

Thank you for joining. We will start in a few minutes.

Equity in Action

Heat Planning in Greater Phoenix

Two audio options:

1. Listen via computer
2. Call in to 1-415-655-0002 or 1-855-797-9485
Event number: 612 959 287



Equity in Action

Heat Planning in Greater Phoenix

June 3, 2020

Hosted by:

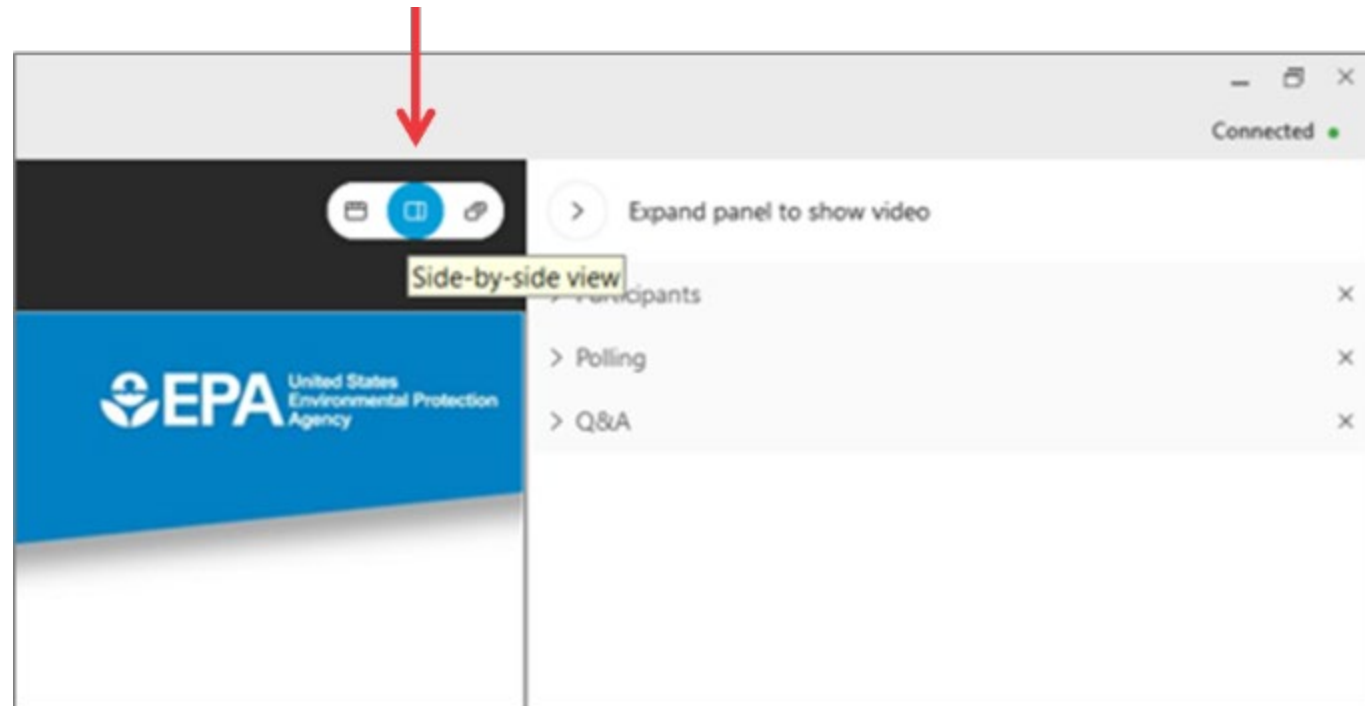
U.S. EPA Heat Island Reduction Program





Screen View

- There are several layout options
- We recommend the side-by-side view





Webcast Panels

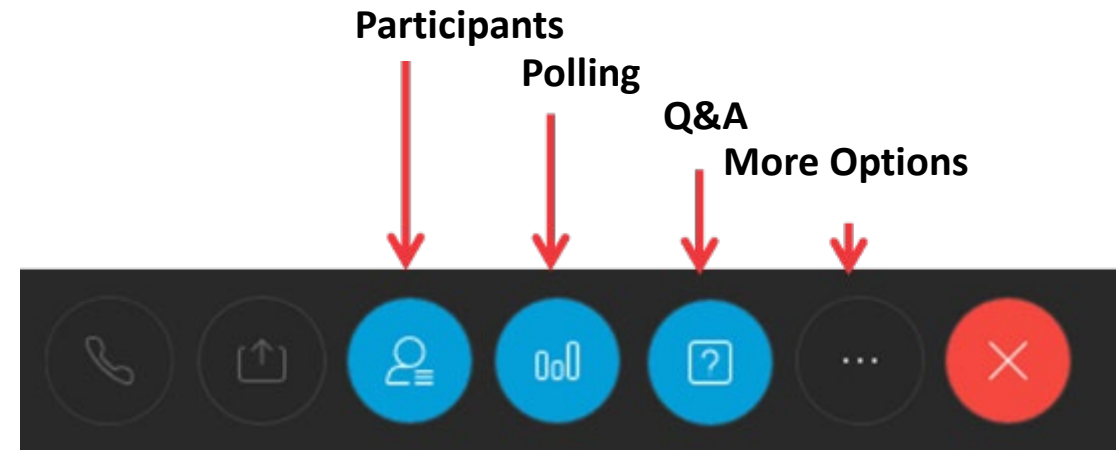
We'll use three panels

- Participants, Polling, and Question & Answer (Q&A)
- Use the arrow to expand or collapse the panels



Adding panels

- If some panels don't appear, hover over the bottom of the screen and select the desired panels
- Select More Options (...) for additional panels
- Blue icons indicate active panels





Polling and Feedback

Polling

- We'll ask several poll questions during the webcast
- The polling panel will appear when we open the first poll
- Select your desired response and hit "Submit"

▼ Polling ×

Time elapsed: 1:00 Time limit: 5:00

Poll Questions:

1. What is your favorite type of flower?

A. Carnation

B. Daisy

C. Lily

D. Rose

Submit

Webcast feedback

- A feedback form will pop-up when you exit today's webinar





Q&A

- Participants are muted
- Questions will be moderated at the end
 - To ask a question:

1. Select “All Panelists” from the menu
2. Enter your question in the Q&A box
3. Hit “Send”

The screenshot shows a Q&A interface with a dropdown menu set to "All Panelists" and a text input box containing the question "How can I get a copy of the slides?". A red circle highlights the "Send" button, and red arrows point to the dropdown menu and the text input box.

