

Ways for Municipalities to Address Extreme Heat

Pete Carey

Survey Question: Has your municipality identified extreme heat impacts as a challenge through a planning process (Comprehensive Plan, Sustainability Plan, Strategic Plan, etc.)?

In the chat, tell us more about the plan

Agenda

- Background
- Solutions
 - Green Infrastructure
 - Cooling Resources
 - Building Envelope
- Funding
 - DOT
 - HUD
 - FEMA
 - USDA
 - EPA

Background

Background - Urgency

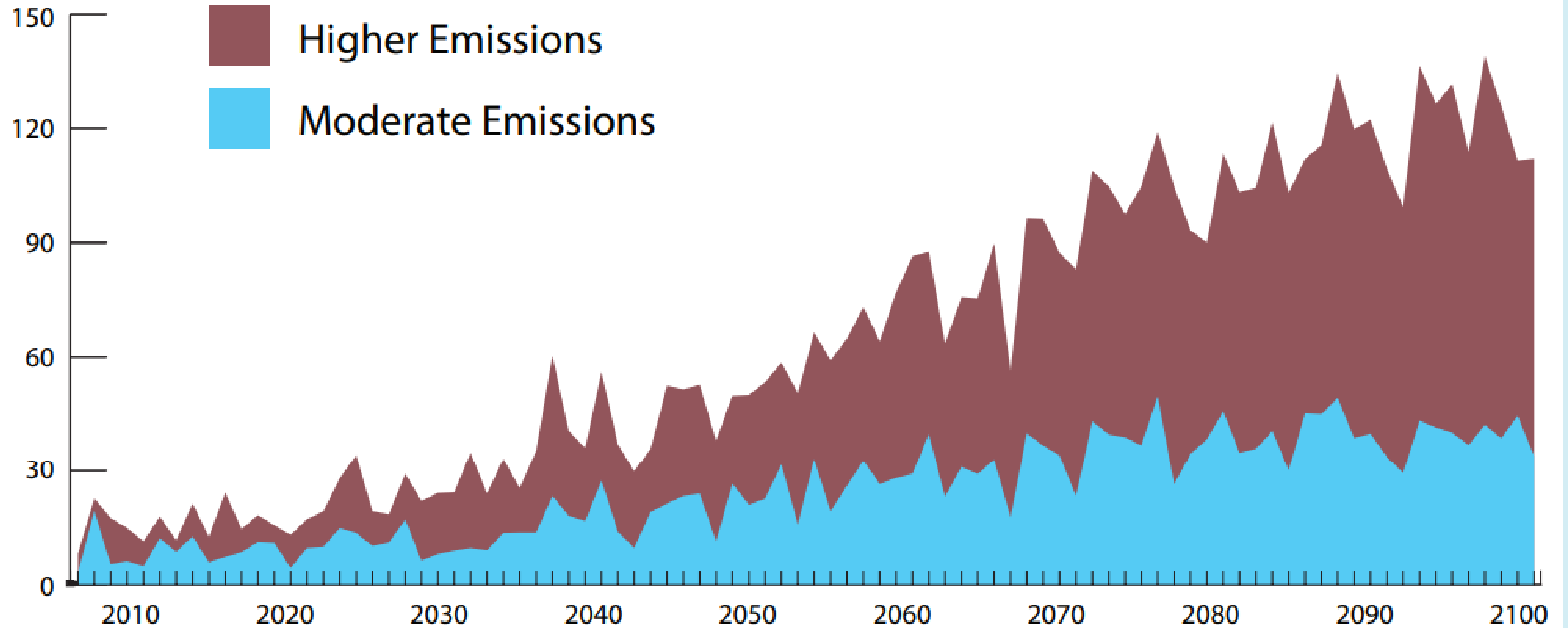
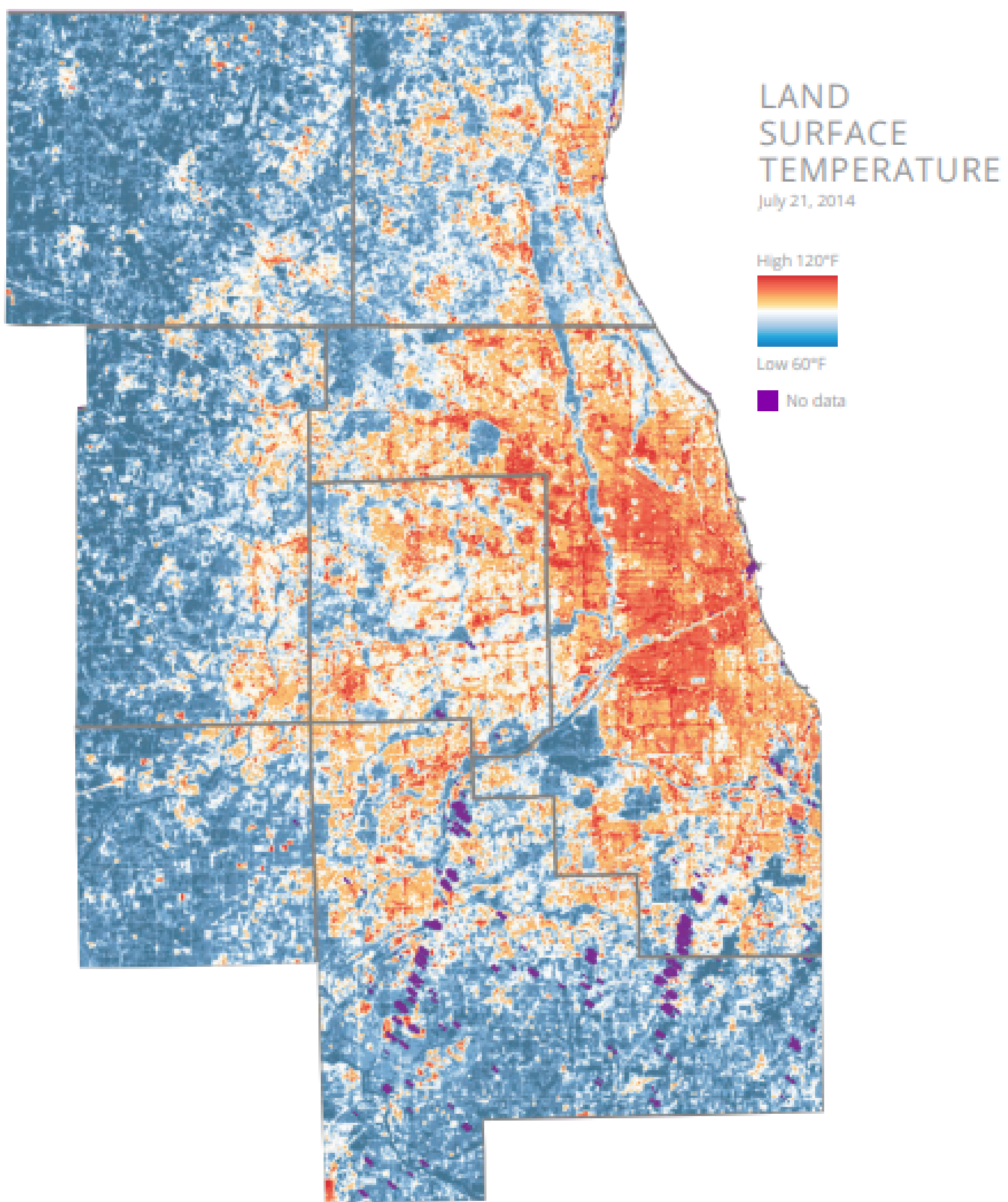


