



Heat Stress Series

Community-based Solutions to Heat in Urban Settings

February 24, 2021

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Welcome

Housekeeping



- Please mute



- Use the question function



- Session will be recorded and posted on the Climate Adaptation Knowledge Exchange – www.CAKEx.org



- Slides & presenter information are available for download



- Contribute to the Forum resource page



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\$20 for this session

\$60 for the series

or pay what you can

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Acknowledgements

Community-based Solutions to Heat in Urban Settings



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Advisory Committee, Inc.



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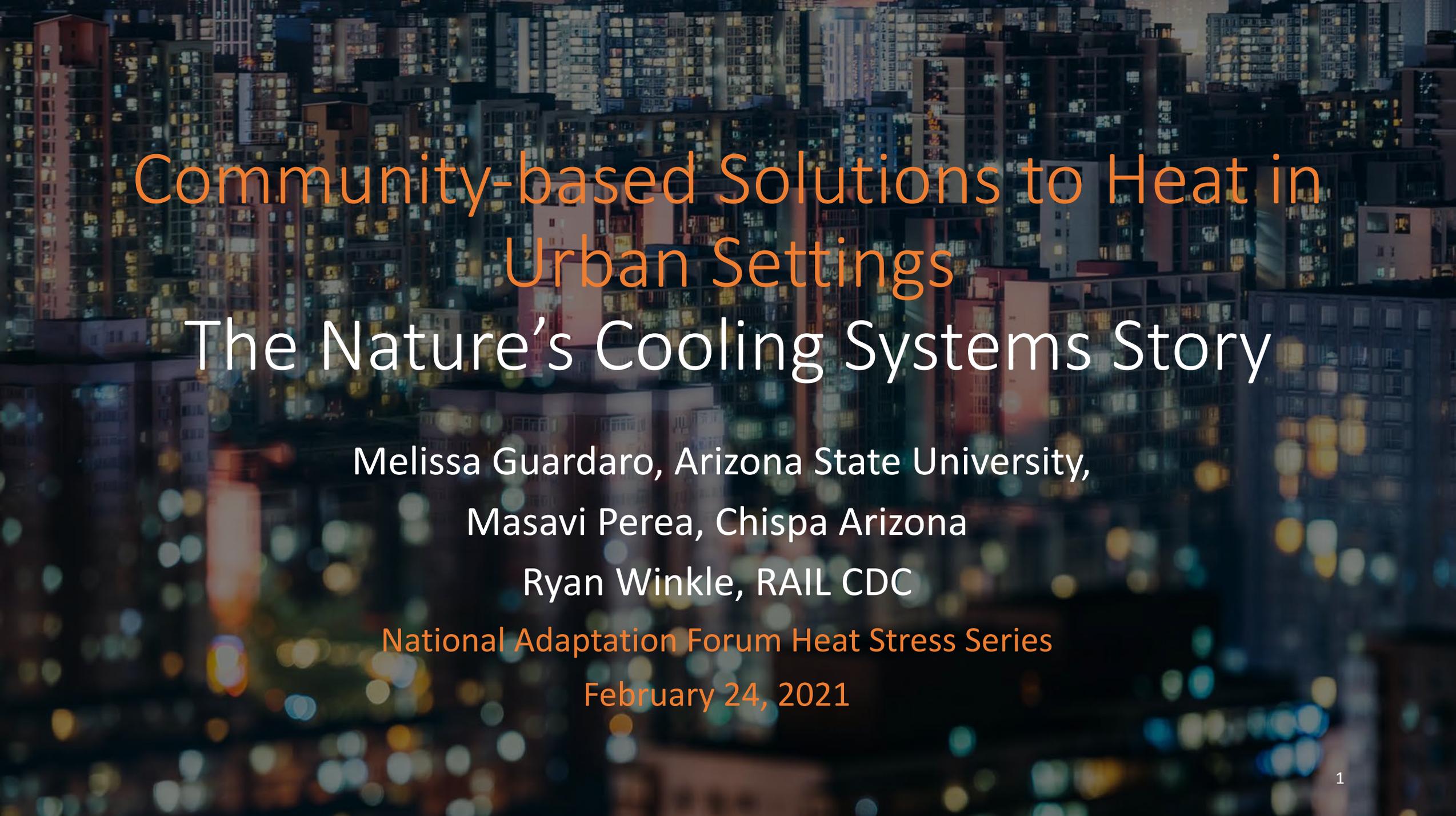
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Arizona State University



Ryan Winkle

RAIL CDC



Community-based Solutions to Heat in Urban Settings

The Nature's Cooling Systems Story

Melissa Guardaro, Arizona State University,

Masavi Perea, Chispa Arizona

Ryan Winkle, RAIL CDC

National Adaptation Forum Heat Stress Series

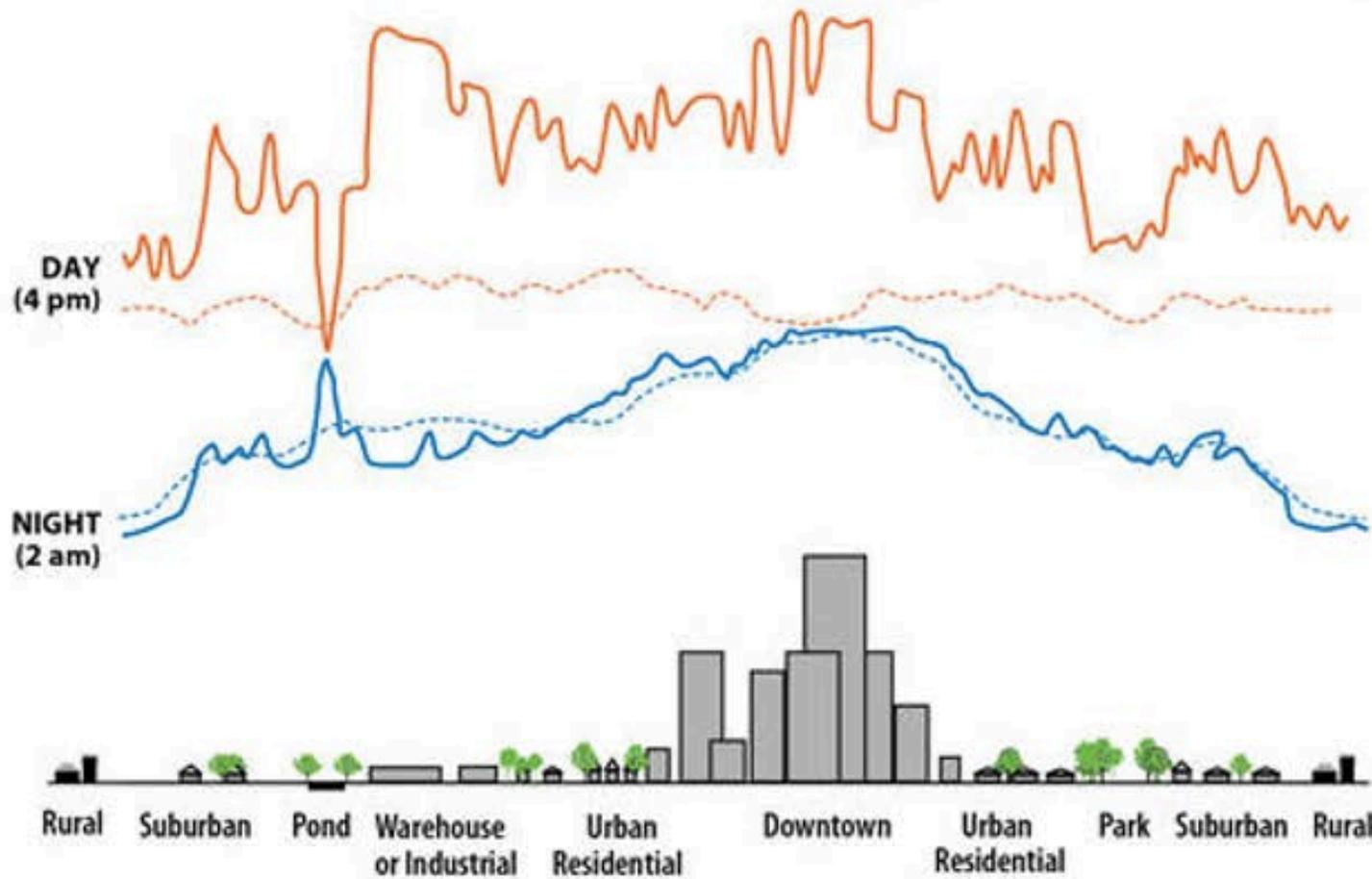
February 24, 2021

Outline

- Introduction
- Community engagement
- Pre-Engagement
- Engagement
- Post-Engagement (with COVID delays)