- EPA will post responses on the Webcast page:
www.epa.gov/heat-islands/heat-island-webcasts





Webcast Agenda

- **Heat Islands and Equity Overview and Program Resources**
 - Victoria Ludwig, U.S. EPA Heat Island Reduction Program

- **Nature's Cooling Systems: Community-Built Heat Action Planning**
 - Melissa Guardaro, Arizona State University
 - David Crummey, Retail, Arts, Innovation & Livability Mesa

- **Question and Answer Session**



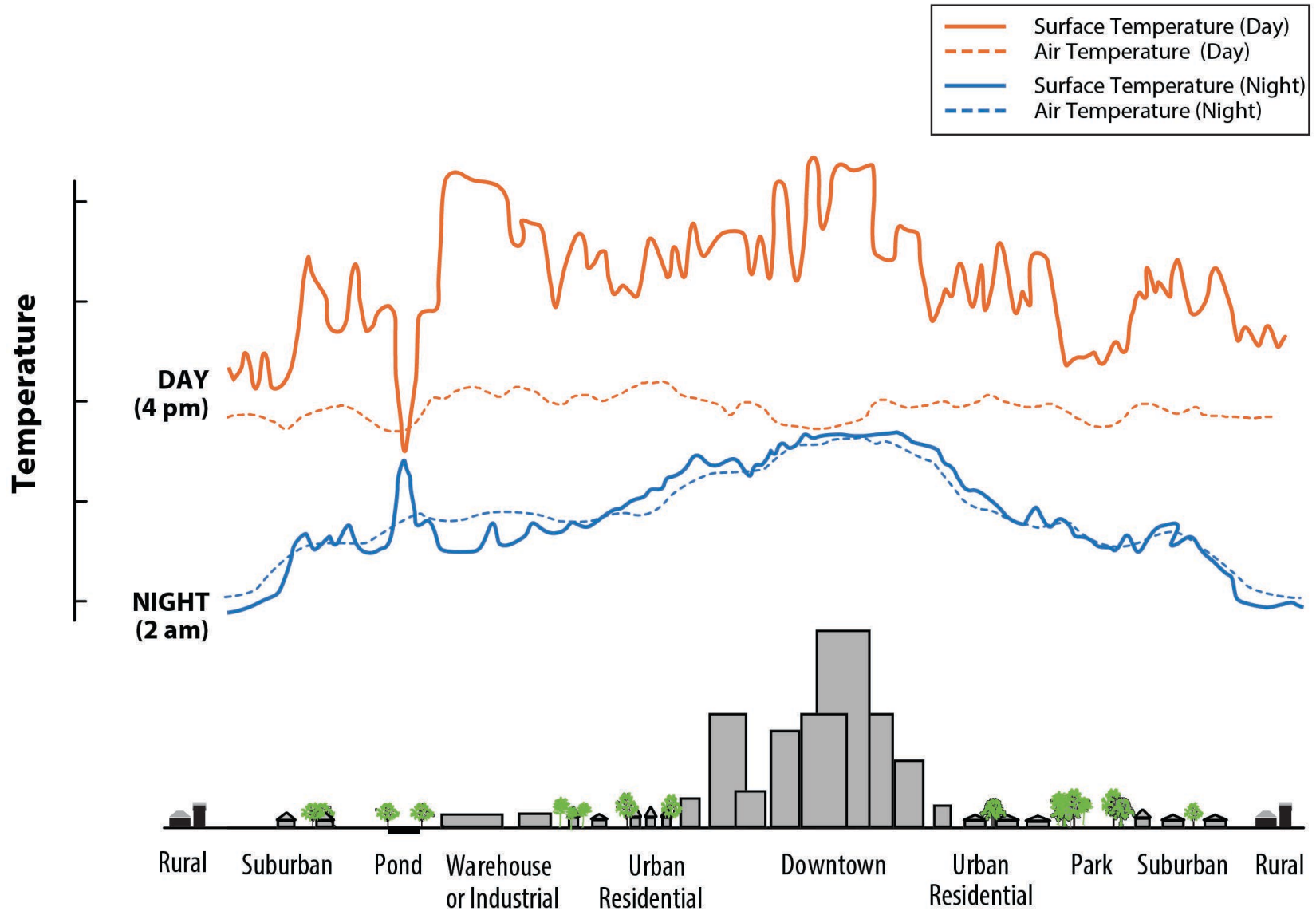
Heat Islands and Equity Overview and Program Resources

Victoria Ludwig
U.S. EPA Heat Island Reduction Program





Overview of the Heat Island Effect





Heat Island Effect Strengthening



The U.S. Global Change Research Program issued a key finding in its 2017 special report that it projects with high confidence that the heat island effect in the U.S. will strengthen in the future



“In the United States, this urban heat island effect results in daytime temperatures 0.9°–7.2°F (0.5°–4.0°C) higher and nighttime temperatures 1.8°–4.5°F (1.0°–2.5°C) higher in urban areas, with larger temperature differences in humid regions (primarily in the eastern United States) and in cities with larger and denser populations.”



<https://science2017.globalchange.gov/chapter/10/>



Mitigation Strategies

Communities can reduce ambient air and surface temperatures while achieving many other environmental benefits by taking these common sense actions:

- Trees and Vegetation
- Green Roofs
- Cool Roofs
- Cool Pavements
- Smart Growth





Heat Island Mitigation Benefits



Energy savings (and reduced of greenhouse gas emissions and criteria pollutants)



Improved air quality



Improved water quality



Fewer risks to public health



New Heat Islands and Equity Webpage!

- What is Heat Equity?
- What is the Heat and Equity Connection?
- How can Heat Equity be Addressed?
- What Are Local Governments Doing?
 - New York City, New York
 - Richmond, Virginia
 - Tucson, Arizona



Heat Islands and Equity

Heat islands impact some people more than others. As cities face higher temperatures, longer and more intense heat waves, and a stronger heat island effect, many local governments are increasingly focused on protecting the people who are most vulnerable to extreme heat. To accomplish this, many local governments are applying environmental justice principles in their efforts to mitigate heat islands and prepare for extreme heat events.

These tabs explain the link between urban heat and equity, describe general approaches local governments have used to address heat equity, and provide examples of specific actions three communities have taken to manage heat in an equitable manner.

Heat Equity Overview Local Government Examples

- [What is Heat Equity?](#)
- [What is the Heat and Equity Connection?](#)
- [How can Heat Equity be Addressed?](#)

What is Heat Equity?

Heat equity refers to the development of policies and practices that mitigate heat islands and help people adapt to the impacts of extreme heat in a way that reduces the inequitable distribution of risks across different populations within the same urban area. Heat equity can be improved by ensuring that all residents have equal access to local heat island mitigation programs and tailoring a city's response to severe heat to meet the unique needs of the most at-risk residents. Some local governments have found that working to reduce their heat islands in this way can help at-risk residents and create more livable cities for everyone.

More Information

- [Extreme Heat | Centers for Disease Control and Prevention \(CDC\)](#)
- [Environmental Justice at EPA](#)

www.epa.gov/heat-islands/heat-islands-and-equity





Equity Overview

- Heat islands impact some more than others
- Local governments concerned about protecting those most vulnerable by alleviating inequities
- Equal access to heat island mitigation programs
- Tailoring responses to heat waves to meet the unique needs of most at-risk residents





How Can Heat Equity Be Addressed?

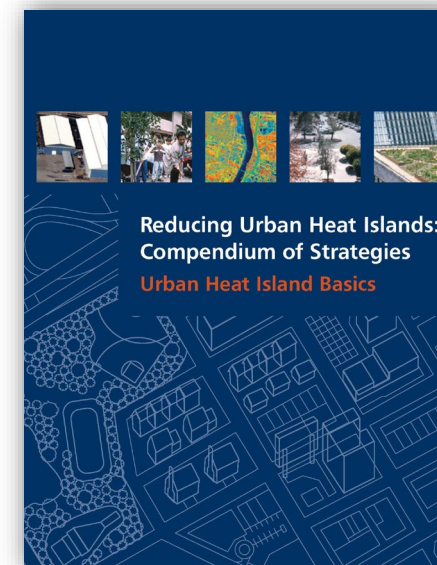
- Collect relevant data
- Provide information in multiple languages
- Use effective messaging
- Structure programs to be widely accessible
- Design programs to benefit renters





Heat Island Program Resources

- **Compendium of Strategies:** Guide to heat island science, detailed info on mitigation strategies, local examples, policy options
- **Website:** Basic information on heat island topics, calendar of events, newsroom, links to other resources
- **Examples:** Database of more than 75 local and statewide initiatives to reduce heat islands
- **Webcasts:** Topics include case studies, public health connections, advances in mitigation policy
- **Newsletter:** Recent news on projects, policies, and research



