Hopkins Heat Vulnerability Study

Hopkins, Minnesota

Entry Category: Planning and Urban Design

Abstract

Through a lens of place-based equity, this project exemplifies a community-driven planning approach that results in positive outcomes for the people we serve, exemplifying how landscape architects can directly aid vulnerable communities in the face of a changing climate. The Hopkins Heat Vulnerability Study explores how the City of Hopkins is affected by a warming planet and how it can adapt to extreme heat events. The project website provides an interactive summary of how heat impacts the city's most vulnerable residents and includes action steps on how to keep those residents, and all community members, safe in extreme heat.

Project Narrative

The City of Hopkins is located southwest of Minneapolis in the Twin Cities metro region. The community has just over 19,000 residents with just under 40 percent identifying as people of color and nearly 65 percent of residents renting their homes. Although heat is dangerous to everyone, some people are more vulnerable to extreme heat than others. High risk populations include people of color, older adults, people with pre-existing health issues, and children.

Even those who can stay inside can be especially vulnerable to extreme heat if they do not have access to or cannot afford air conditioning. While all of Hopkins is considered by the Minnesota Pollution Control Agency (MPCA) to be an area of environmental justice concern, these statistics significantly overalp along two of the City's main transportation cooridors, Blake Road and Excelsior Boulevard.

These corridors are also primarily composed of heat generating surface types (i.e., buildings, roads/paved surfaces, etc.), which greatly contribute to the area's heat island effect. In recent years, tree removals due to Emerald Ash Borer and major road and infrastructure construction in these areas have diminished the tree canopy, exacerbating the problem. Through a series of maps overlaying the City's phyiscal, administrative, and demographic information, the team showed how these impacts were directly contributing to high land surface temperature and putting vulnerable populations at risk.

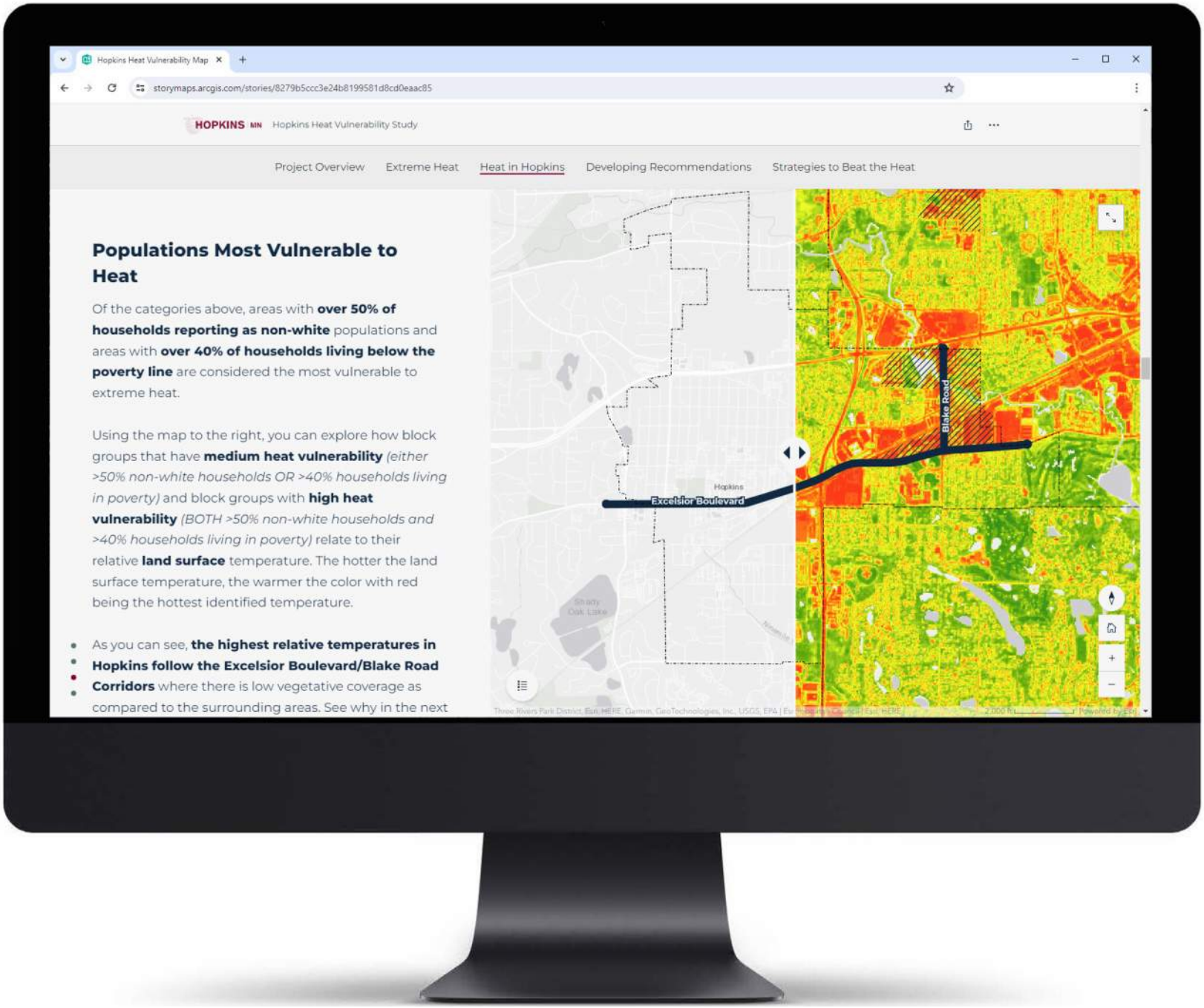
Rooting the project in community engagement was key. To understand how to plan for community safety in the heat, the City first sought to understand how people in Hopkins currently handle the heat, what strategies people can use to stay safe during heat waves, and how the City can assist community members in extreme heat events moving forward. The project team held conversations with community members and businesses along the corridor, as well as speaking with more than one hundred residents at various events within and near the project area, many of whom have been historically excluded from governmental processes. Focus groups were conducted with large property owners along the corridor and local government staff of neighboring and regional jurisdictions.