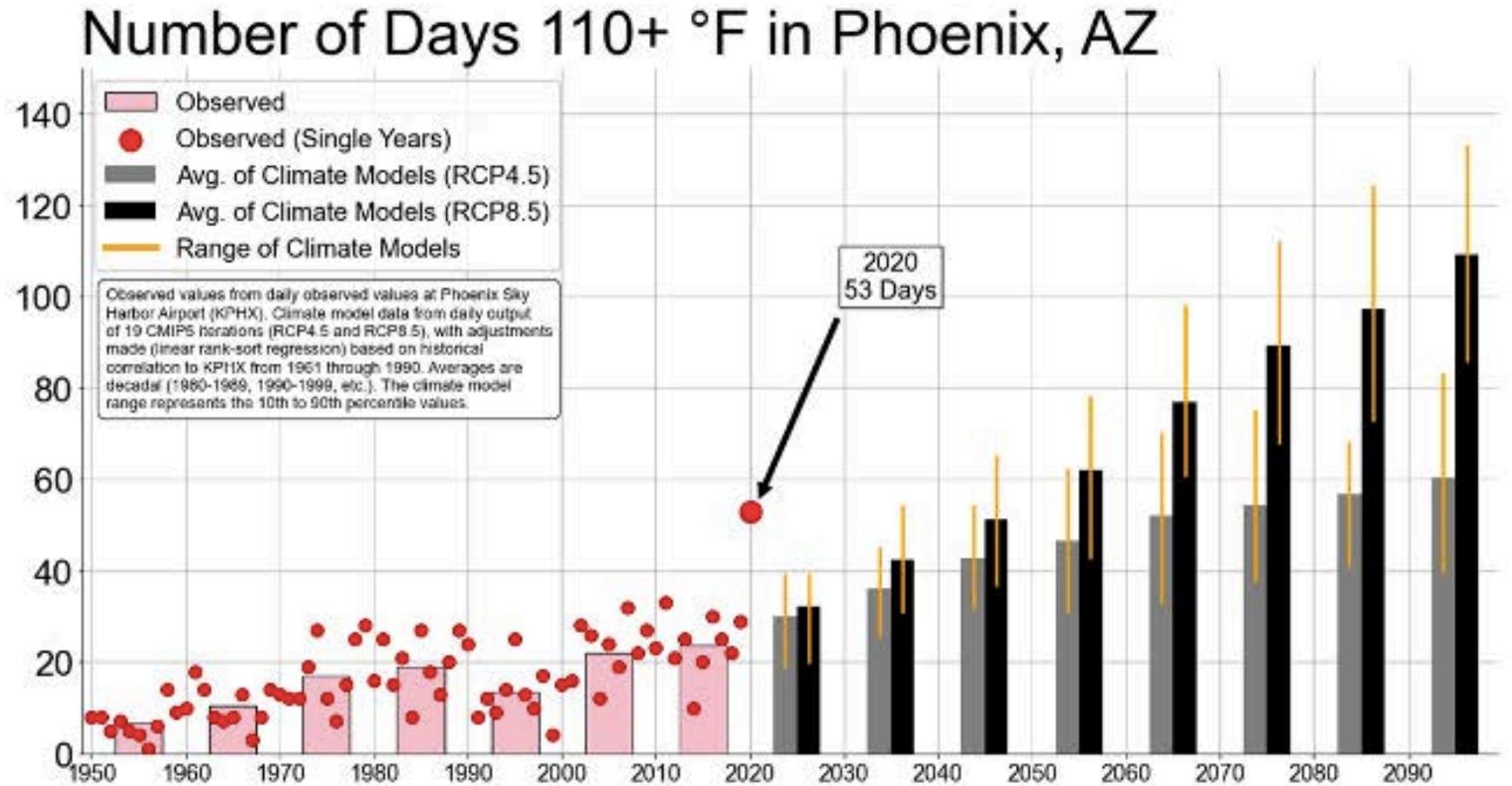
Temperature

- Surface Temperature (Day)
- - - Air Temperature (Day)
- Surface Temperature (Night)
- - - Air Temperature (Night)



Urban heat island

Heat is an urgent problem



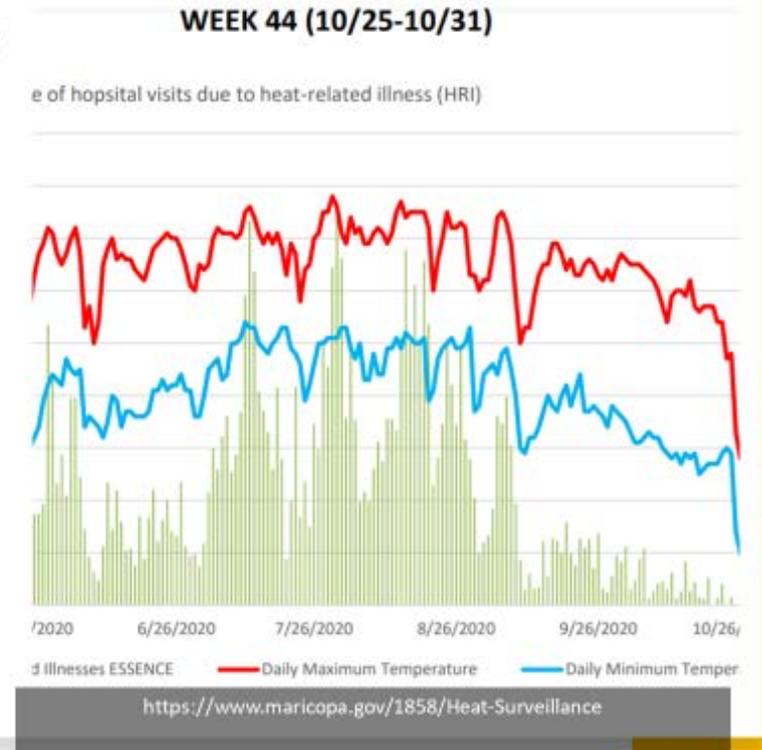
Heat is an urgent problem...

- With deadly consequences

Heat Public Health Crisis

Heat Deaths in Maricopa County as of 10/31/2020

- 207 confirmed, 134 pending
- 82% outdoors
- Hospitalizations



Heat is an urgent problem...