COVID-19 Heat-Health Resources



■ EPA Environmental Justice Grants

- News release: www.epa.gov/newsreleases/epa-provides-grant-funding-support-environmental-justice-communities-impacted-covid-19

■ Centers for Disease Control and Prevention

- COVID-19 and Cooling Centers: www.cdc.gov/coronavirus/2019-ncov/php/cooling-center.html
- Guidance for Disaster Shelters during COVID-19: www.cdc.gov/coronavirus/2019-ncov/downloads/Guidance-for-Gen-Pop-Disaster-Shelters-a-Pandemic_cleared_JIC_ADS_final.pdf

■ Global Heat Health Information Network

- Extreme heat and COVID-19 resources: www.ghhin.org/heat-and-covid-19
- Technical brief: www.ghhin.org/assets/technical-brief-COVID-and-Heat-final.pdf
- Planning checklist: www.ghhin.org/assets/Checklist-COVID-HEAT-final.pdf
- 4 part heat health webinar series: www.ghhin.org/learning-center/masterclasses





Coming Soon! Cool Your Community

- Social media resources for local governments to communicate heat island cooling principles

Planting trees is a simple way to cool and beautify your outdoor space

COOL YOUR COMMUNITY

- Improve quality of life
- Save money
- Improve air quality
- Help stormwater management

EPA epa.gov/heat-islands

Cool roofs have so many benefits that some localities offer installation rebates and incentives

COOL YOUR COMMUNITY

- Improve human health and comfort
- Save energy
- Improve air quality
- Reduce city temperatures

EPA epa.gov/heat-islands



Contact Information



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U.S. Environmental Protection Agency

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Heat Island Program Website

www.epa.gov/heat-islands



EPA Heat Island Newsletter Sign-Up

www.epa.gov/heat-islands/forms/heat-island-newsletter-signup

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 [@EPAair](https://twitter.com/EPAair)

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 [EPA State and Local Group](https://www.linkedin.com/company/EPA)



Poll 1

What heat island cooling strategies are you interested in?

- Trees and vegetation
- Green roofs
- Cool roofs
- Cool pavements (permeable or non-permeable)
- Smart growth
- Other