Based on the analysis and community process, along with a review of best practices in other cities, the project team developed recommendations for the City. Recommendations were suggested at varying of levels of investment, such as increasing natural and

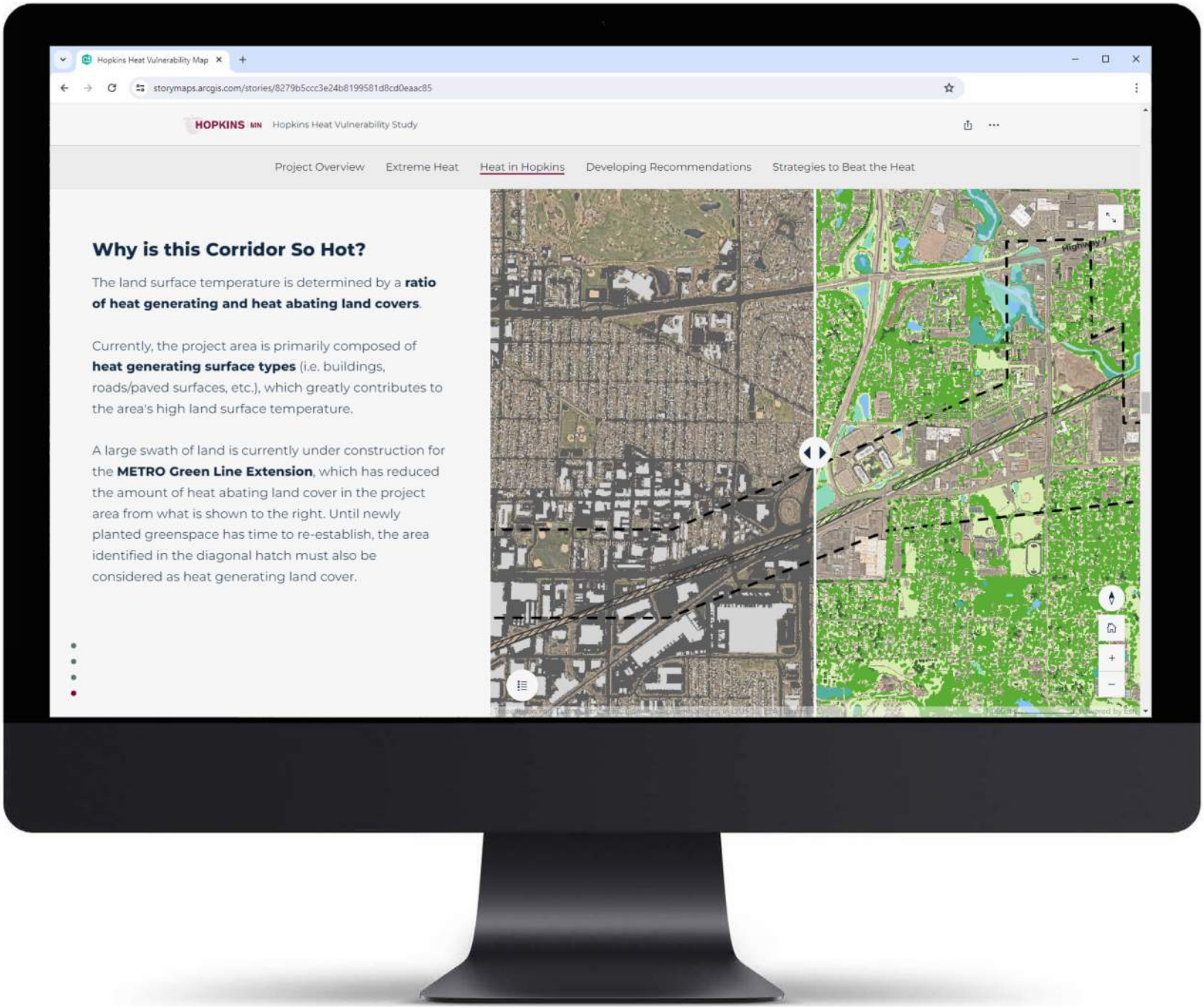
green spaces in these corridors, incentivizing construction or deconstruction of buildings and infrastructure in consideration of the heat, and improving social cohesion to ensure residents are safe during extreme heat events. A matrix describing impact and investment level was provided to help City staff prioritize next steps.