- And high economic costs



AZ Heat Preparedness & Resilience Workgroup

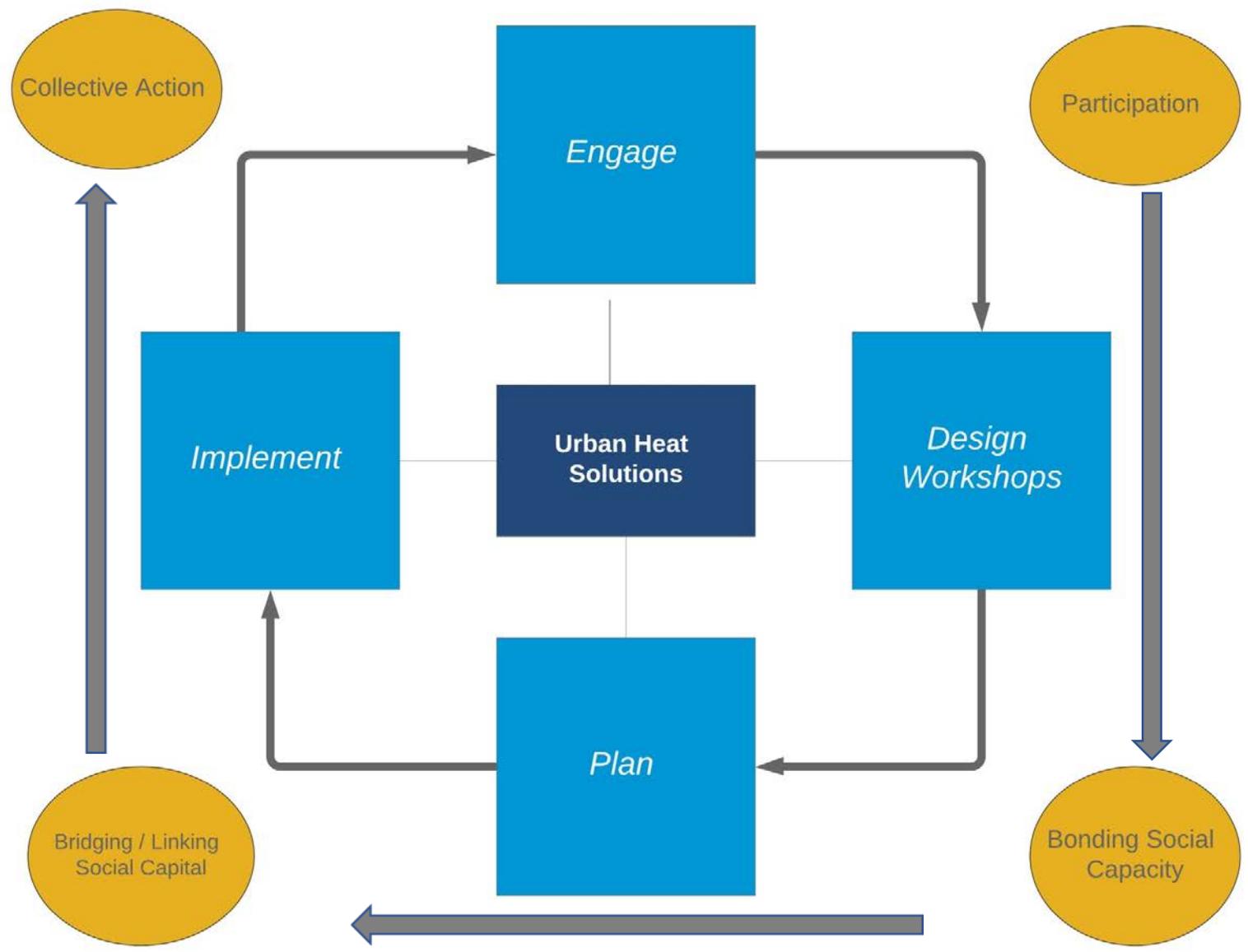
- **Economic Costs of Urban Heat**

- **Maricopa County 2018**

- 2100 Emergency Room visits x average \$6,500/visit = \$13,650,000
 - 600 Inpatient admissions x average \$71,000/visit = \$42,600,000
 - **Total for Maricopa County 2018 = \$56,250,000**

- **State of Arizona 2008-2018**

- Emergency Room visits \$136,000,000
 - Inpatient admissions \$308,000,000
 - **Total including loss of life - \$17.8 Billion**



Nature's Cooling Systems Methodology

Adapted from Semenza, 2007

Community Selection Criteria

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



Selected Neighborhoods

Edison Eastlake

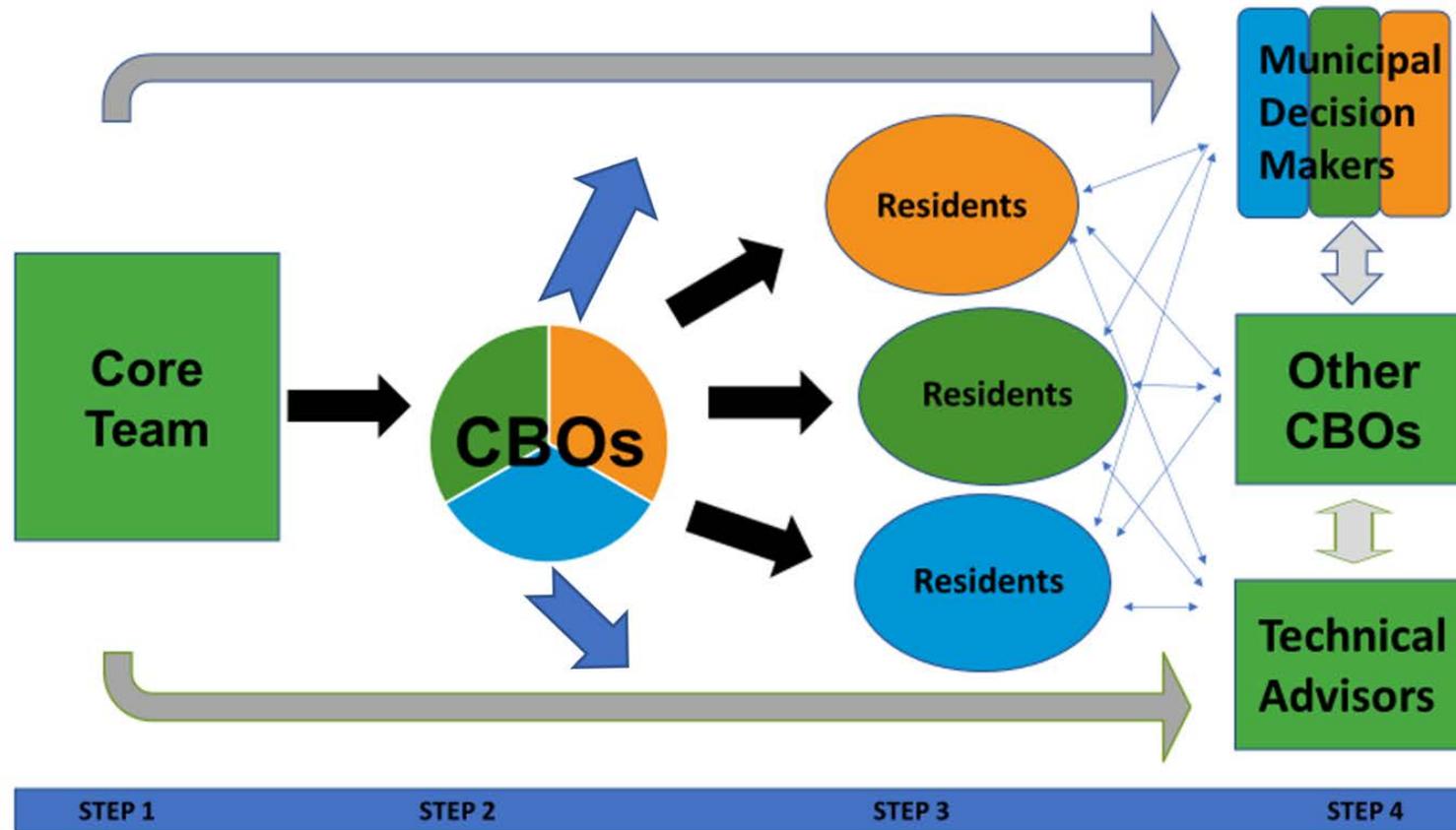
- Recipient of \$30M HUD grant for transforming area into a vibrant, mixed-income neighborhood. Largest concentration of public housing in the City of Phoenix.