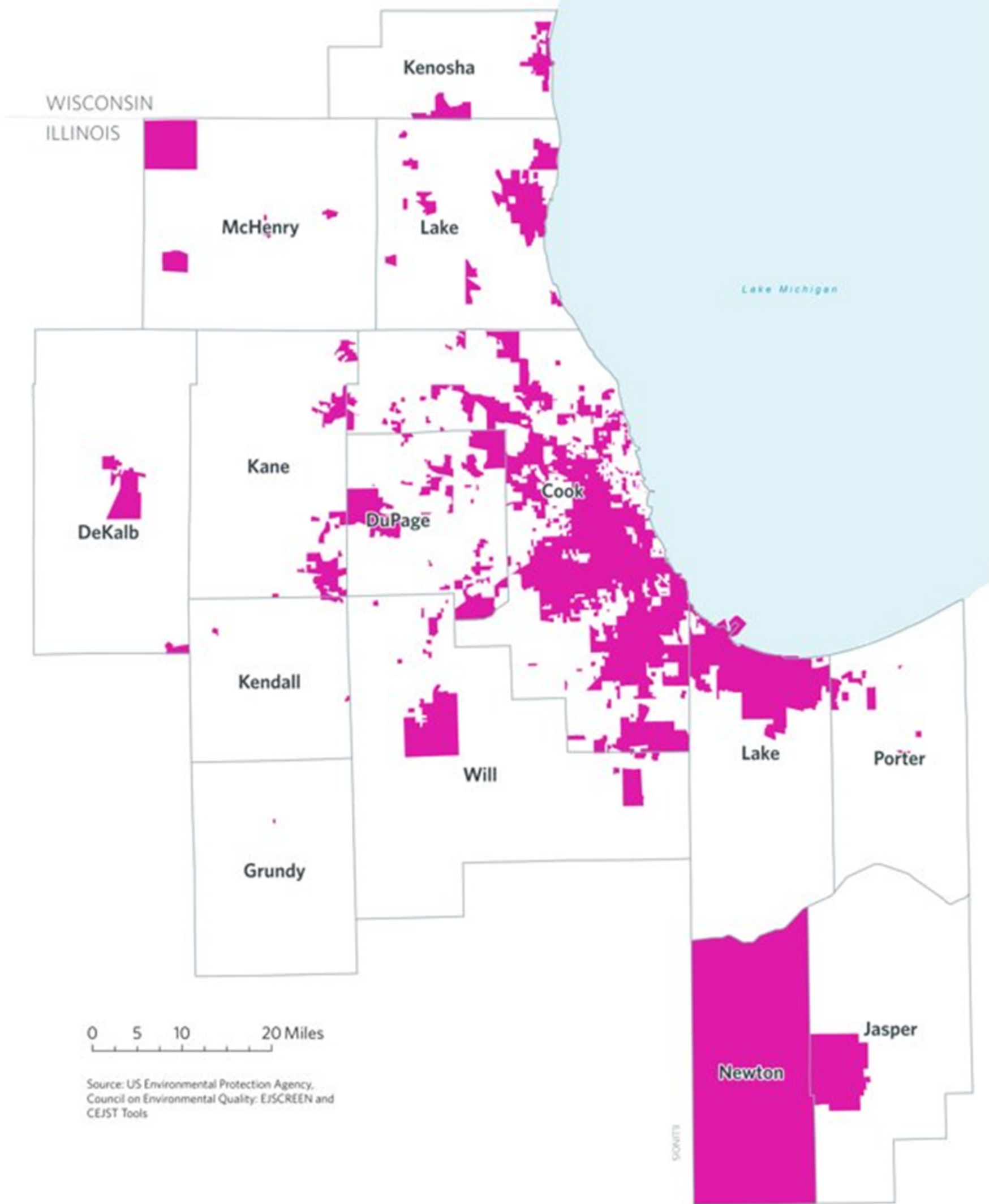
Figure 3. Annual days with maximum temperature greater than or equal to 100°F in northern Illinois.