The project deliverable, an ArcGIS StoryMap that combines mapping with interactive storytelling, was chosen to provide an equitable and accessible tool for communicating the project process and outcomes. It allows the public to directly interact with the geographic data and recommendations and provides transparency with links to backup materials. This tool is a living document, allowing the City and project team to easily update underlying data to keep it relevant to the community's current needs.

This study was immediately impactful for the City's work on sustainability. Using American Rescue Plan Act dollars, the City Council directed staff to implement a Green Cost Share Program, which helps businesses and residents with the costs of sustainable infrastructure. Based on the Hopkins Heat Vulnerability Study, multi-family and commercial businesses within the corridors are offered an additional incentive if their projects implement a strategy that helps reduce heat in the area. The project team has also continued to work with The City on implementation steps and was recently awarded a grant to create a Community Resilience Hub in a public park within the project area. Tangible results like these build trust with community members and showcase how landscape architects are providing communities with meaningful solutions to our most pressing problems.



The project is summarized for the public on an ArcGIS StoryMap, which combines mapping with interactive storytelling. Website visitors can see how high land surface temperature coincides with areas where vulnerable populations live by toggling on demographic information.



On this map, sliding the arrows reveals how large amounts of impervious land cover (in gray on the left) and a lack of trees (in green on the right) converge in the Excelsior Boulevard and Blake Road corridors. This combination makes this area dangerously hot during extreme events.

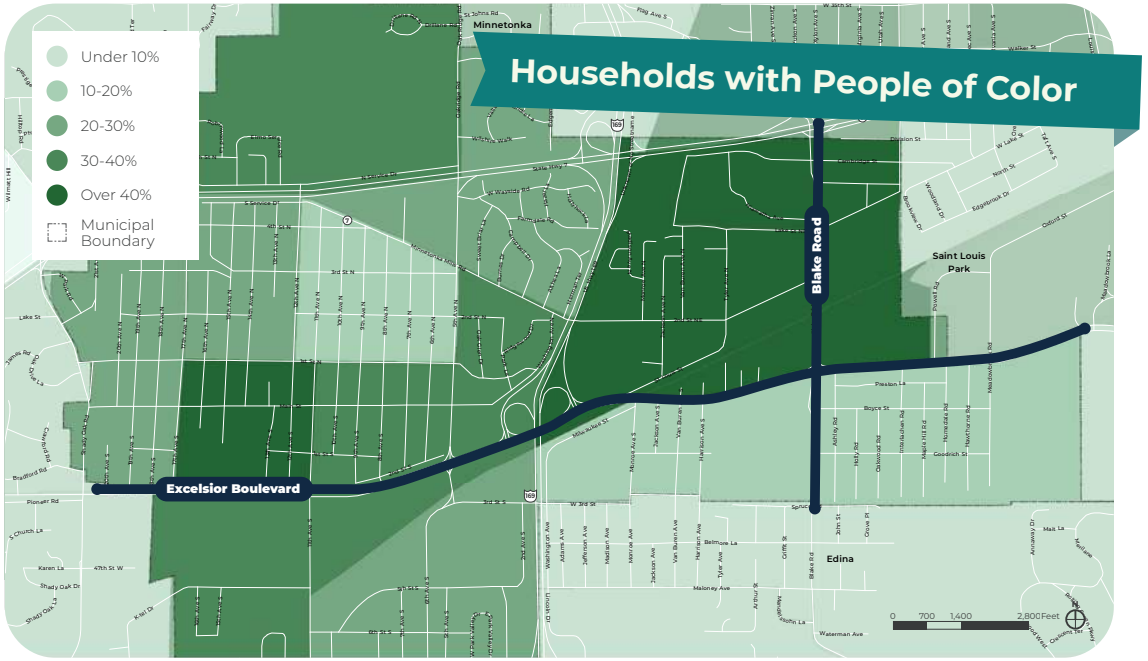
The team photographed the Blake Road and Excelsior Boulevard coordiors, which brought the issues of impervious surface and lack of trees into sharp focus.