Mesa Water Tower Improvement District

- Burgeoning city adjacent to Phoenix. Light rail extension along Main Street bringing urban development and end-of-line transit/quality of life issues.

Lindo-Roesley Park

- Light rail extension threatens the rich Hispanic and farming cultural identity and encourages gentrification.



Nature's Cooling Systems Community Engagement

CBOs are the key

- Co-developed methodology, workshops, plans
- Recruited participants, chose locations
- Are the “owners” of the plans



Pre-engagement

- Needed to make the case for getting involved in a heat project
- Convinced participants by showing surface temperature maps
 - Residents outraged
- Collected stories which became data points

The screenshot displays a Kudoboard interface for a project titled "Urban Heat in the Valley - What does it mean to cope?". The board features six video thumbnails arranged in a 2x3 grid. Each thumbnail includes a play button icon and a caption below it. The captions are: "Sitting in the irrigation ditch", "Lightheaded and dizzy", "planning hips out", "Bus stops in the summer", and "planning hips out". The attribution "Added by David Fouz" is visible under several thumbnails. The top of the board includes the Kudoboard logo, a "Sign in" button, and navigation options: "ADD MESSAGE / IMAGE / VIDEO", "WRITE CONTRIBUTORS", "DOWNLOAD / PRINT", and "VIEW FINAL".

Pre-engagement



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)





Engagement

- Shifting power
 - Local knowledge the missing link in presented data
 - Who is the expert on what?
- Relationship building
 - Many active participant from different sectors

Engagement

- Produced useful tools
- Storytelling as data



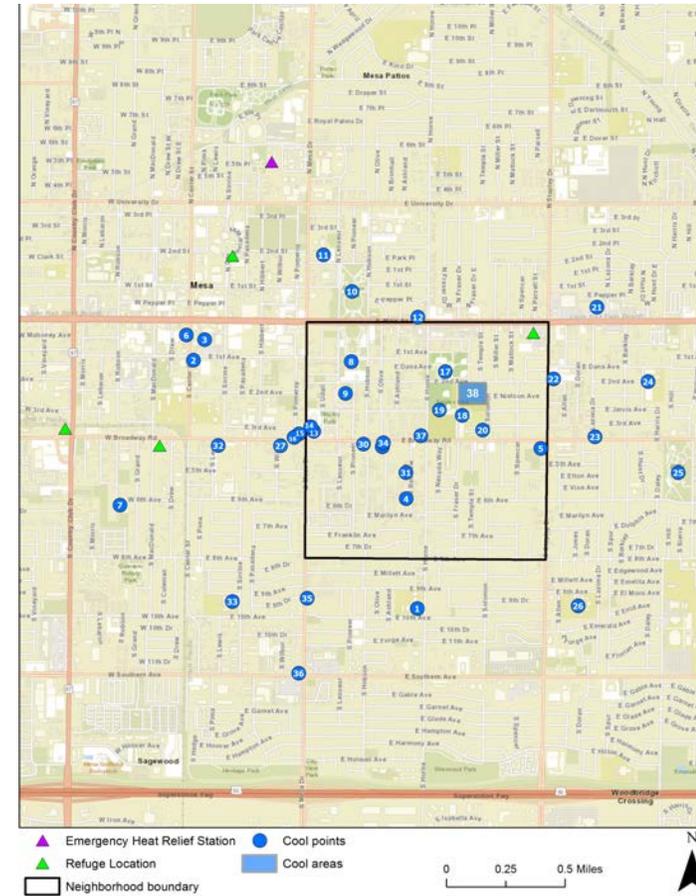
Return Anything Gathered

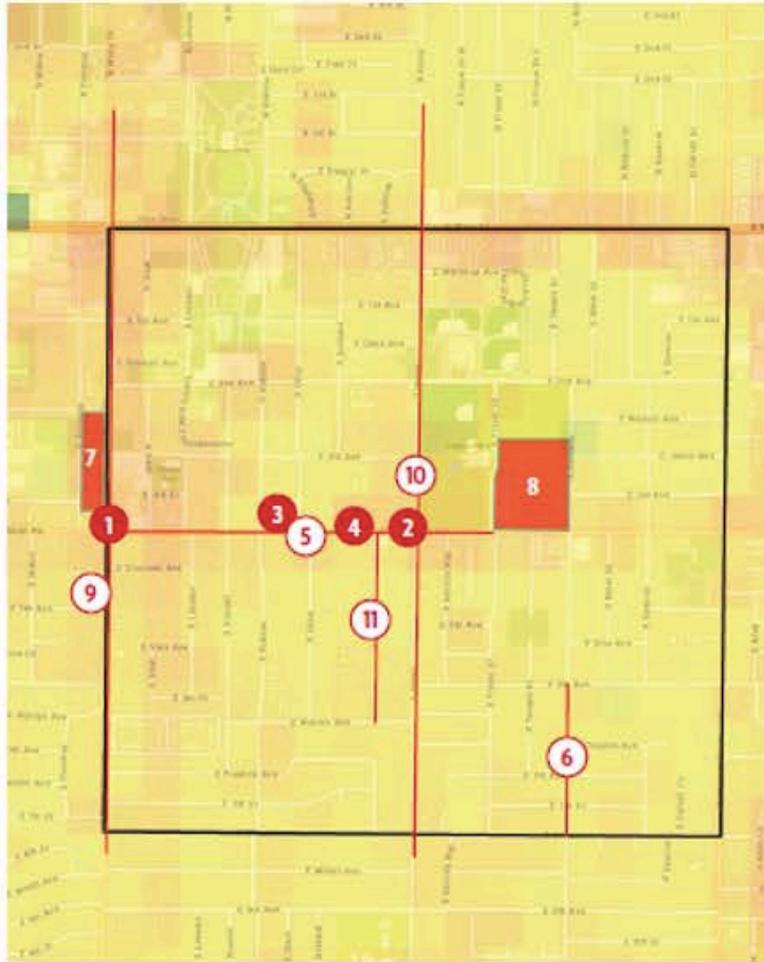
- Any data gathered in the community is owned by the community
- Commitment to return, in meaningful way, anything collected