Source: U.S. Climate Resilience Toolkit



Background - Disparities

The impact of this extreme heat on residents will be uneven, with those in low-income areas having an increased burden relative to their richer counterparts.



Background - Disparities

Areas identified as Low-Income
And Disadvantaged Communities
(LIDAC) using federal tools
within the Metropolitan
Statistical Area

Sectors, Assets, and Services	Magnitude of Future Impact <i>Low Moderate High Unknown</i>
Public Health	High
Society / Community and Culture	Moderate
Environment, Biodiversity, and Forestry	High
Transport	Moderate
Energy	Moderate
Emergency Services	Moderate
Food and Agriculture	Moderate

Background - Human Health

Impacts of extreme heat on human health

- Increased morbidity and mortality risk
- Higher rates of violence and behavioral issues, including homicide and suicide
- Overburdened local health system
- Reduced work capacity

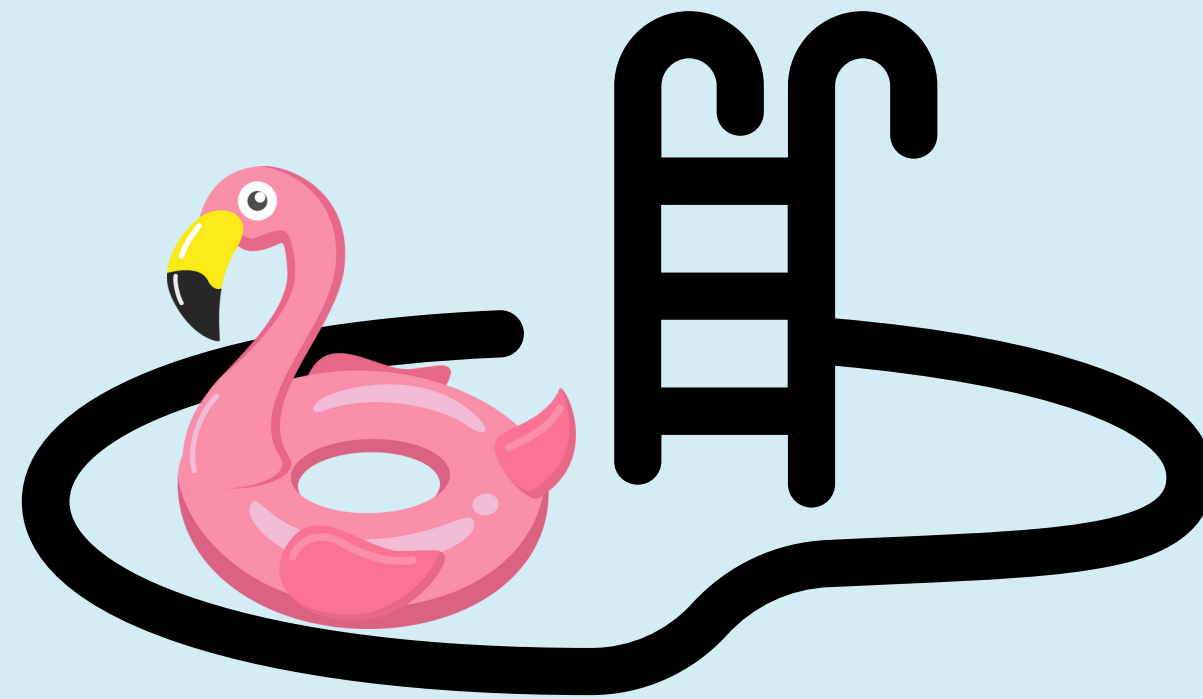
Solutions

Survey Question: What heat intervention strategies are currently available to your residents?

