abstract

Introduction

Results

Discussion

Methods

Data availability

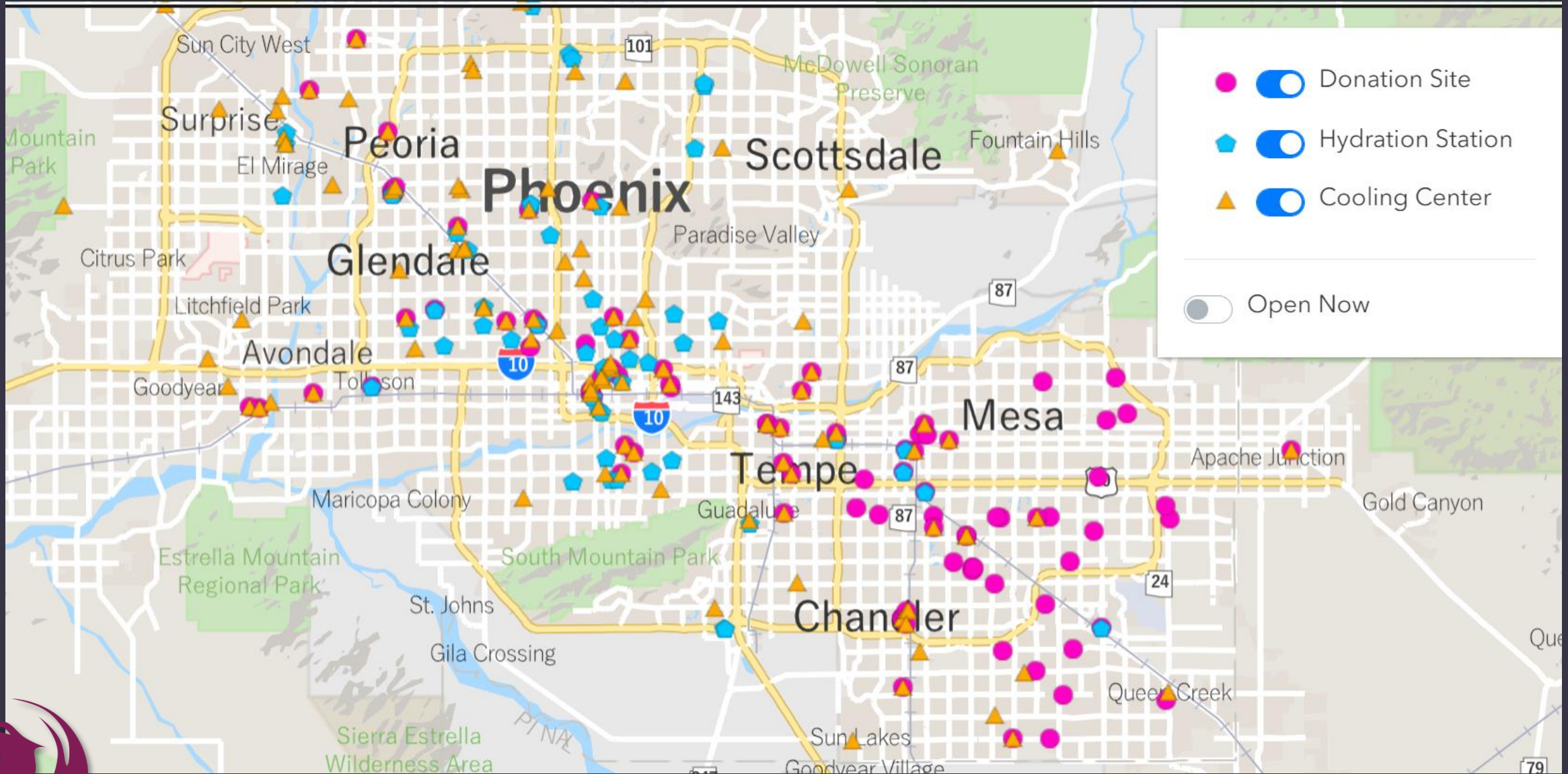
Code availability

References

Acknowledgements



2022 Heat Relief Network - Last Updated: 05/25/2022



Community investments with heat co-benefits

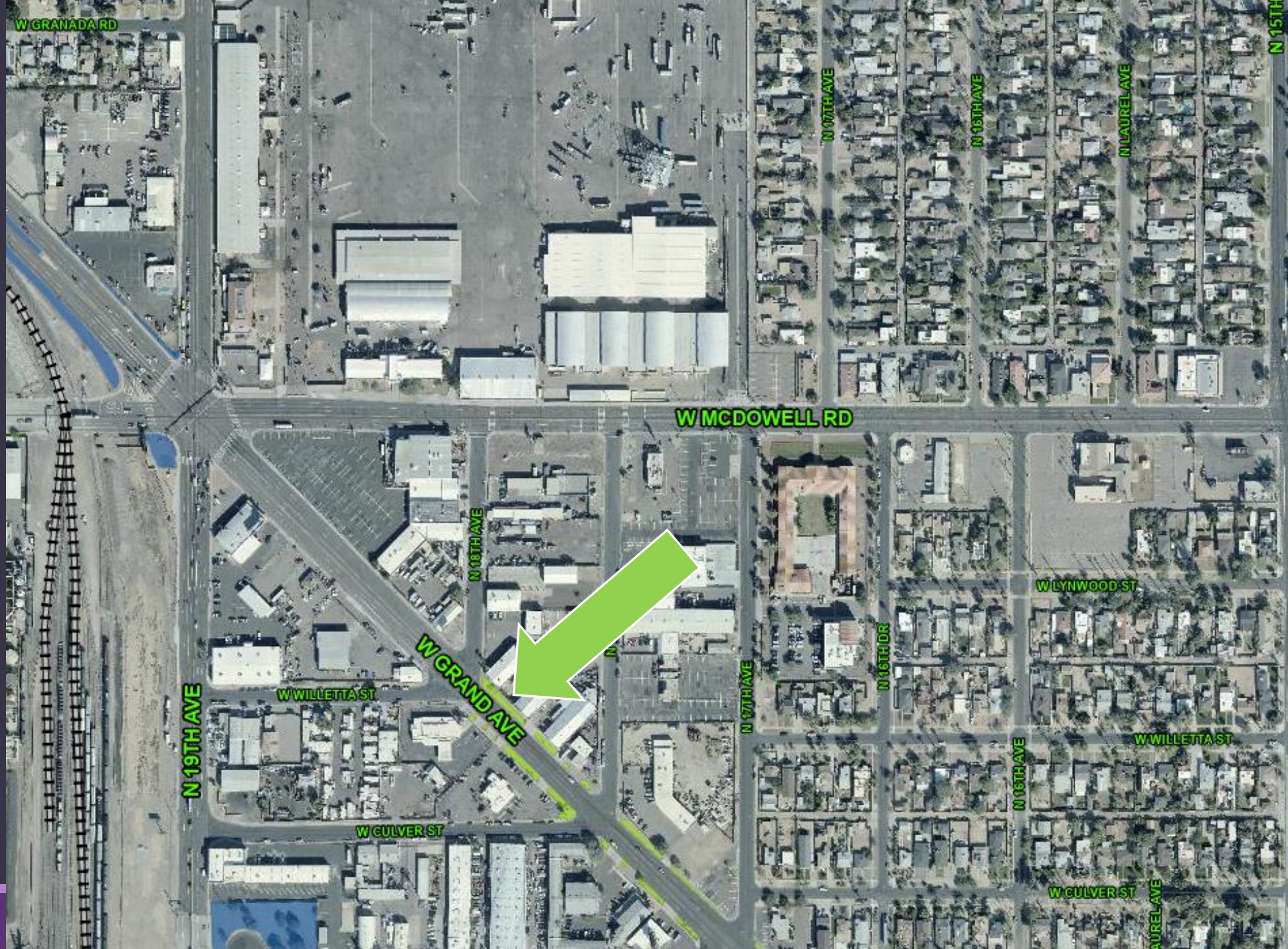
- New shelter; prioritizes surrounding neighborhoods and high-need areas
- Partnership with County, St. Vincent DePaul, CBI
- Day and night capacity for 200
- “Closed campus” model



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Heat is an
inconvenience

Heat is a
manageable
problem
(resource tradeoffs)

Heat is a
catastrophe
(insufficient resources)



Contents lists available at [ScienceDirect](#)

Climate Risk Management

journal homepage: www.elsevier.com/locate/crm



Adaptive capacity to extreme urban heat: The dynamics of differing narratives

M. Guardaro^{a,*}, D.M. Hondula^b, J. Ortiz^a, C.L. Redman^a

^a School of Sustainability, Arizona State University, Tempe, AZ, USA
^b School of Geographical Sciences and Urban Planning, Arizona State University, Tempe, AZ, USA



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