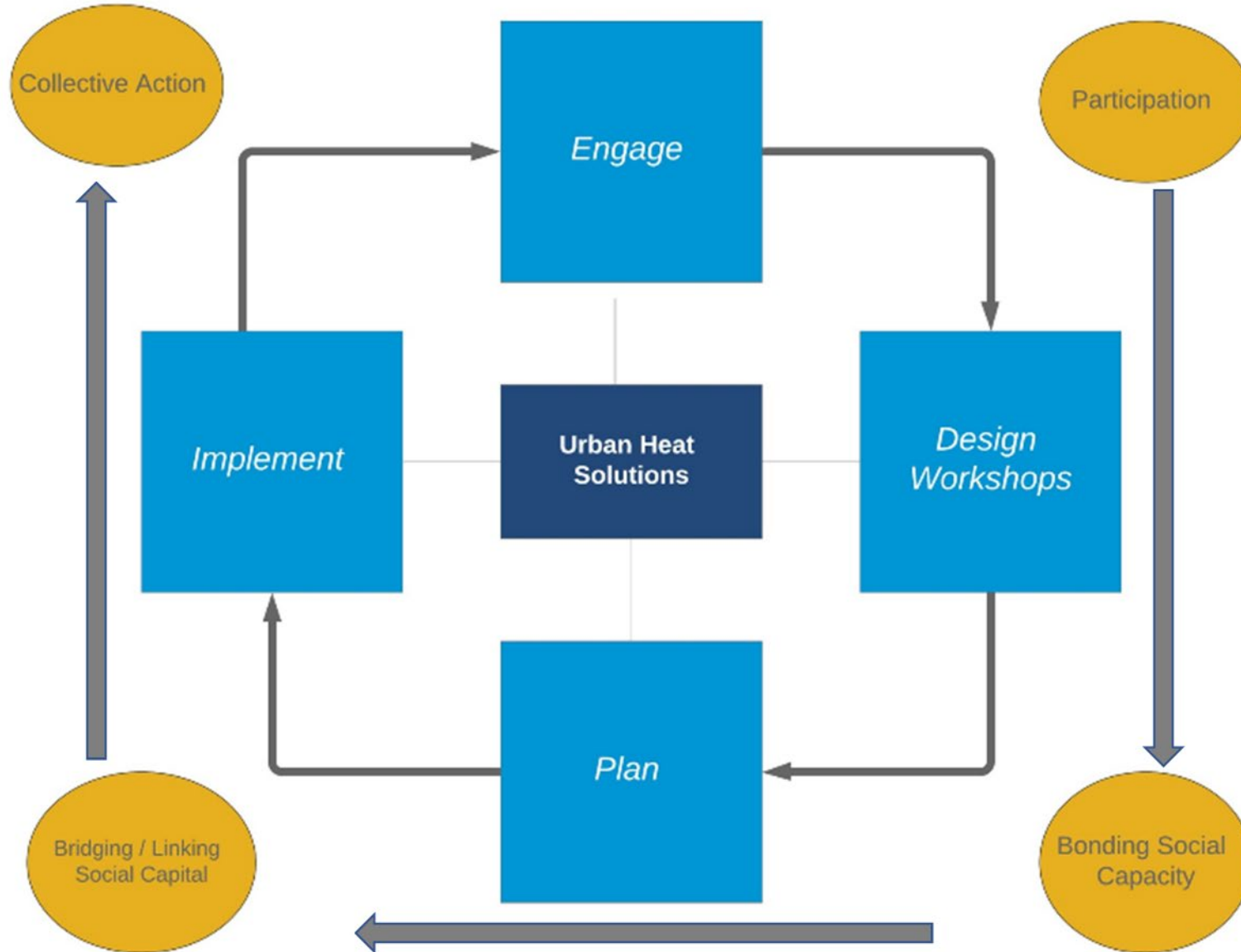


Nature's Cooling Systems: Community-Built Heat Action Planning

Melissa Guardaro
Arizona State University

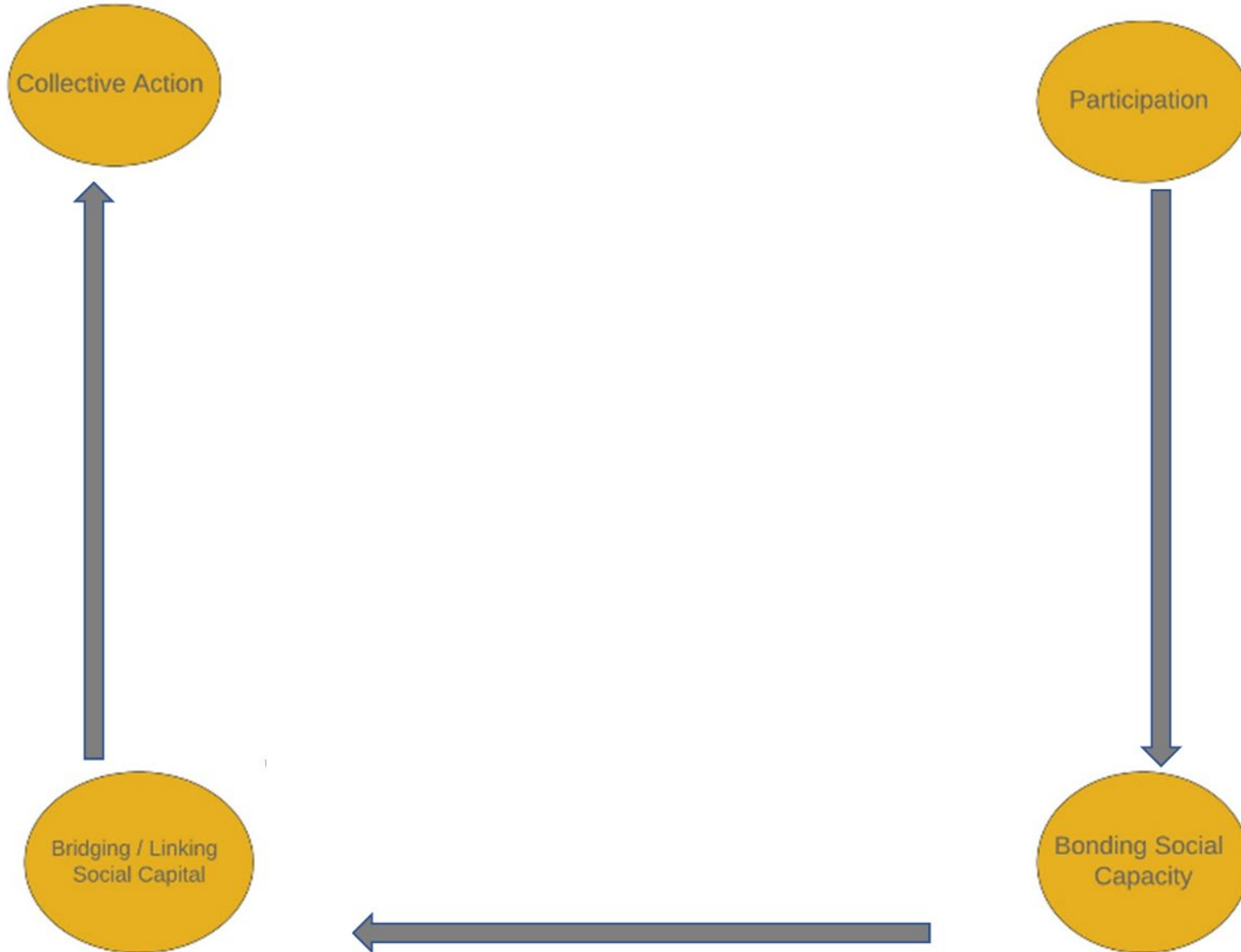
David Crummey
Retail, Arts, Innovation & Livability (RAIL)
Community Development Corporation (CDC)





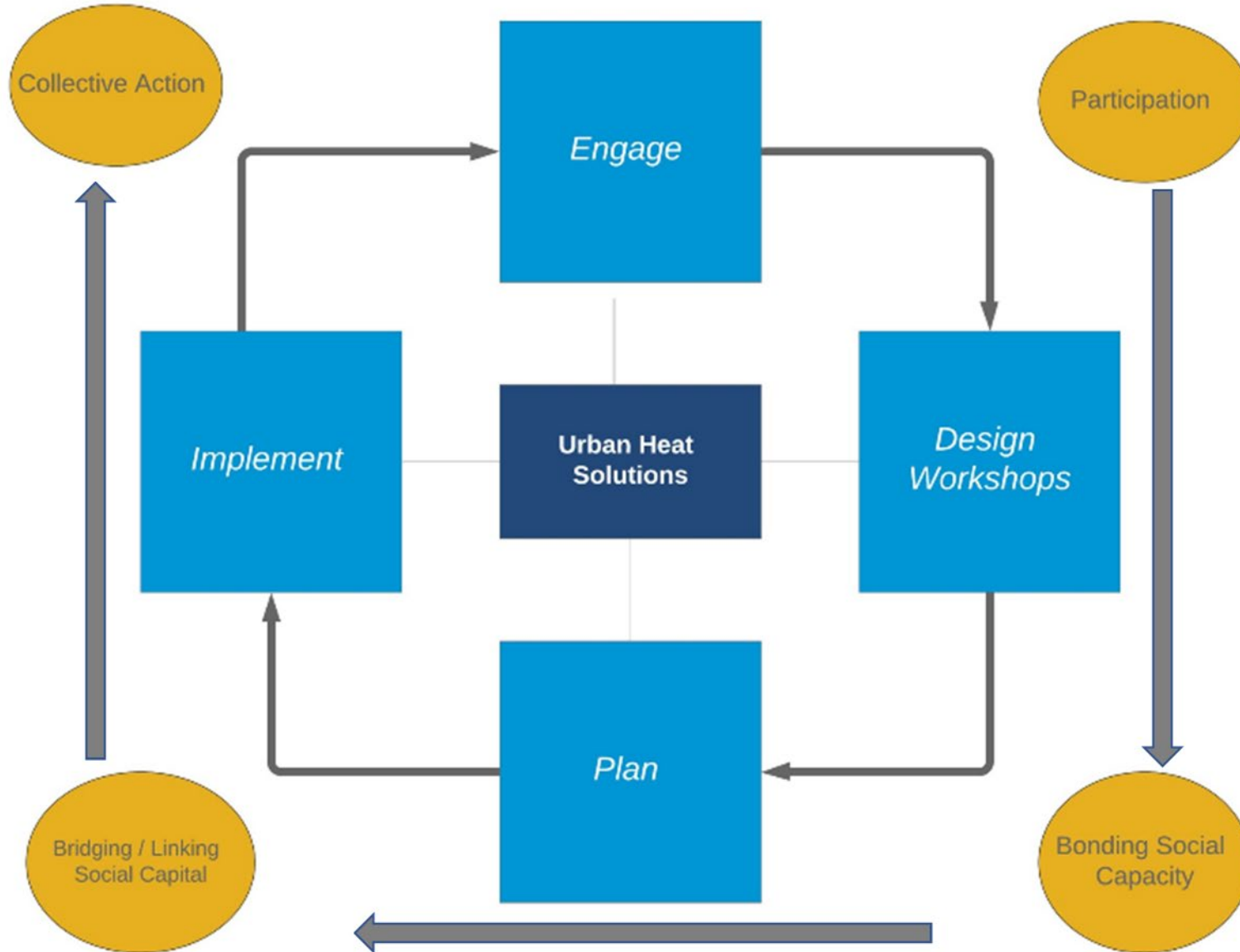
Nature's Cooling Systems Methodology

Adapted from Semenza, 2007



Nature's Cooling Systems Methodology

Adapted from Semenza, 2007



Nature's Cooling Systems Methodology

Adapted from Semenza, 2007



Nature's
Cooling
Systems
Methodology
Design
Process

Whole Measures for Urban Heat



Justice and Fairness

CONSERVATION FOR ALL



Community Engagement



Economic Vitality



Community Resilience





Criteria for Selection of Neighborhoods

Heat

Low vegetation coverage
Low vegetation index
High surface temperature

Usage

High use of public spaces
High transit use

History & Opportunity

High % vacant lots
Invitation from community
Slated housing, renovation, or capital improvement projects