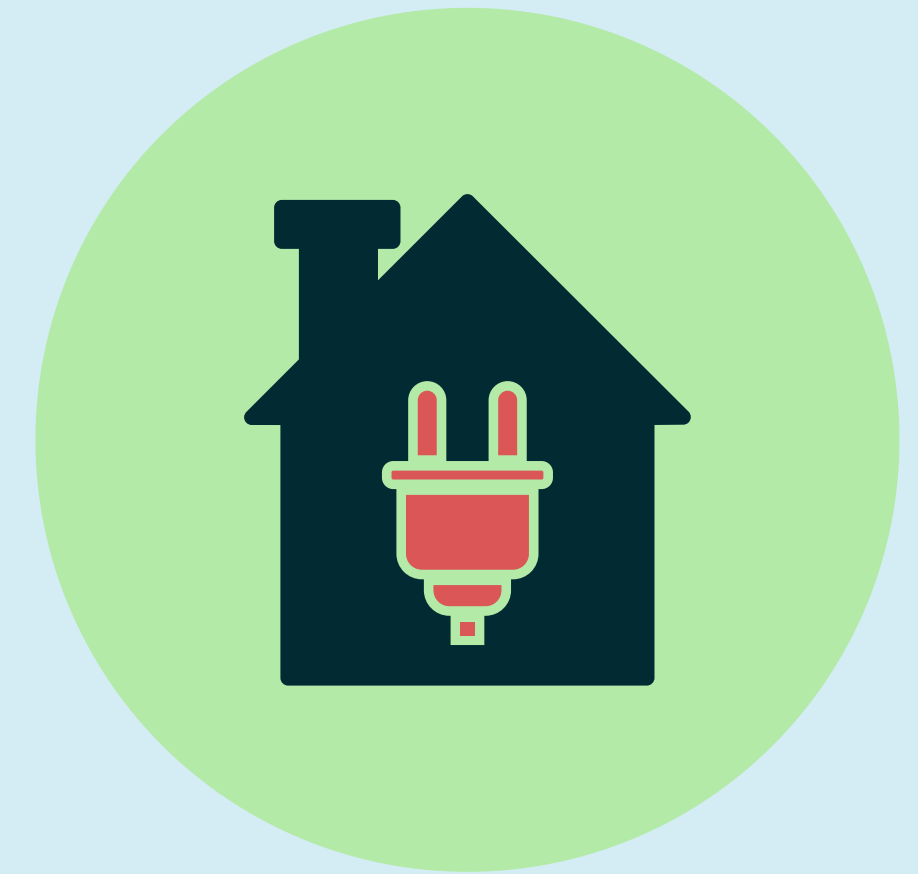
Overall Strategy



Green Infrastructure


































Cooling Resources



Building Envelope

Solution Category - Green Infrastructure

Co-Benefits of Heat Island Mitigation Strategies

	Green Roofs	Trees and Vegetation	Cool Pavement	Cool Roofs
				
Air quality				
Energy use				
Greenhouse gas emissions				
Human health and comfort				
Nighttime visibility				
Quality of life				
Safety				
Stormwater management				
Tire noise				
Water quality				

Pavement

- Cool & Permeable Pavement
 - Can be integrated with existing infrastructure
 - Cool pavement is affordable
 - Target urban heat island reduction where it's most needed