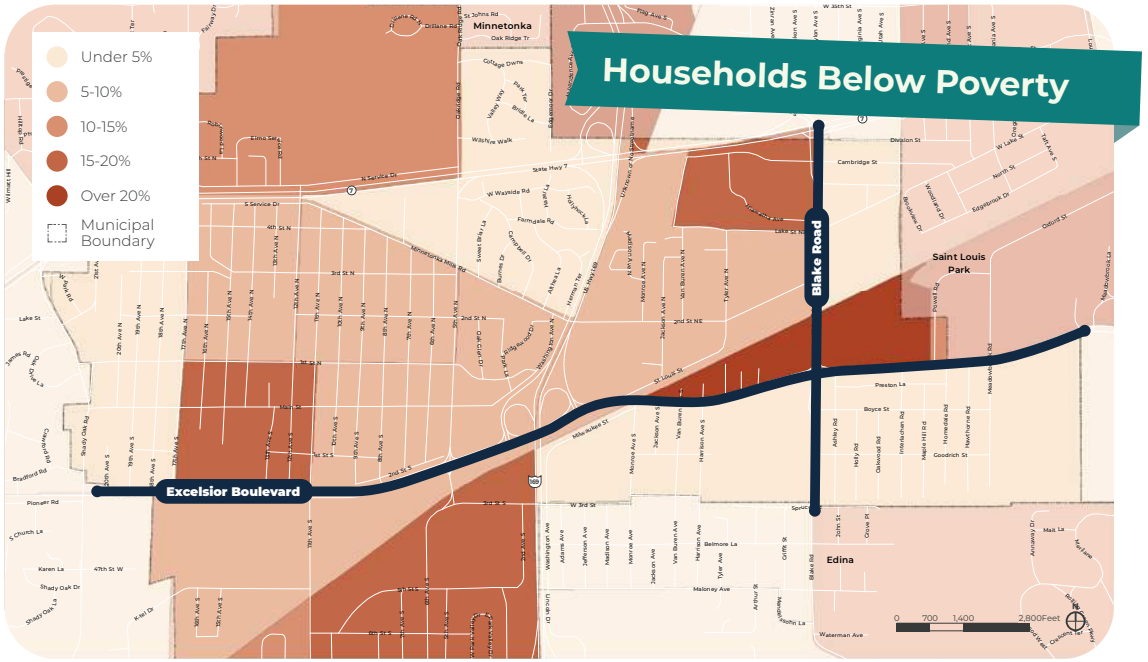
Team members spoke with more than one hundred residents and property owners at various local events, focus group meetings. Residents shared that their primary cooling strategy was to seek air-conditioned spaces, while large property owners were generally interested in learning more about green infrastructure practices.

Who does heat affect the most?

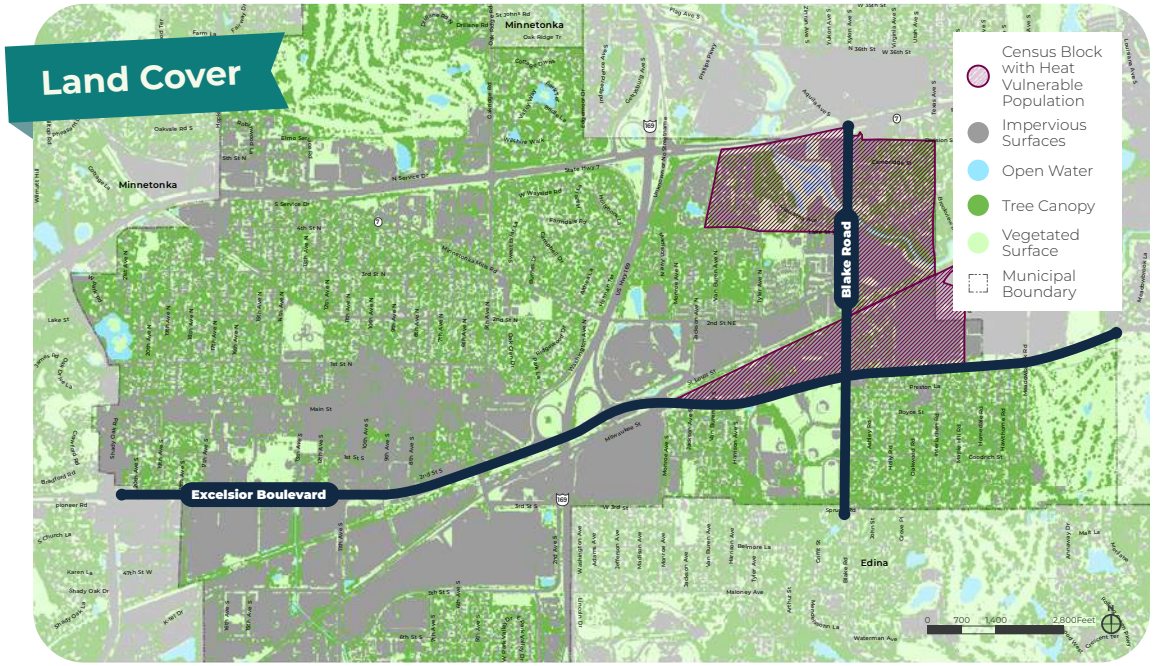
Heat is dangerous for all of us, but it is **especially dangerous** for some groups more than others:

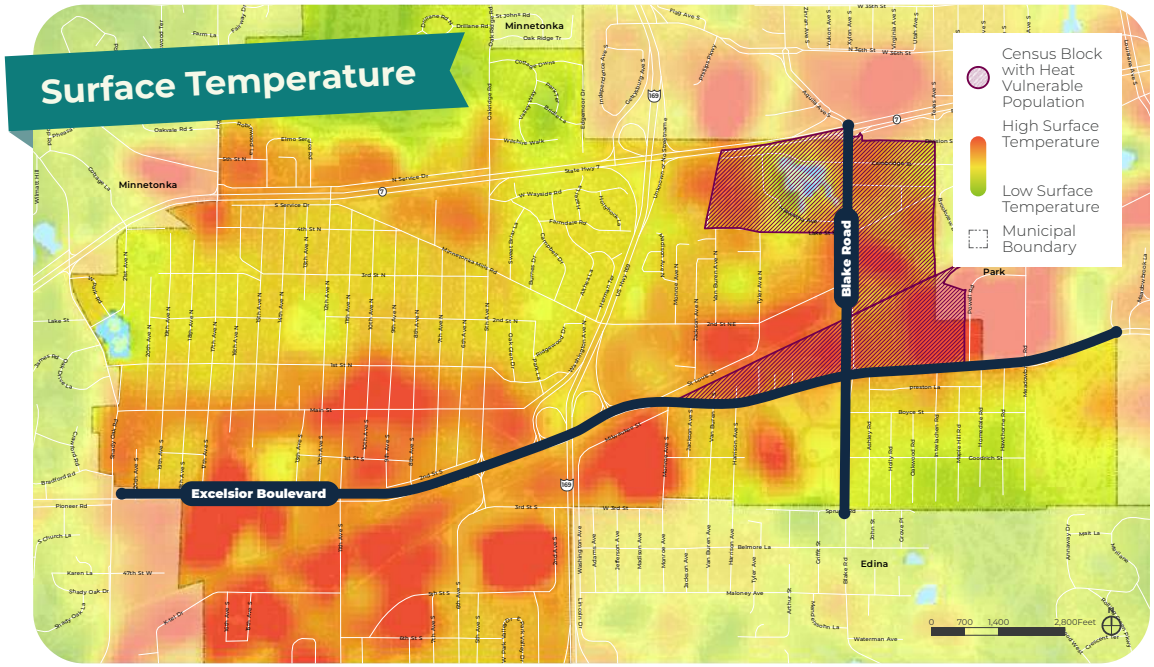
+ People who **work or live outside** experience the heat the most. This includes people experiencing homelessness.
+ People **without access to air conditioning**, especially in their homes, are vulnerable to heat.
+ Heat strokes and other health impacts from heat are most dangerous and prevalent in **older people and people with preexisting health issues**.
+ Historic underinvestment in greenspaces and trees in **communities of color and low-income communities** has resulted in these communities having hotter temperatures than others.
+ Areas with **a lot of pavement and buildings.**





Engagement boards like this one explaining who is affected most by heat, were used to help community members understand the importance of this issue.





Why is the Excelsior/ Blake Road corridor so hot?

The land surface temperature is determined by a **ratio of heat generating and heat abating land covers**.

Currently, the project area is **primarily composed of heat-generating surface types** (i.e. buildings, roads/paved surfaces, etc.), which greatly contributes to the area's high land surface temperature.

A large swath of land is currently under construction for the **Green Line LRT Extension**, which will impact the surface conditions within the project area.

Engagement graphics also highlighted impervious surface, tree cover, and surface temperature. These maps were later memorialized on the website.

What can we do about it?

There are **four main things** that cities and communities can do to **make heat less dangerous**.

1 Increase Natural & Green Spaces

+ Plant **trees and vegetation**
+ Replace existing concrete with **surfaces that can absorb water**
+ Increase **green spaces** like parks
+ Make sure that water bodies, like Minnehaha Creek, are **safe to wade & swim in when it is hot**

2 Change the Way we Build

+ Use **cool pavements** that are a lighter color so that they reflect heat
+ Replace pavement that are unused with **vegetation**
+ Replace traditional roofs with **green roofs or cool roofs** that are light in color to reflect heat
+ Improve the **energy efficiency of buildings** to keep buildings cool and costs low
+ Build more awnings that provide **shade for people** to use when it is hot

3 Improve Social Connection

Building **relationships with neighbors and communities** is important for support during a heat emergency.