Community

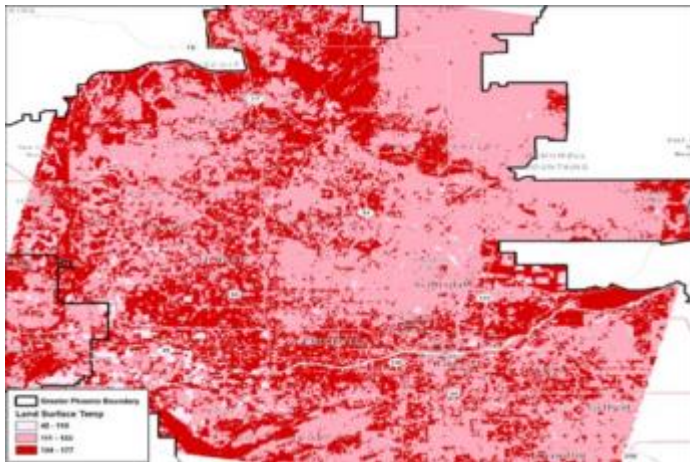
Strong sense of community identity
Potential for mutual learning (residents:stakeholders)
Previously surveyed

Health & Vulnerability

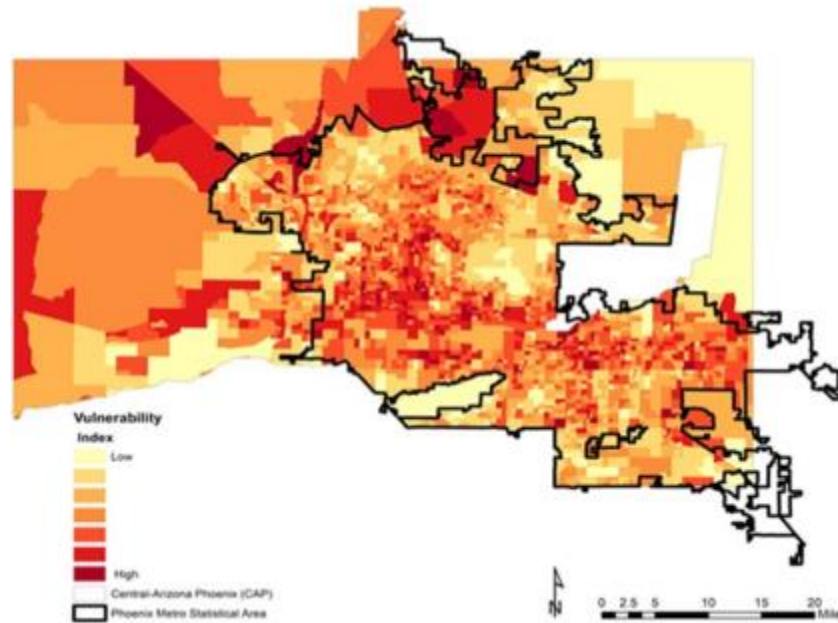
High rate heat deaths / heat-related illnesses
Low-income
High rates of self-reported heat concerns
Lack of A/C



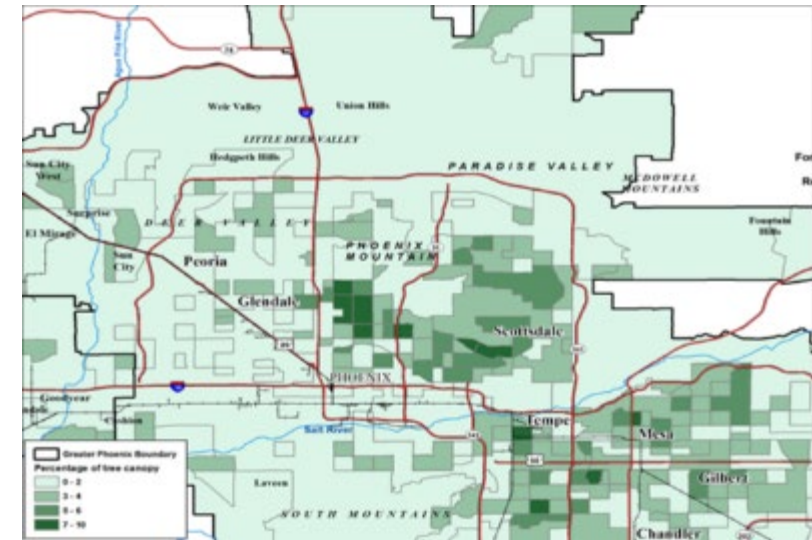
Selection Criteria



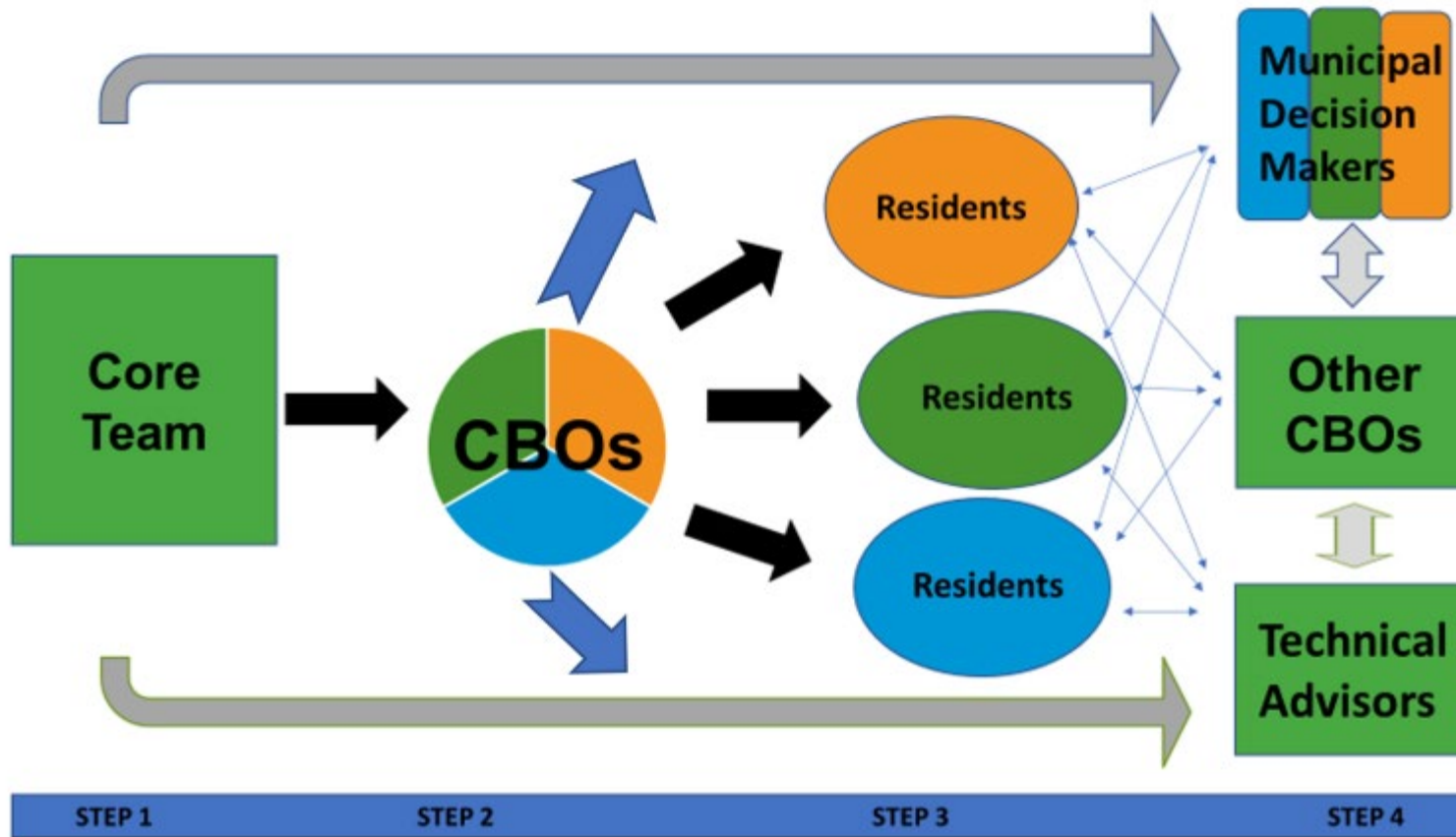
Land Surface Temperatures:
Greater Phoenix