- Local Examples
 - Evanston
 - Broadview
 - Villa Park
 - Harwood Heights

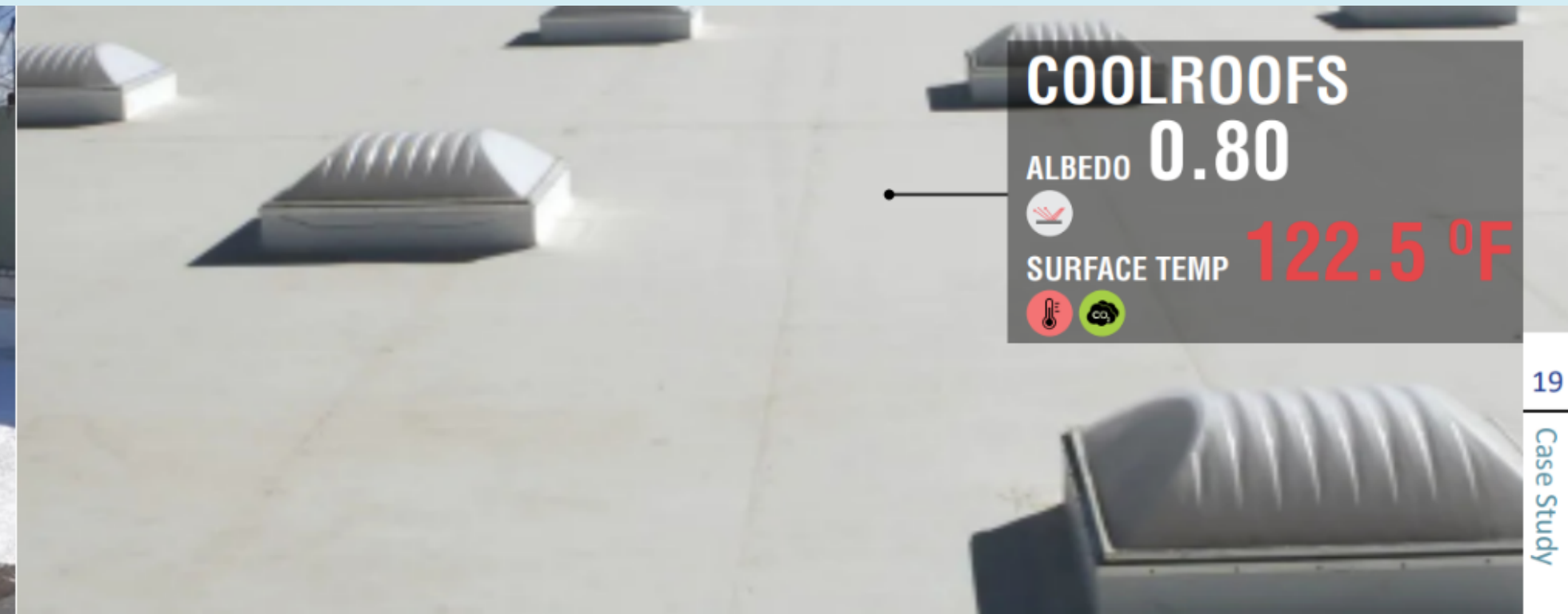


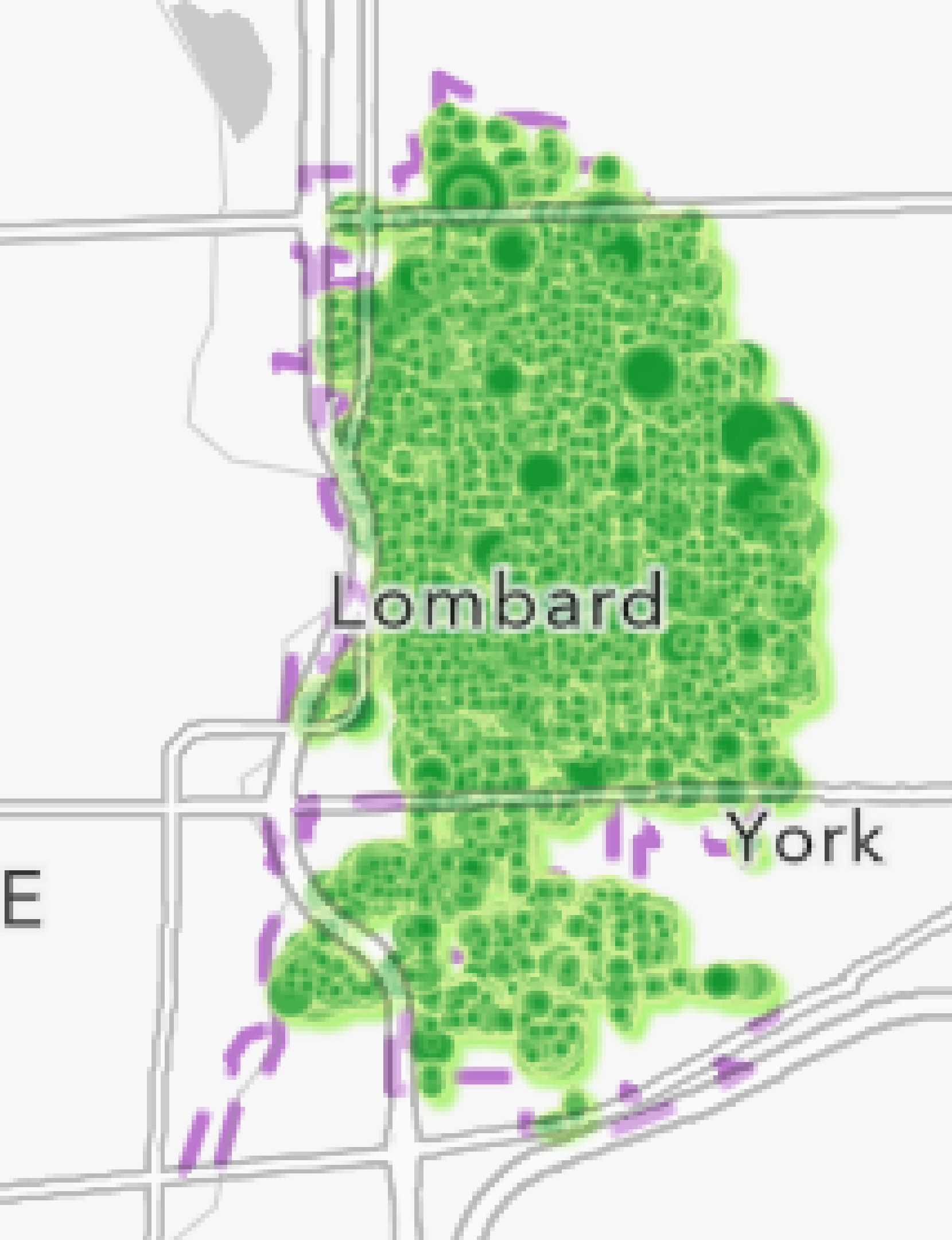
Roofs

- Cool & Green Roofs
 - Reduce urban heat island effect
 - Cool roofs are a low cost intervention
 - Reduce building energy demand