+ Provide **resources and alerts** about hot weather in multiple languages
+ Make sure everyone can **access cool places when it's hot**. That may include businesses, public cooling centers, or a neighbor's house. It also may include outdoor splash pads or wading pools in parks.
+ Neighbors should **check in on one another** during heat waves to make sure we **have what we need to stay safe**.

4 Ensure Access to Reliable, Clean Power

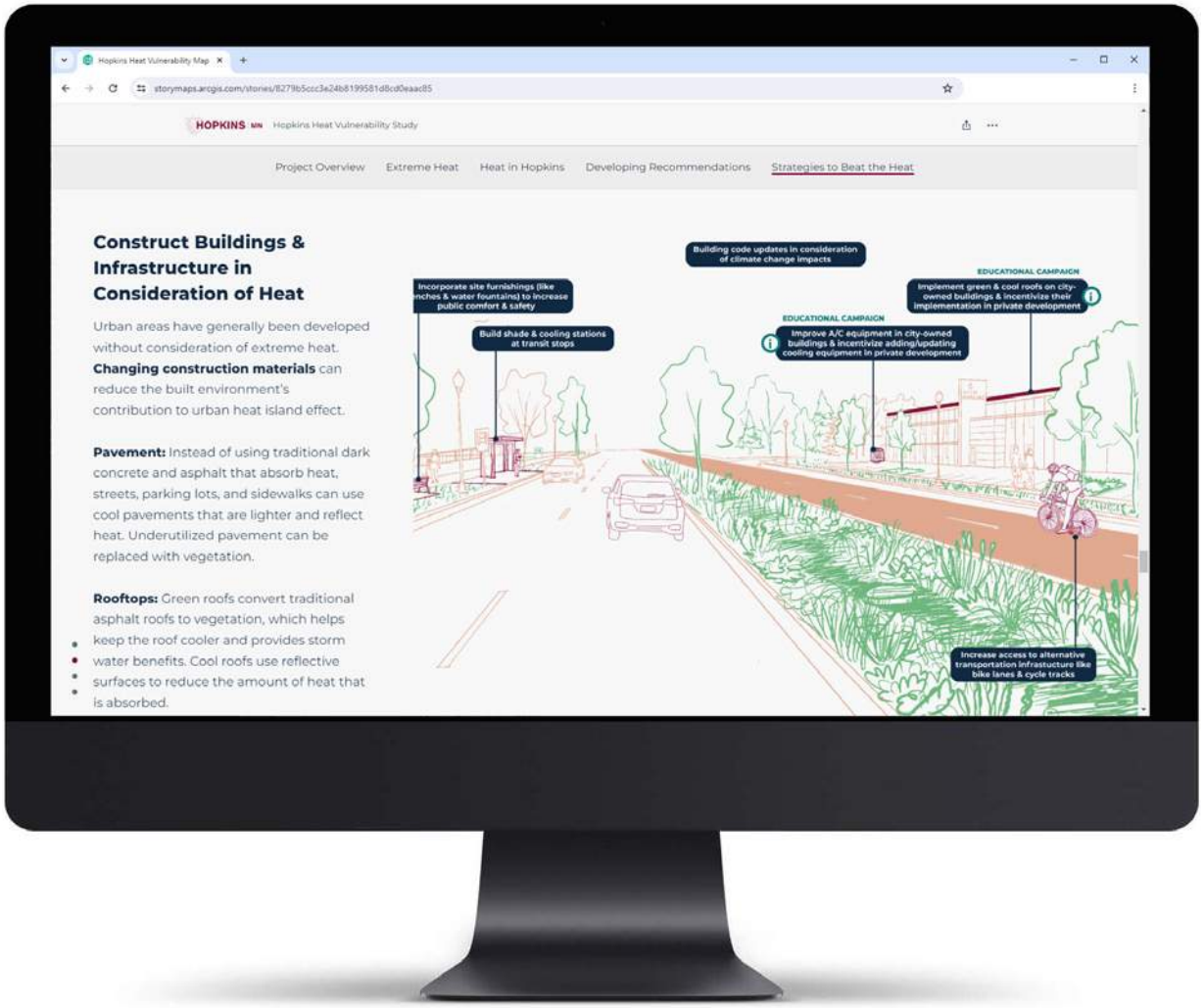
Air conditioning is an important tool to avoid the heat. Air conditioning uses electricity, so it is **important that the electric system can provide the energy needed** to keep them running during a heat wave