Asset Mapping Cool Spots



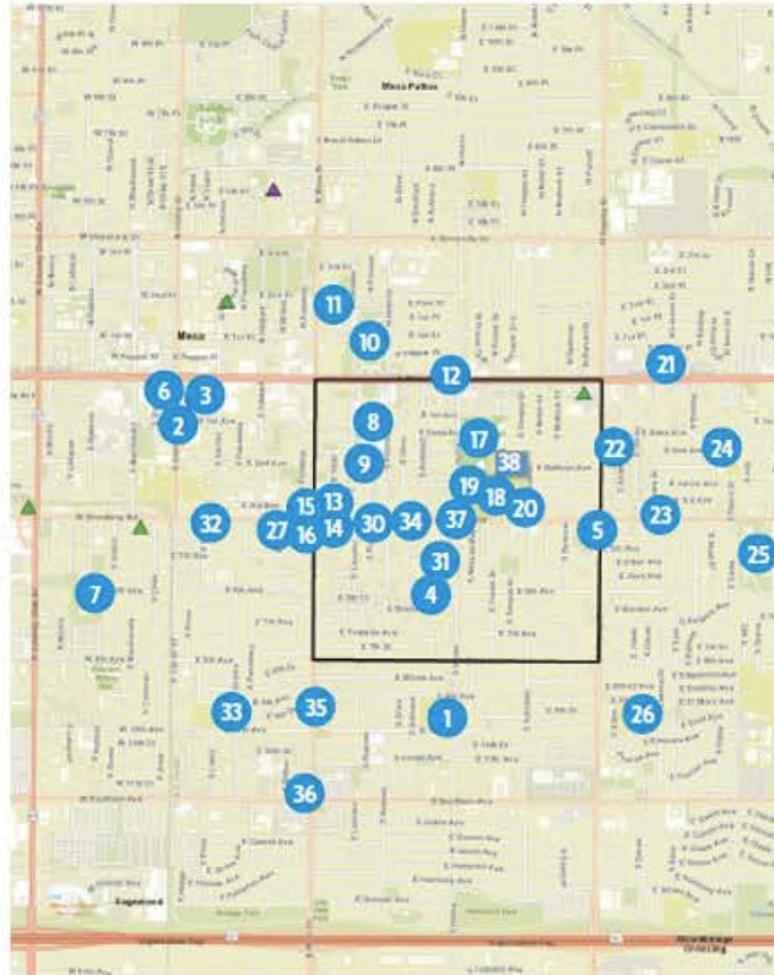


Land Surface Temp
 High: 100°F
 Low: 70°F

● Hot points
 — 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

Hot and Cool Spots



Engagement

- Disconnect between residents, city personnel
- Blame city manager or council
- PLUS many residents had no idea that they could participate in city planning and/or had no idea how

- Be the hero.

The community actively listening and speaking



Heat Action Planning Guide

Developed by:

- The Nature Conservancy
- Arizona State University
- Maricopa County Department of Public Health
- RAIL CDC
- Phoenix Revitalization Corporation
- Puente Movement
- Residents of Edison Eastlake, Water Tower Improvement District & Lindo-Roesley Park

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

Heat Action Planning Guide

EDISON-EASTLAKE COMMUNITY

Creating Urban Heat Solutions in the Valley of the Sun



This guide was created for the Nature's Cooling Systems Project, a partnership of The Nature Conservancy, Arizona State University's Urban Climate Research Center and Urban Resilience to Extremes Sustainability Research Network, Maricopa County Department of Public Health, Central Arizona Conservation Alliance, Phoenix Revitalization Corporation, RAILMesa, Puente Movement, and Center for Whole Communities.



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

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

NEED FOR SHADE/PROVIDE GREATER THERMAL COMFORT

- 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

ORGANIZING → 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



Whole Measures for Urban Heat

Justice and Fairness

Community Engagement

Economic Vitality

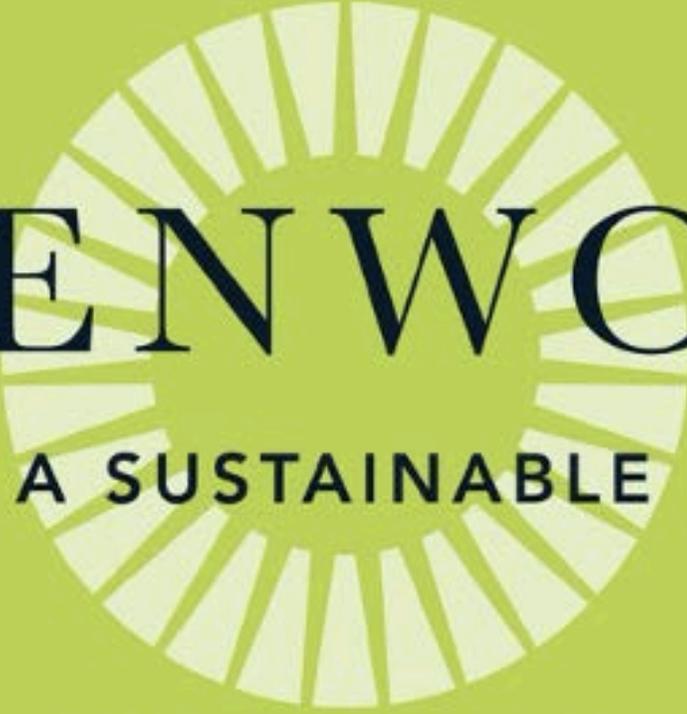
Community Resilience

Post- engagement

- COVID delays
- Projects implemented or incorporated into future plans
 - Spaces of Opportunity
 - Roesley Park
 - Broadway corridor
- Planning to start up advocacy program post covid
 - Heat Leadership program – The Nature Conservancy & Phoenix Revitalization Corp
- Have built a resilient social infrastructure
 - Community of Practice

- Melissa Guardaro, Arizona State University
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- Ryan Winkle, President, RAIL CDC
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- Masavi Perea, Chispa Arizona
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#GreenworksPHL



GREENWORKS

A VISION FOR A SUSTAINABLE PHILADELPHIA

Philadelphia Heat Initiatives: Beat the Heat
February 24th, 2021

Greenworks Visions At a Glance

VISION 01



All Philadelphians have access to healthy, affordable, and sustainable food and drinking water

VISION 02



All Philadelphians breathe healthy air inside and outside

VISION 03



All Philadelphians efficiently use clean energy that they can afford

VISION 04



All Philadelphians are prepared for climate change and reduce carbon pollution

VISION 05



Philadelphians benefit from parks, trees, stormwater management, and healthy waterways

VISION 06



All Philadelphians have access to safe, affordable, and low-carbon transportation