- Local Example
 - Chicago



DARK ROOFTOP
ALBEDO **0.10**
SURFACE TEMP **165.7 °F**





Trees

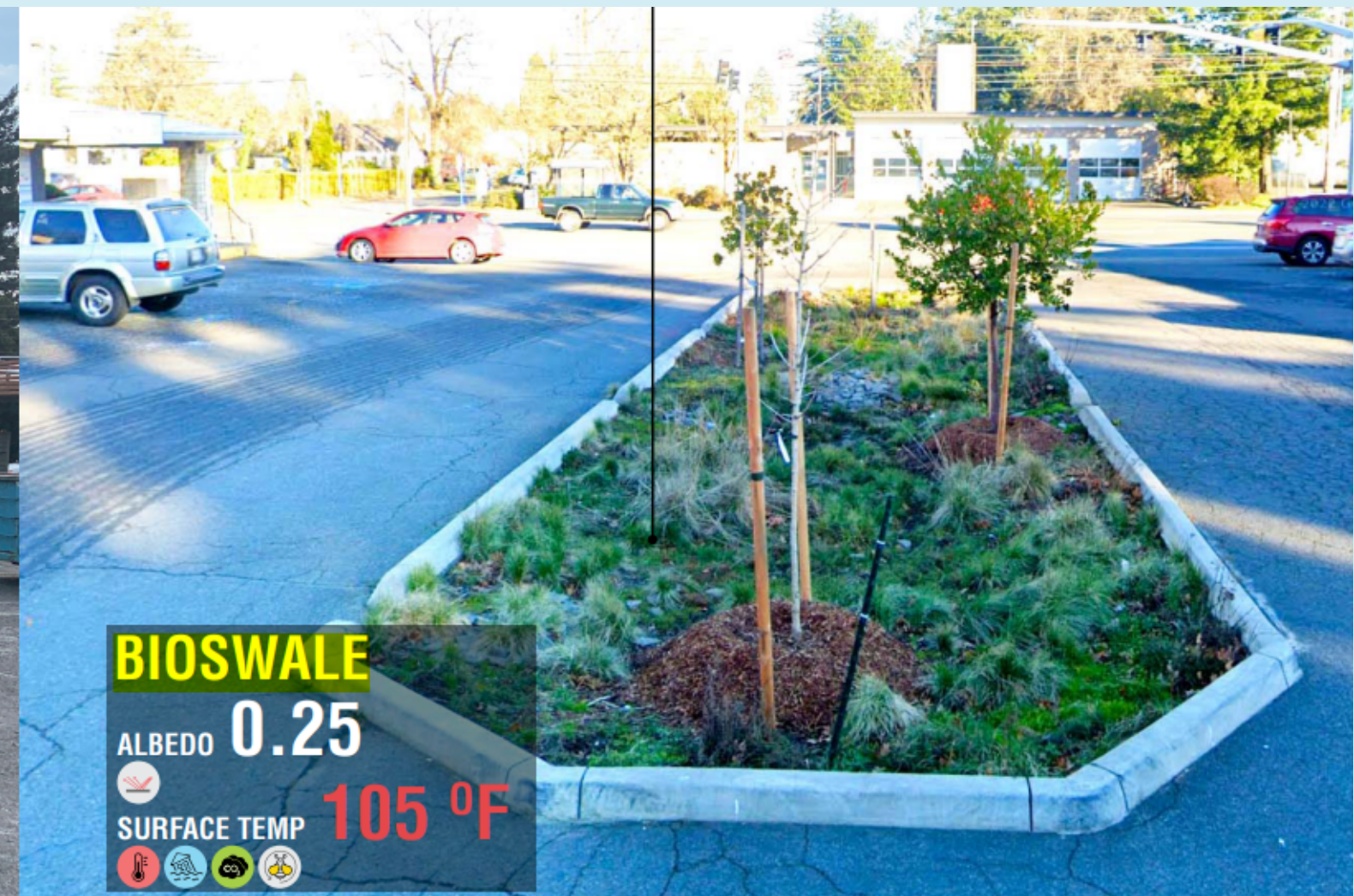
- Improve air quality
- Reduce urban heat island effect through evapotranspiration
- Reduce building energy demand
- Direct shading