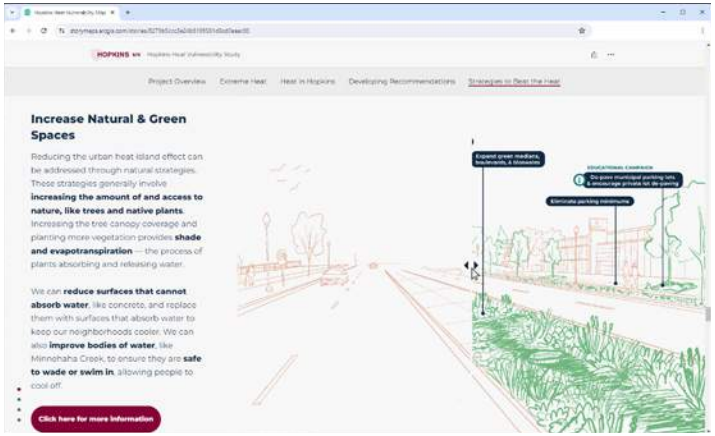
+ Micro-grids can run through **solar energy and batteries** to store the energy
+ **Back-up power systems** can be placed at community centers or public spaces like libraries to make sure that people have electricity access during heat waves.

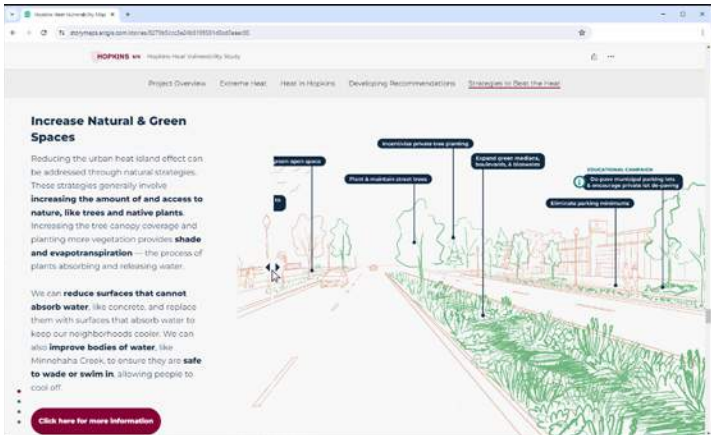
Recommendations for natural spaces, built infrastructure, safe and reliable power, and social cohesion were developed based on best practices that have emerged from other cities across the country, as well as conversations with community members and businesses along the corridor.

	Actions	City Tools	Implementation Mechanism	Impact (1-5)	Resources Needed ($, $$, $$$)	Funding Opportunities
NATURAL INFRASTRUCTURE	Expand green open space	Policy & Planning	Increasing green space fits into the **Park System Master Plan** that is in development, particularly prioritizing park access for communities vulnerable to extreme heat.	●●●●	$$$	– **IRA Neighborhood access and equity grant program funding** – **Urban and Community Forestry IRA Grants** – Watch for state resilience grants through the MPCA – Watch for state climate planning and implementation grants through the MPC
	Plant and maintain street trees	Policy & Planning	Fits with existing **Complete Streets Policy** – update plan to prioritize street trees in hottest, most heavily pedestrian-trafficked areas	●●●○	$$○	
	Eliminate parking minimums	Regulation	Eliminating parking minimums would require zoning changes	●●●○	$○○	
	Private tree planting	Incentives	Continue and expand **tree sale program** to increase tree planting on private land	●●●○	$○○	
	Expand green medians, boulevards, bioswales	Policy & Planning	Existing **Complete Streets Policy** includes boulevard landscaping, can expand to explicitly include medians and bioswales	●●○○	$○○	
	De-paving municipal parking lots	Leadership & Innovation	Encouraging de-paving could be done in a municipal lot to demonstrate benefits	●●○○	$$○	
	Education campaign on de-paving parking lots	Education & Engagement	Hopkins can lead an education and engagement campaign for businesses to understand the options and benefits of de-paving existing lots	●●○○	$○○	
	Encourage de-paving sections of existing, private parking lots	Policy & Planning	De-paving non-municipal lots can be encouraged through policy and planning initiatives, such as providing incentives for de-paving	●●○○	$○○	
	Require de-paving of existing, city-owned lots	Policy & Planning	When city-owned lots are repaved, require de-paving of city-owned surface lots in RFPs	●●○○	$$○	
	Increase access to public water	Policy & Planning	Ensuring access to clean water is part of the **Water Resource Management Plan**, including surface water. Increasing access to water in public spaces like misting fountains, public water fountains, and public drinking water stations keeps people cool and hydrated	●○○○	$$○	