Vulnerability Index Greater Phoenix



Baseline - % of Tree Canopy

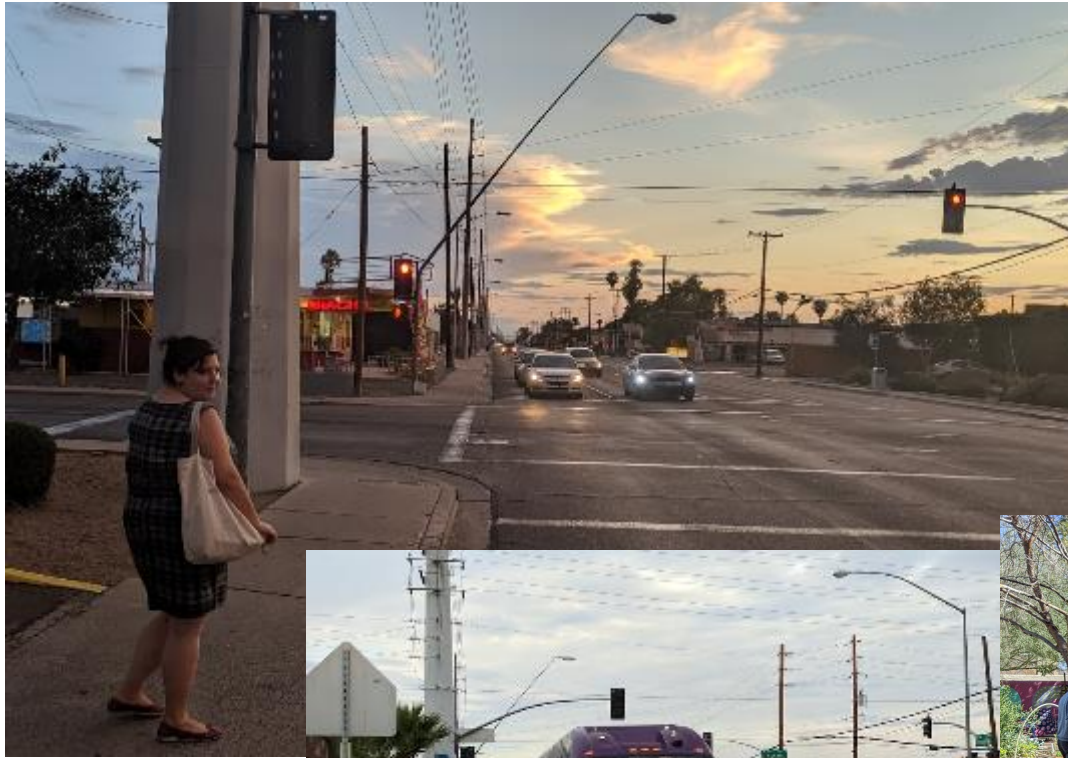


Nature's Cooling Systems Community Engagement

Mesa Care Neighborhood/
Water Tower Improvement District
Heat Action Plan



Water Tower Improvement District – CARE Neighborhood





Why In The World Would We Participate With THESE People?





What Worked in Mesa

- Involve residents from the beginning
- Understand issues of the community itself
- Develop social capital – not extractive
- Collecting neighborhood stories
- Two-way, level communication with academic and neighborhood experts
- Understanding neighborhood context – where to meet, how to communicate
- Working with kids
- Food & childcare





Understanding the Context

- Before even starting interaction, understanding the community
- Sunbelt city disconnection
 - Geography and social networks not well-linked
- Who is already organized in the neighborhood, where are natural connections and partners?
- Day of the week and time of day
- Meeting location
 - Eagles Community Center – Not what we hoped





Meaningful Involvement

- Design of the program included collaborative – and iterative – engagement. Collaboration to meet, and respond to, the needs of the community
- Involve community members at the earliest stage
- Be flexible