Local Examples

- Lombard
- Indianapolis, Kansas City, Madison, St. Louis (Midwest Climate Collaborative)

Bioswales

- Reduce urban heat island effect
 - Reduce stormwater runoff
 - Increase local biodiversity
- Local Examples
 - Villa Park
 - Blue Island



Solutions - Building Envelope

- Windows
- Energy-efficient appliances
- Air conditioning
- IRA Energy Efficient Home Improvement tax credits program

FAQs: CDBG Resources and Authorities to Help Pacific Northwest Communities Respond to Heat Waves and Extreme Temperature Events

June 29, 2021

Can Community Development Block Grant (CDBG) funds be used to help communities respond to heat waves? If so, how?

Yes. HUD issued the Community Resilience Toolkit which helps recipients of HUD Community Planning and Development (CPD) funds identify opportunities to use their CPD dollars to mitigate the impacts of natural hazards, including increasing temperatures and extreme heat. States and cities may use CDBG funds to provide public facilities and services to prepare for and respond to extreme heat events. Some eligible CDBG activities can

Public service activities, such as establishment of cooling centers where residents can access air conditioning during heat waves. (Note that there is a limit on the percentage of a CDBG grant that may be used for public services);

Public facilities and infrastructure improvements, which include installation of air conditioning, evaporative coolers, or fans in buildings; and

Housing rehabilitation, including installation of air conditioning and use of materials that are more resilient to high temperatures and are more energy efficient.

Survey Question: Is your municipality exploring additional strategies to address extreme heat impacts facing residents?

Funding

Funding - Dept of Transportation

- Surface Transportation Block Grant Program
 - Formula funding
 - “Protective features, including natural infrastructure, to enhance resilience of an eligible transportation facility”
- Congestion Mitigation and Air Quality Program
 - Formula funding
 - Eligible projects
 - Congestion Reduction
 - Bike path development
- Both administered through CMAP

Funding - Dept of Transportation

Promoting Resilient
Operations for
Transformative, Efficient,
and Cost-Saving
Transportation (PROTECT).
Program

Formula & Competitive funding

Focuses on making surface
transportation infrastructure more
resilient to natural hazards and climate
change

Healthy Streets Program

Competitive funding

Federal cost sharing of 80%, but up
to 100%

Focuses on cool & porous
pavements, and tree cover

Funding - HUD

Community Development Block Grant

- Formula funding
- Must benefit low to moderate income areas
- “Eligible activities include creating cooling centers, installing air conditioning, fans, or evaporative coolers in public buildings, and housing rehabilitation to include air conditioning or more resilient and energy-efficient materials”

Funding - FEMA

Building Resilient Infrastructure and Communities (BRIC).

- Competitive funding
- Focuses on pre-disaster mitigation, emphasizing projects that fortify infrastructure, implement hazard mitigation measures, and promote innovative approaches to improve resilience and reduce future losses

Funding - USDA

Tree Equity Grants

- Must improve tree canopy, forest health, or community forestry programs
- Administered through the Chicago Regional Trees Initiative
- 100% of funds are for disadvantaged communities
 - Eligibility Map

Funding - EPA

Environmental &

Climate Justice

Community Change

Block Grants

- “Projects focused on mitigating climate and health risks from urban heat islands, extreme heat ...”
- Eligibility
 - Must be a disadvantaged community
 - Must partner with a community-based organization
- All grant funding to be allocated by 2026

A complete list of references and additional resources will be distributed via email following the presentation

Thank you!