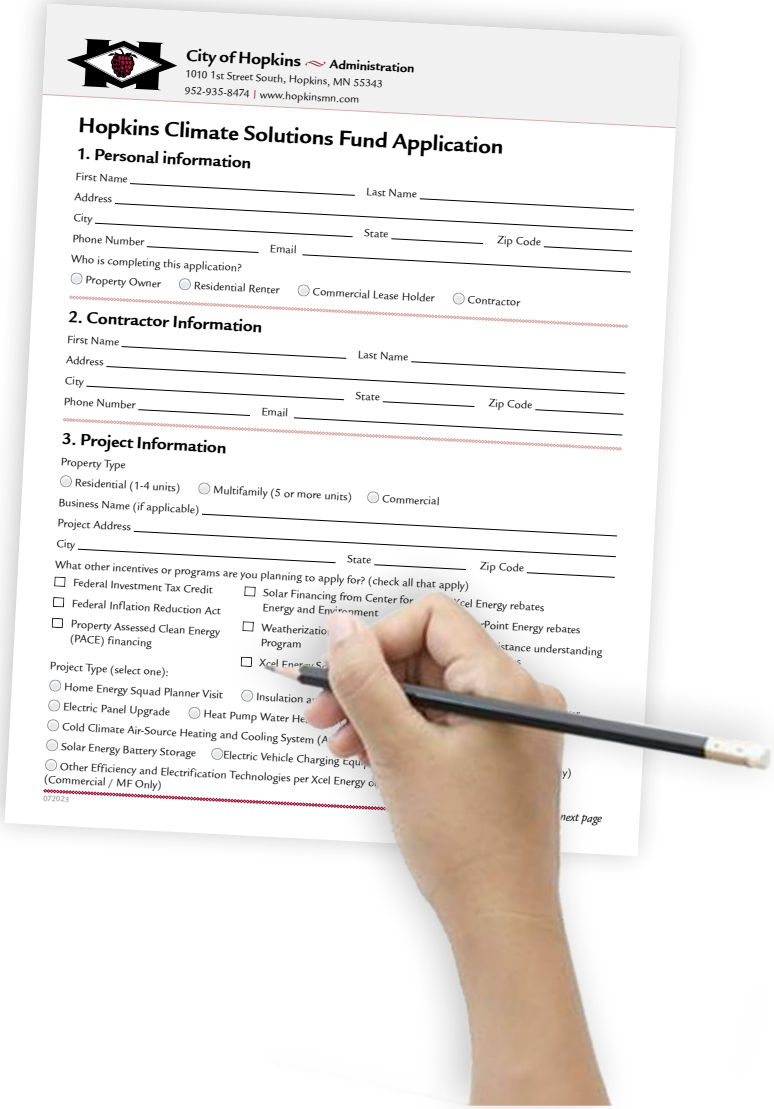
A matrix of strategies provides city staff an overview of next steps for implementation. This has also proven to be a very useful tool for communication between staff and decision-makers.







Website visitors can explore strategies visually by scrolling through categories of recommendations, which then show up as layers and labels on the perspective sketch. This helps illustrate how these strategies can be transformative both socially and in the built environment.



City of Hopkins Administration
1010 1st Street South, Hopkins, MN 55343
952-935-8474 | www.hopkinsmn.com

Hopkins Climate Solutions Fund Application

1. Personal information

First Name _____ Last Name _____
Address _____
City _____ State _____ Zip Code _____
Phone Number _____ Email _____
Who is completing this application?
○ Property Owner ○ Residential Renter ○ Commercial Lease Holder ○ Contractor

2. Contractor Information

First Name _____ Last Name _____
Address _____
City _____ State _____ Zip Code _____
Phone Number _____ Email _____

3. Project Information

Property Type
○ Residential (1-4 units) ○ Multifamily (5 or more units) ○ Commercial
Business Name (if applicable) _____
Project Address _____
City _____ State _____ Zip Code _____
What other incentives or programs are you planning to apply for? (check all that apply)
☐ Federal Investment Tax Credit
☐ Federal Inflation Reduction Act
☐ Property Assessed Clean Energy (PACE) financing
☐ Solar Financing from Center for Energy and Environment
☐ Weatherization Program
☐ Xcel Energy rebates
Point Energy rebates
stance understanding
Project Type (select one):
○ Home Energy Squad Planner Visit ○ Insulation a
○ Electric Panel Upgrade ○ Heat Pump Water He
○ Cold Climate Air-Source Heating and Cooling System (A
○ Solar Energy Battery Storage ○ Electric Vehicle Charging Equ
○ Other Efficiency and Electrification Technologies per Xcel Energy o
(Commercial / MF Only)
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The project had an immediate impact as the city rolled out its Climate Solutions Fund Program, which incentivizes private investment in climate-friendly projects. The corridors in the study are eligible for an additional bonus, based on the results of the Hopkins Heat Vulnerability Study.