VISION 07



All Philadelphians waste less and keep our neighborhoods clean

VISION 08

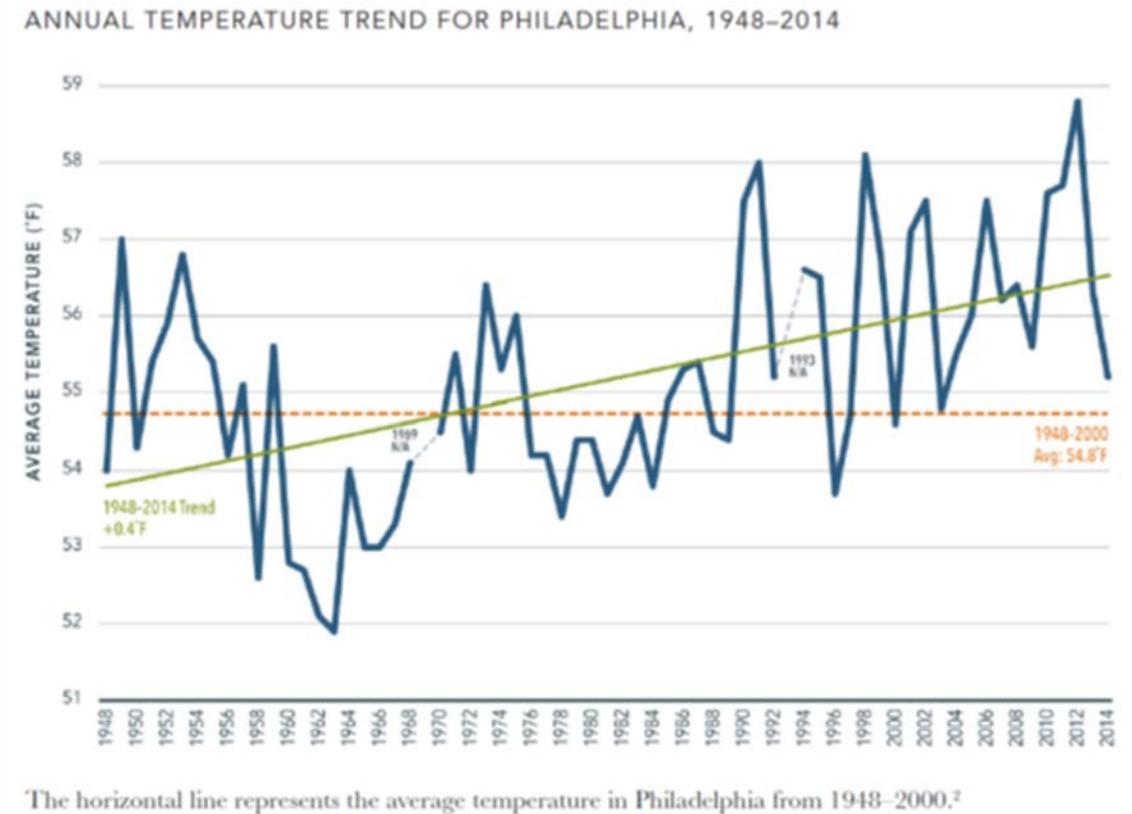


All Philadelphians benefit from sustainability education, employment, and business opportunities





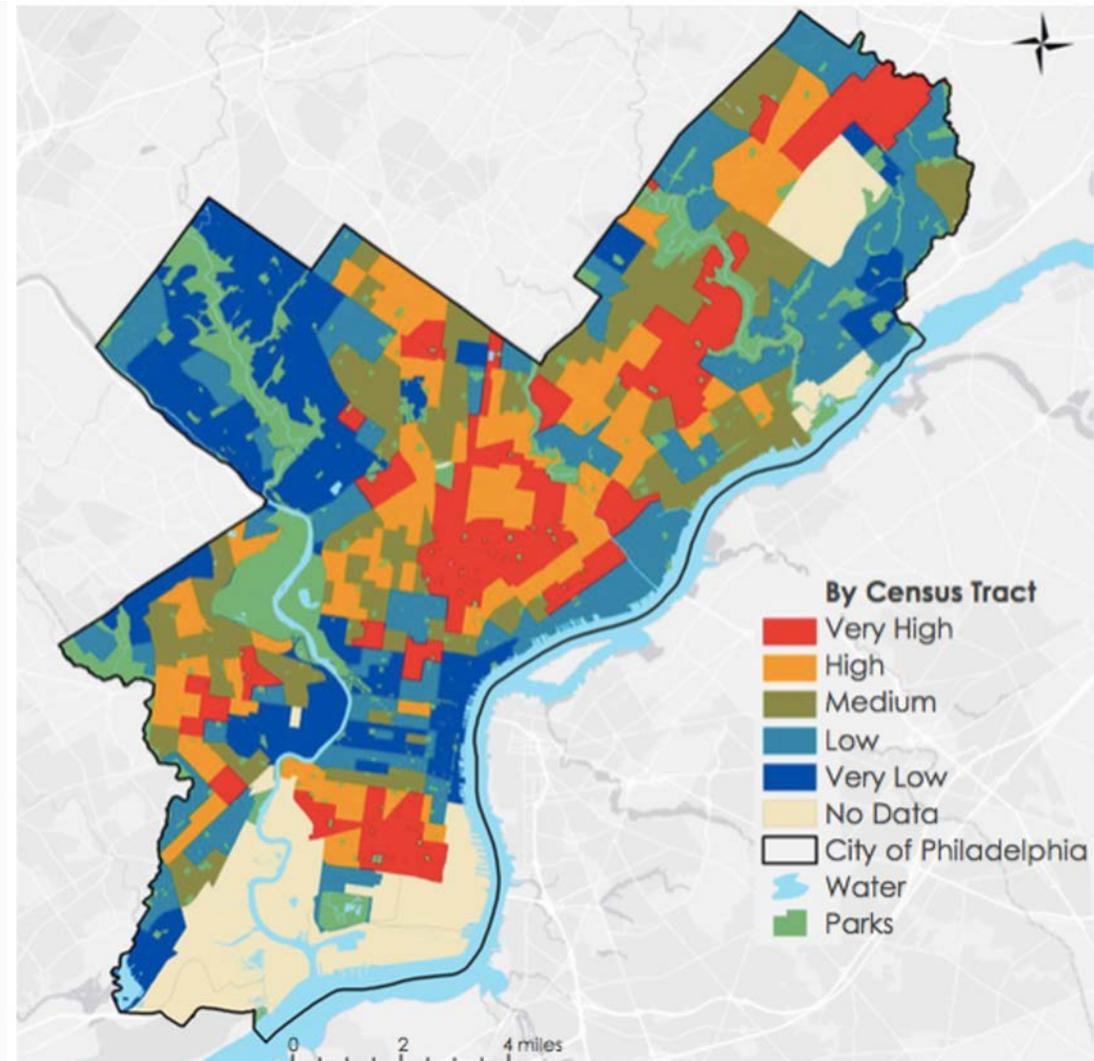
- Since 2010, Philadelphia has experienced the three **hottest** summers and the most days **over 90 degrees** on record
- There could be as many as **52 days over 95 degrees** by the end of the century



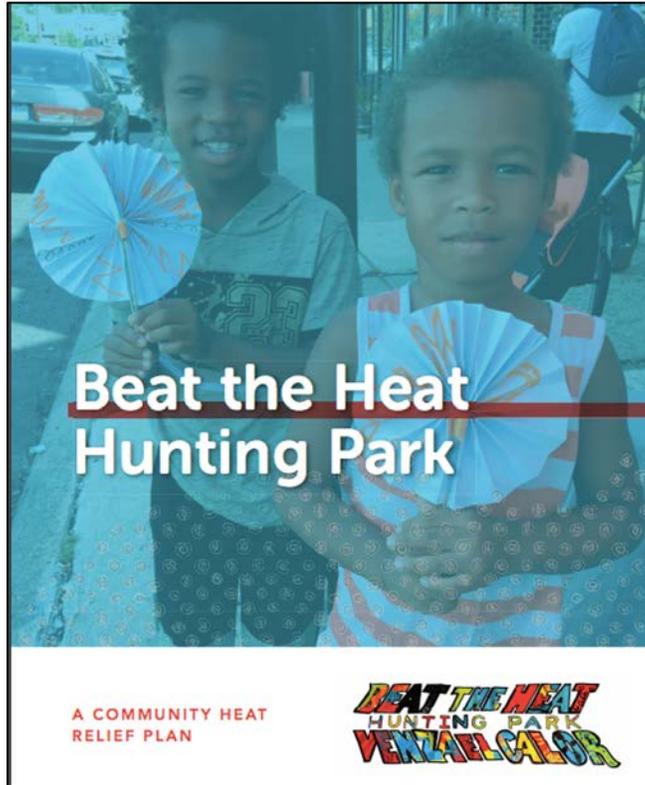


Heat Vulnerability Index (HVI)

- Combined heat data with demographic information
- 74 census tracts have very high HVI
- High HVI in Northeast, South and far North Philadelphia
- Hotter neighborhoods are more likely to be low-income and communities of color



Heat Resiliency Pilot



BEAT THE HEAT
HUNTING PARK
VENZAL CALOR

Beat the Heat Hunting Park: A Community Heat Relief Plan can be found at www.phila.gov/green.



Why Is Hunting Park So Hot?