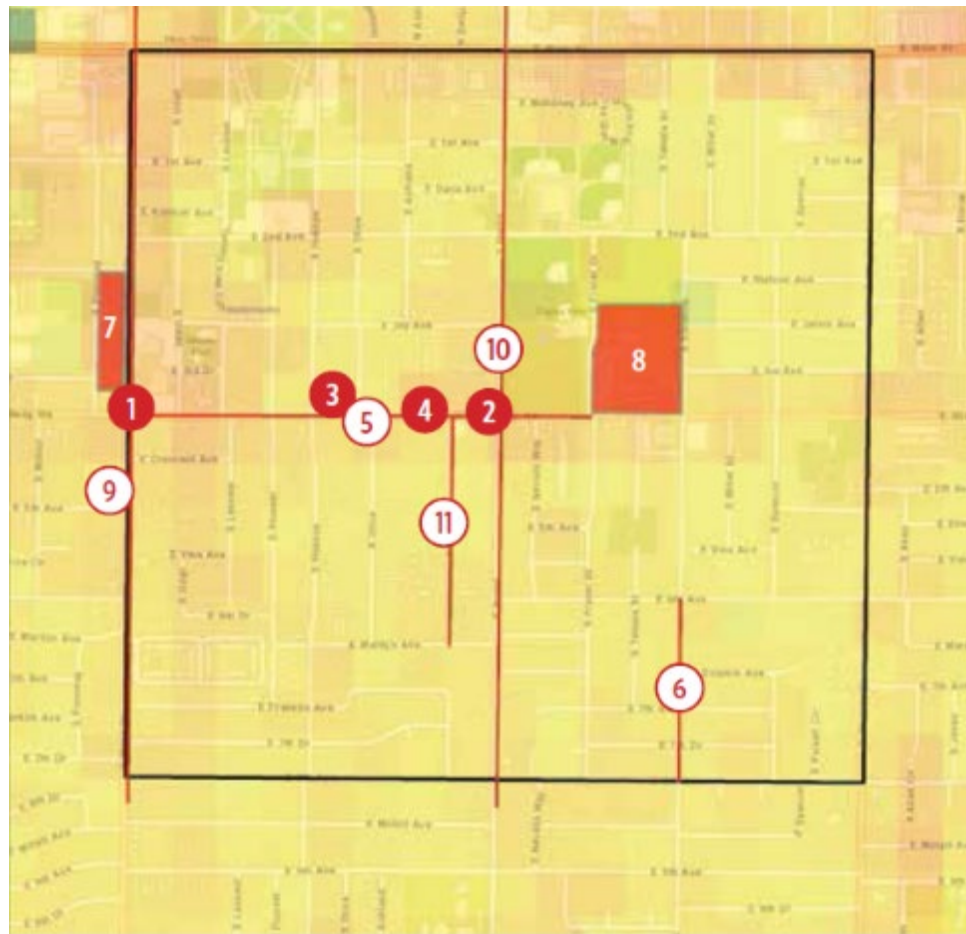




Mapping Hot & Cool Spots



Scales of Problems and Assets

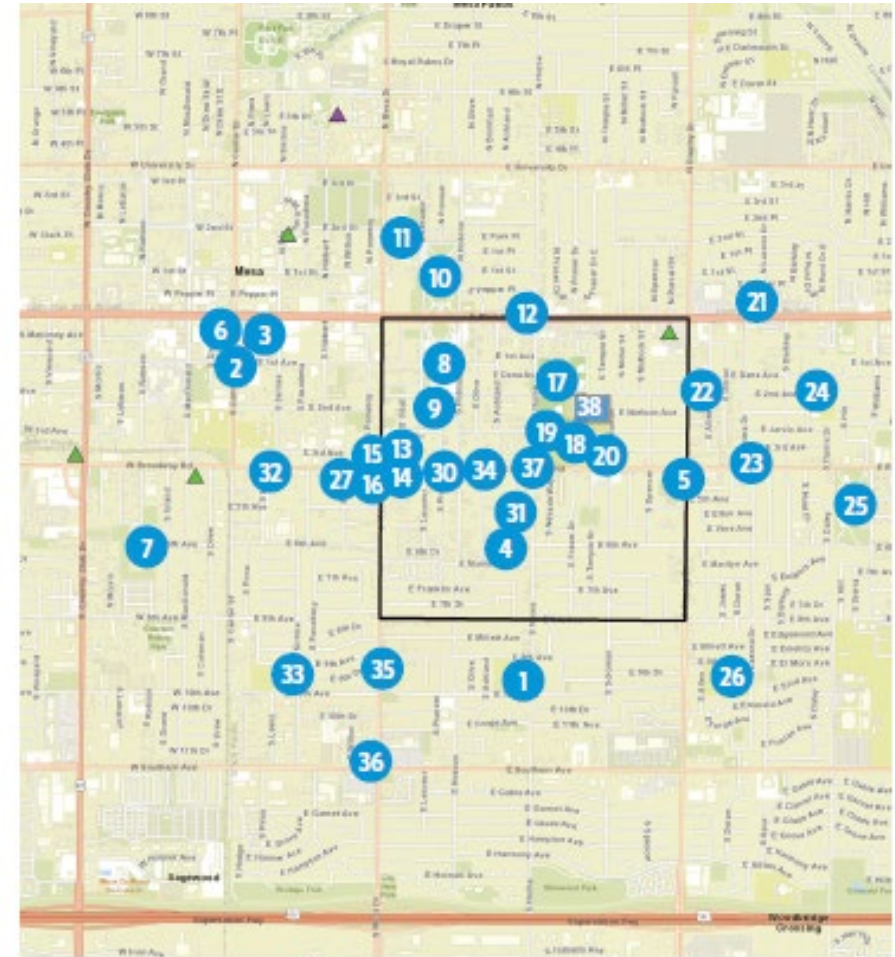


Land Surface Temp
 High : 100°F
 Low : 70°F

● Hot spots
 — Hot routes
 ■ Hot areas

□ Neighborhood boundary

0 0.1 0.2 Miles



▲ Emergency Heat Relief Station
 ▲ Refuge Location
 □ Neighborhood boundary

● Cool points
 ■ Cool areas

0 0.25 0.5 Miles

N



Leave it Better than You Found It





Frequent, Meaningful Contact

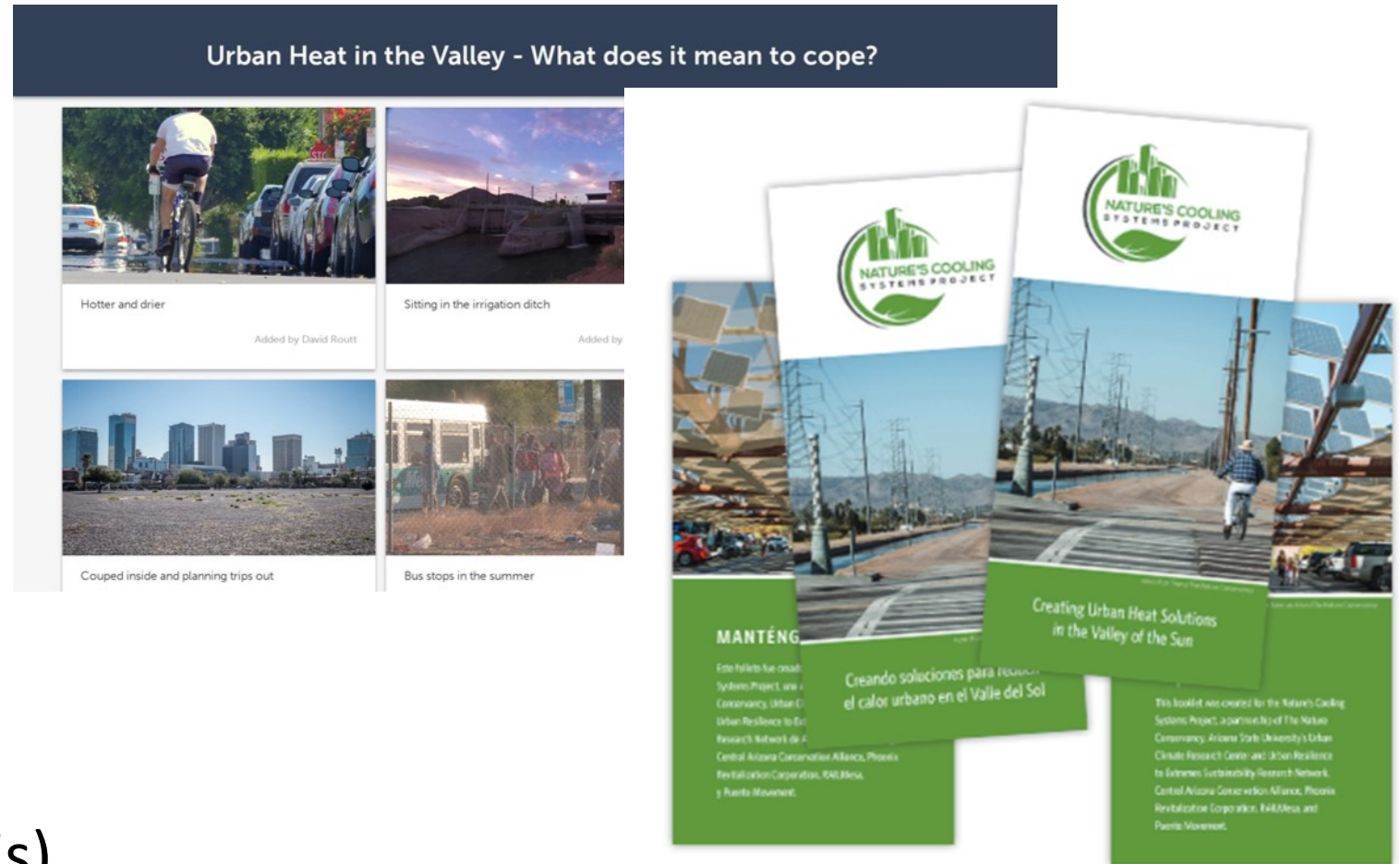
- Usual stuff:
 - Knocking doors
 - Leaving flyers
 - Talking with people door-to-door
- Collecting stories
- Texts & phone calls
- Paying for participation
- After-school program
- Zine survey (Minneapolis)





Frequent, Meaningful Contact

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- Zine survey (Minneapolis)



Educational brochures developed for canvassing during the Nature's Cooling Systems project.