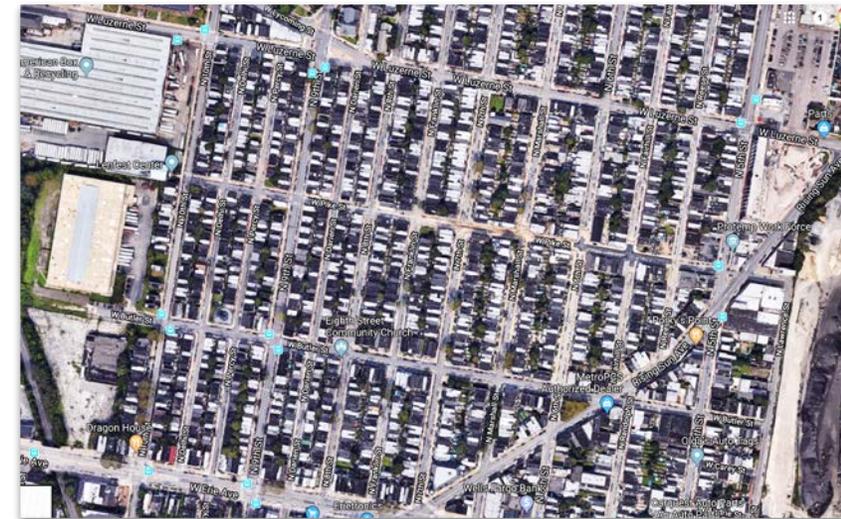
Industry



Tree Canopy



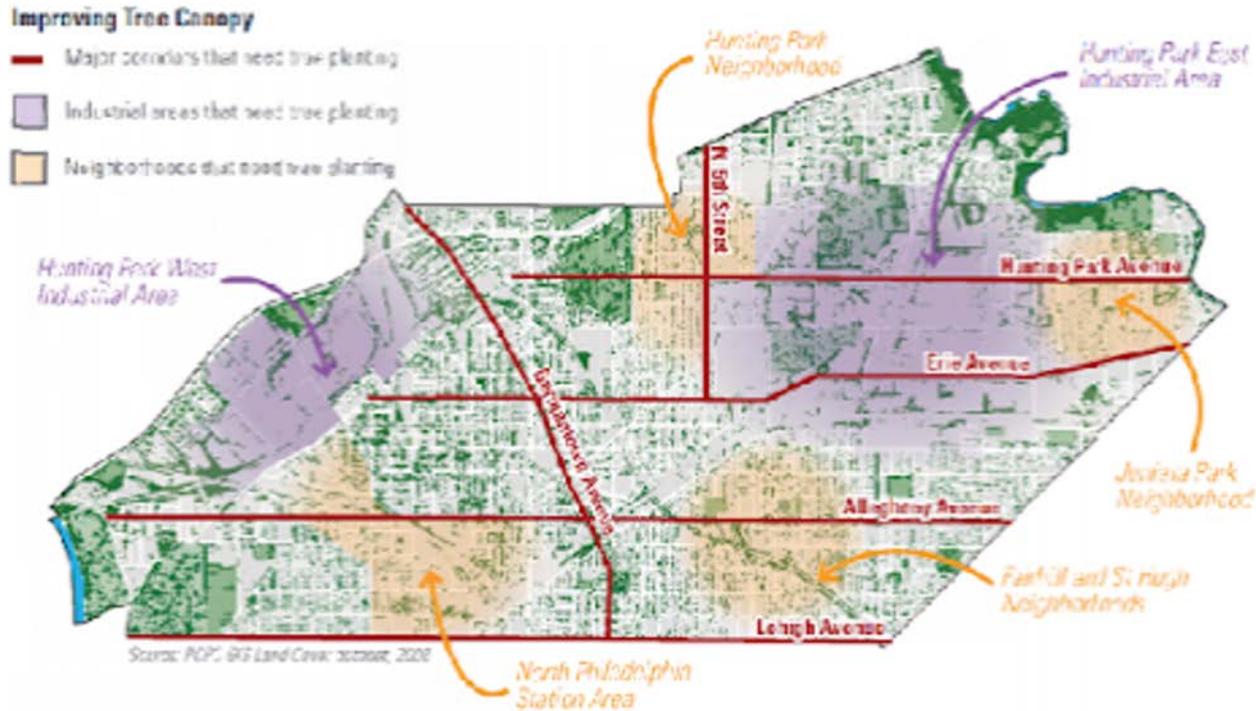
Black Roofs & Dark Surfaces



More than 75% of land cover in Hunting Park is buildings, roads, and paved surfaces compared to 52% in Philadelphia overall. In contrast, tree canopy is only 9%, compared to 19% in Philadelphia and 48% in neighborhoods like Chestnut Hill.

Why Is Hunting Park So Hot?

FIG. 4 LAND COVER MAP FROM THE PHILADELPHIA NORTH DISTRICT PLAN



SOURCE: Philadelphia City Planning Commission, North District Plan, 2010

Redlining and Heat Inequity

The heat vulnerability index shows that across the city, Black, Hispanic, and other residents of color are more likely to live in the hottest neighborhoods. Racial inequity in heat exposure is in part a result of exclusionary policies like redlining, which have played a major role in shaping where people live in Philadelphia.

Beat the Heat Hunting Park Pilot

GOAL 1: UNDERSTAND how HP residents experience heat in the summer, and what resources could help them to stay cool in their homes and neighborhoods

GOAL 2: INFORM residents about the urban heat island effect, its impact on community health, and how to stay healthy and safe in the heat

GOAL 3: WORK TOGETHER with HP residents to create a Hunting Park Heat Plan with neighborhood specific recommendations and implementation partners



Heat Team



Heat Survey & Resource Tables



Heat Ambassadors



Heat Design Workshop



Opportunities

Greening & Trees

- More street tree and yard tree plantings on residential blocks
- More street trees and vegetation around large industrial sites
- More gardens and green spaces--particularly on vacant lots
- Better lighting in Hunting Park (the park)
- Block clean-ups and dumping prevention



Opportunities

Staying Cool and Safe at Home

- Better access to A/C units and fans for residents
- Assistance with home energy repairs
- Advocating at state level for utility assistance (LIHEAP) during summer months
- Block-level cool roof coatings
- Cool roof and cool pavement demonstration projects at large industrial/commercial sites (e.g. SEPTA Track Shop)



Opportunities

Staying Cool in Public Spaces

- A/C and fans in public schools and rec centers
- A network of faith-based institutions, businesses, community groups, and residents, who can offer cooling spaces and resources, with programming and access to resources
- More bus shelters along popular routes
- Reducing idling and vehicle exhaust by rerouting truck traffic and prioritizing electric bus routes in hottest neighborhoods



BEAT THE HEAT HUNTING PARK

IMPLEMENTATION

BEAT THE HEAT HUNTING PARK VENTILAEALCALOR



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SUSTAINABILITY

A system of faith-based institutions, businesses, community groups, and residents who can offer cooling spaces and resources during a high heat event.



Implementation

Steering Committee



This group is made of residents, community orgs including Esperanza, and the City of Philadelphia, and is there to guide the project.

Community Cooling Centers



Through the Network, we opened two locations to serve as cooling centers during very hot weather: A community church, and a non-profit, both located in Hunting Park.

Heat Ambassador



A compensated position responsible for distributing surveys, and helping direct the project.

Cooling Resource Giveaway

Heat-Relieving Resources



Distributed either via food distribution sites in HP, or directly delivered to residents through the Steering Committee.

Drexel University Heat Mitigation Project



A local university is implementing a block-level heat mitigation project in a location identified by residents and local stakeholders.

Beat the Heat Survey



Distributed across opportunities within the Heat Relief Network and incentivized with giveaways and a chance to win a gift card upon entry.