Asset Sharing

- Two-way, level communication with academic and neighborhood experts
- Setting norms that everyone is learning
- Not “top down” education, but bringing knowledgeable people together
- Fishbowl





Return Anything Gathered

- Any data gathered in the community is owned by the community
- Commitment to return, in meaningful way, anything collected



Heat Action Planning Guide



Developed by:

- The Nature Conservancy
- Arizona State University
- Maricopa County Department of Public Health
- RAIL Community Development Corporation
- Residents of the Mesa CARE Neighborhood

Available at:

<https://repository.asu.edu/items/54600>

<http://RAILCDC.org>



Resident Concerns

1. The need for shade, especially along routes to school or during long wait times at traffic lights
2. Lack of access to drinking water
3. Connectivity from community to broader transportation routes
4. Safety for children and elderly, especially for those living alone
5. Need for advocacy for urban heat solutions





Solution Story

MORE, BETTER SHADE

- Install shade on hot walking routes, especially along Broadway to school
- Reduce wait times at traffic lights; stop in all directions, diagonal crossing
- Use vertical shading at bus stops and corners
- Community fund for tree maintenance and planting
- Plant trees in retention areas





Solution Story

Drinking Water/Water Features within 10 minute walk from home

- Drinking fountains at bus stops, rest stops or in parks highly requested
- Artistic fountains, such as that at Mesa Arts Center, desired
- Pools or splash pads...or sprinklers
- Use runoff to water vegetation





Solution Story

URBAN HEAT SAFETY

- Emergency Summer Plan
 - K-12
 - Educate children on heat safety
 - Train them to always carry water
 - Provide info on cool spaces
 - Seniors
 - Where the cool spots are
 - Apps or bus shelter info on bus arrivals
- Use wisdom of elders that have lived through hot weather periods





Solution Story

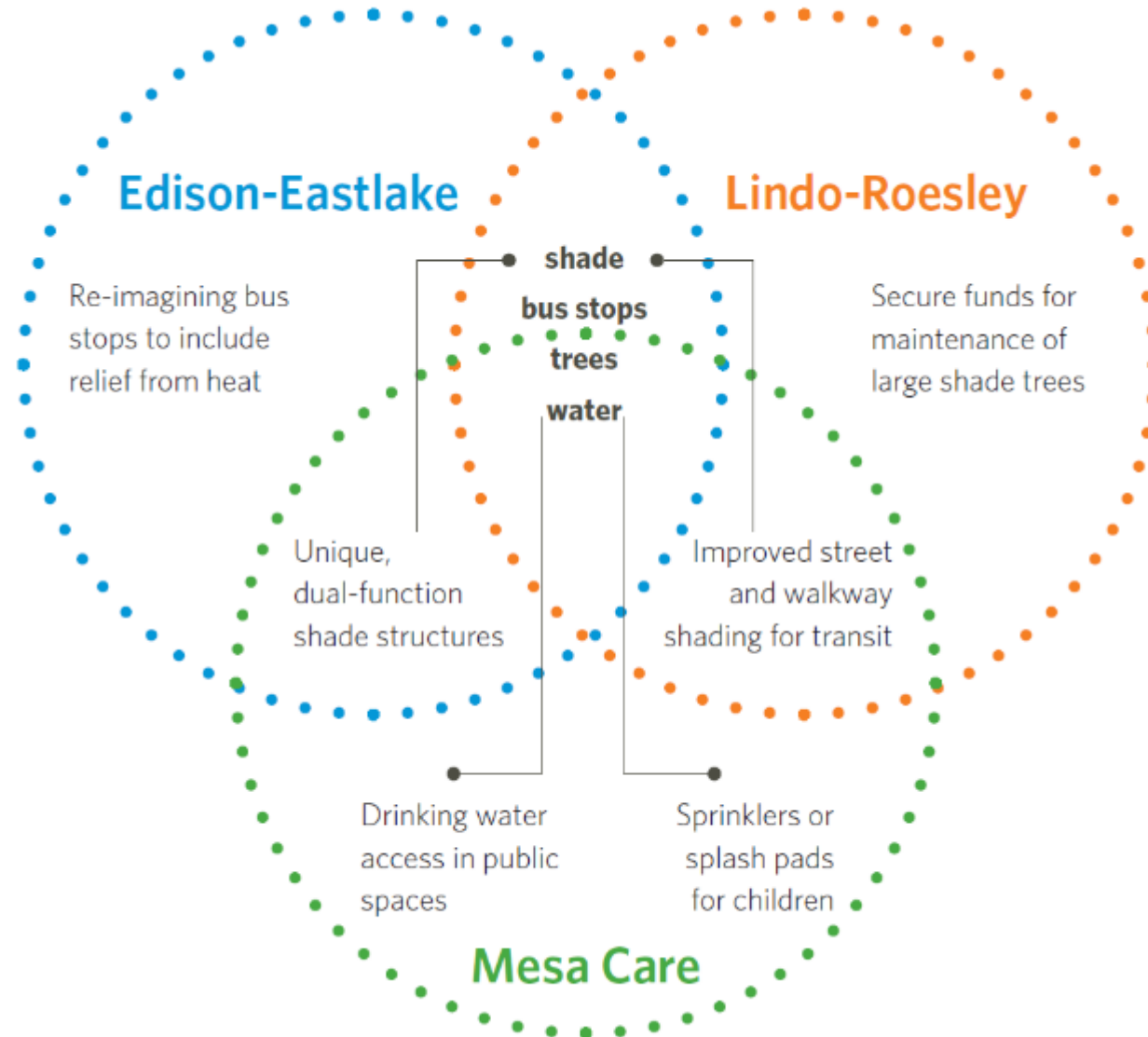
ADVOCACY TRAINING

- Share mitigation and adaptation strategies with elected officials and city departments
- Educate decision makers on the effect extreme heat has on their community
- Take advantage of project underway
- Launch Twitter campaign #ArmyofMoms
- Residents serving on transit advisory board





Solution Story





Community Demonstration Projects

- **Mesa Water Tower Improvement District**
 - Mural at Care Partnership
 - Student Shade Structure Design Charrettes
 - Rainwater harvesting at Care Partnership
 - Plants (86) and Trees (8) at Care Partnership
- **Edison-Eastlake**
 - HeatMappers Walk - 100 participants
- **Lindo Roesley Park Neighborhood**
 - Tree planting (50) at Rio Salado Recreational Trail - 46 Volunteers
 - Tree planting at various private residences (households, demonstration at community garden) working with four additional organizations



Lessons Learned

- ✓ Community-based organizations are an essential part of the process



Lessons Learned

- ✓ Solutions were generated by bridging grassroots wisdom and evidence-based urban heat solutions.



Lessons Learned

- ✓ Community heat awareness and heat action building is a slow build

Dealing with “The Collective Shrug”



Lessons Learned

- ✓ Taking the time to build trust resulted in expanding participation and interest



Lessons Learned

- ✓ Need to be flexible as the process unfolds



Lessons Learned

- ✓ Community-based organizations are an essential part of the process
- ✓ Solutions were generated by bridging grassroots wisdom and evidence-based urban heat solutions.
- ✓ Community heat awareness and heat action building is a slow build
- ✓ Taking the time to build trust resulted in expanding participation and interest
- ✓ Need to be flexible as the process unfolds

Questions?

- Melissa Guardaro, Arizona State University
 - Melissa.Guardaro@asu.edu
- David Crummey, Vice-President, RAIL CDC
 - David.Crummey@gmail.com

Poll 2

What is your organization's experience with neighborhood-level engagement?

- **We've done it/are doing it**
- **We have plans to do it**
- **We want to do it**
- **We don't do this**



Question and Answer Session





Connect with the Heat Island Program

Victoria Ludwig

U.S. Environmental Protection Agency

202-343-9291

ludwig.victoria@epa.gov



Heat Island Program Website

www.epa.gov/heat-islands



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www.epa.gov/heat-islands/forms/heat-island-newsletter-signup



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