- **Heat is a very important issue**
- Many people stay inside during hot weather
- Those who took the survey in Spanish are more likely to leave their homes when it is hot out compared to those who took survey in English
- There is a need for better access to fans and air conditioning
- Many people always or sometimes feeling too hot in their homes
- High interest in cool roofs, medium interest in gardens, greenspace, and trees
- Low to medium knowledge of utility assistance programs



Priority areas for 2021:

First tier

- Trash
- Gardens and greenspace
- Trees
- Heat Relief Network

Second tier

- Cooling resources
- Cool roofs
- Utility assistance
- Community cohesion

Third tier

- Cooling Centers

Most Valued Activities:

- Creating steering committee
- Heat ambassador program
- Distributing cooling resources

Other feedback:

- Interest in changing community governance structure for project
- Should work to address other environmental concerns through the project
- Prioritize reaching homeless and shut-in populations
- Incorporate other neighborhoods into project



Community Organization Spotlight



Charles Lanier, Executive Director

The Hunting Park Community Revitalization Corporation (HPCRC)

- 501(c)3 nonprofit organization, established to promote the general development, welfare and wellbeing of all people residing or established in the Hunting Park Community.
- Committed to developing the Hunting Park Community through housing, education, economic development, social welfare, area beautification and recreation, without displacing residents.

"Helping to improve the quality of life in Hunting Park Philadelphia through economic empowerment, support programs, and social responsibility!"

✓ Steering Committee



✓ Heat-Relieving Resources Distributor

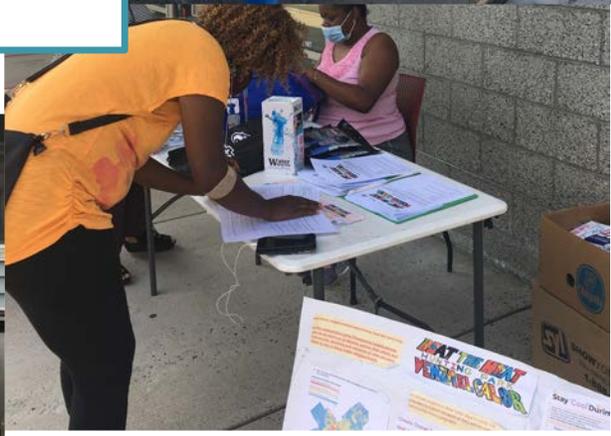


✓ Beat the Heat Survey Distributor



Priscilla's Perspective

- Philadelphia Block Captain
- Beat the Heat Steering Committee Member
- Drexel Heat Mitigation Project Community Coordinator

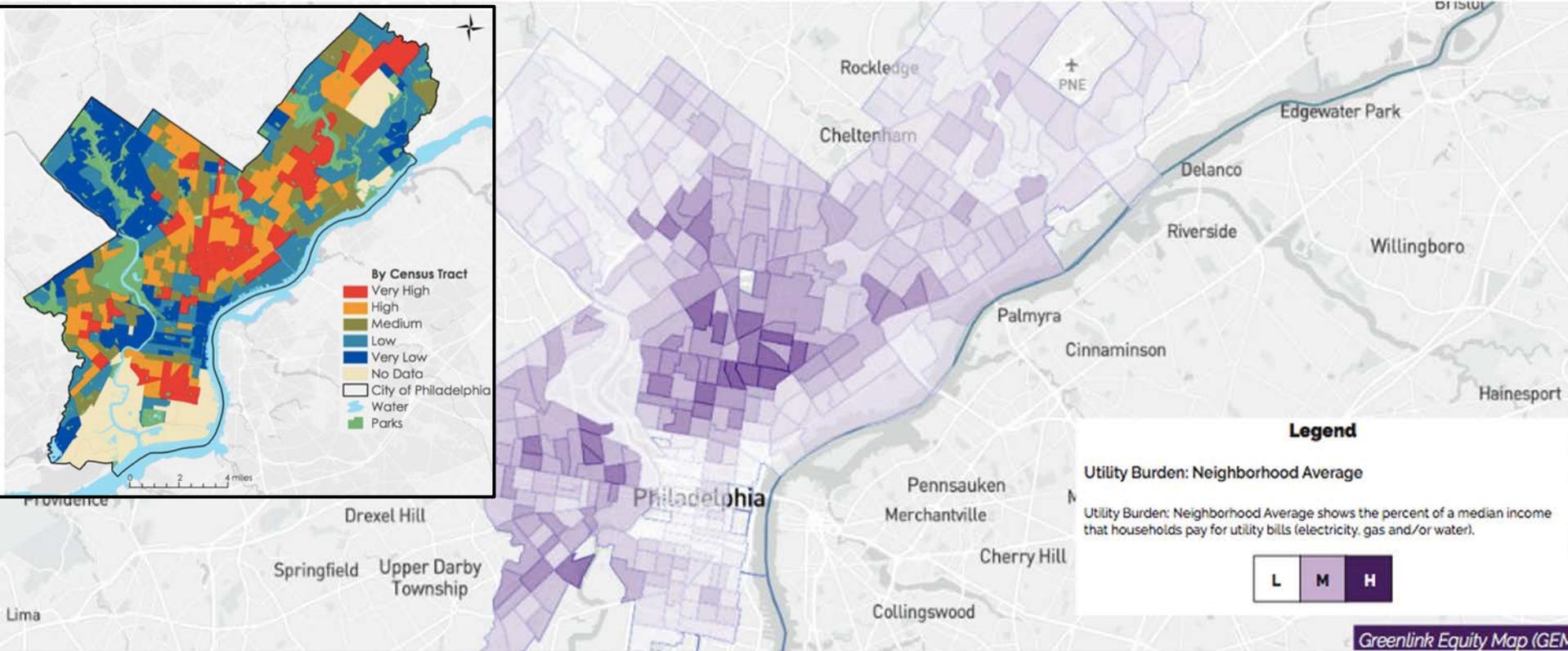


Adjacent Project- Energy Burden Focus Groups

Energy Burden Focus Groups Philadelphia, PA

fall 2020

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SUSTAINABILITY



- Three virtual meetings:
Gas Utility Use and Preferences, Heat Inequity, Weatherization

- Seven Partners
- Compensation
- University Partnership

Next Steps

In Hunting Park

- Drexel University Heat Mitigation Project
- Greening and Beautification project
- Address challenges of the pandemic by focusing on shut-in populations

Citywide

- Incorporate heat vulnerability into city policy decisions, such as the urban forest strategic plan, urban ag master plan, bus network planning, and violence prevention strategies
- Identify and build relationships with other heat vulnerable communities and share the Beat the Heat Toolkit
- Look for opportunities to use funding from the Regional Greenhouse Gas Initiative to support community-based resiliency efforts
- Expand and improve communications around heat resources, such as a city website, a citywide symposium, and social media posts

Next Steps

Citywide Climate Adaptation Plan

Goals for 2021:

- Create Resiliency Cabinet
- Launch local climate research consortium
- Update climate projections
- Continue to implement municipal adaptation recommendations in capital budget and beyond
- Identify and support neighborhood climate resiliency projects
- Engage infrastructure and development community into the fold
- Integrate resilience planning into other City initiatives, such as Hazard Mitigation Plan

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Questions?

Ask via the “questions” function



Thanks for joining us!

Upcoming Sessions:

March 4 - Rural Heat Challenges and Interventions

March 10 - Heat Stress on Species & Ecosystems

www.NationalAdaptationForum.org/virtual-forum



You're invited to a virtual discussion!

Join us at your preferred network below.



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Group: National Adaptation Forum

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