

Keeping Our Cool with the Metropolitan Council: Extreme Heat Through Storytelling



Spring 2023

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Keeping Our Cool with the Metropolitan Council: Extreme Heat Through Storytelling

Humphrey School Capstone Report

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Metropolitan Council



HUMPHREY SCHOOL
OF PUBLIC AFFAIRS
UNIVERSITY OF MINNESOTA



Foreword

The Metropolitan Council is the regional policymaking body, planning agency, and provider of essential services in the seven-county Twin Cities metro area, which is home to over 3 million Minnesotans. The agency's mission is to foster efficient and sustainable economic growth for a prosperous and equitable region.

The Metropolitan Council created the region's first land surface extreme heat dataset in 2016. The Extreme Heat Map Tool shows the land surface temperature during a historic July 2016 heat wave and was created using remote-sensing data. Communities can use this snapshot of temperature to determine which areas within their community are most susceptible to extreme heat, and prioritize policies to mitigate risks associated with extreme heat.

Given the increasing prevalence of extreme heat events, updating and expanding the existing tool is a key priority for the Council. The existing extreme heat tool uses a single snapshot of temperature observed during a historic heat wave. With 50 years of Landsat satellite data available including land surface temperature data, the next iteration of the Extreme Heat Tool will build the story of extreme heat has changed spatially and temporally across our growing and changing region.

The Council is also drawing explicit linkages between demographic data and land temperatures to demonstrate the equity and human health considerations with extreme heat. Exploring equity and human health considerations related to extreme heat can underscore the importance of taking action to reduce extreme heat. More strongly linking heat island effects to land use, site design, and land cover can help inform mitigation strategies.

Finally, the Council wants to upgrade the tool to provide a more interactive experience and allow for better decision-making attributes, the potential for scenario planning, and the inclusion of qualitative data to enhance the user experience.

In spring of 2023, the University of Minnesota's Resilient Communities Project (RCP) facilitated a collaboration between the Metropolitan Council and a team of graduate students enrolled in a Humphrey School of Public Affairs capstone. The team conducted a series of recorded and transcribed interviews capturing the experience of extreme heat in the region. Interviews included the perspectives of academics, government officials, climate advocates, and residents and workers in the Twin Cities region. This report presents a summary of what the student team learned, and is intended to provide content for the Metropolitan Council to adapt into a story map about extreme heat in the region.

Subject Keywords

- Extreme Heat
- Urban Heat Island
- Social Determinants of Health
- Metropolitan Council
- Heat Design Standards
- Heat Mitigation
- Energy Equity
- Built Infrastructure
- Natural Infrastructure
- Public Health

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Abstract

This project will accompany the Metropolitan Council’s updated Extreme Heat Map Tool by providing a qualitative and human-centered focus on how extreme heat is impacting residents around the metro. The report discusses ways in which our built and natural environment can improve the lives of urban residents through more intentional planning, design, and regulation requirements. Previous quantitative data depicts where heat impacts our urban environments, but little has been done to provide decision makers with a human-level perspective from experts who see it impacting people in the metro in different ways, specifically those living in areas that have been historically disinvested in. We use the knowledge of selected experts and their experiences combined with existing energy burden, public health, and built infrastructure data to depict the severity of extreme heat in the metro, pointing out systemic issues that need to be addressed in order to fully solve the problem. This project report will be developed into an interactive resource to inform city planners and other decision makers, and provide them with a human-centered understanding of extreme heat in our communities, along with possible interventions to mitigate and adapt to this severe and growing problem.

Introduction

Extreme heat is the [number one weather-related killer](#) in the United States. Days with temperatures in the 90th percentile are defined as extreme, in Minneapolis and Saint Paul that means days over 95F. In 2019, every county in the Metropolitan Region experienced [8 extreme heat days](#); the past two decades saw thousands of heat-related emergency department visits and hospitalizations, and 75 deaths. Even here in Minnesota, extreme heat impacts our residents' wellbeing and will continue to do so at a higher rate, given not only the increase in extreme heat events, but also that our region is uniquely vulnerable to the various health consequences of extreme heat due to our [low heat risk perception](#).

Extreme heat is not felt equally, with historically disadvantaged communities experiencing the worst of its effects. Typically, when we plan and design our cities, there are other considerations before thinking about extreme heat or correcting its inequities. By doing so, we make our residents, especially the most disenfranchised, much more susceptible to the adverse effects of extreme heat. This can be changed by thinking about how we build our cities, and [who we build them for](#).

This story was outlined using the Metropolitan Council's newly adopted [2050 vision statements](#) to frame how metropolitan residents experience extreme heat unequally and how it impacts their safety and wellbeing, and how the Metropolitan Council can lead the region in mitigating and adapting to extreme heat while prioritizing and enhancing our natural resources. To humanize quantitative data which is often seen as impersonal and abstract, qualitative interviews were conducted with experts in energy, public health, landscape architecture, and urban agriculture, who narrated their lived experiences with extreme heat in both professional and personal settings.

“Extreme heat is never the first problem we’re trying to solve.” -Mo Convery

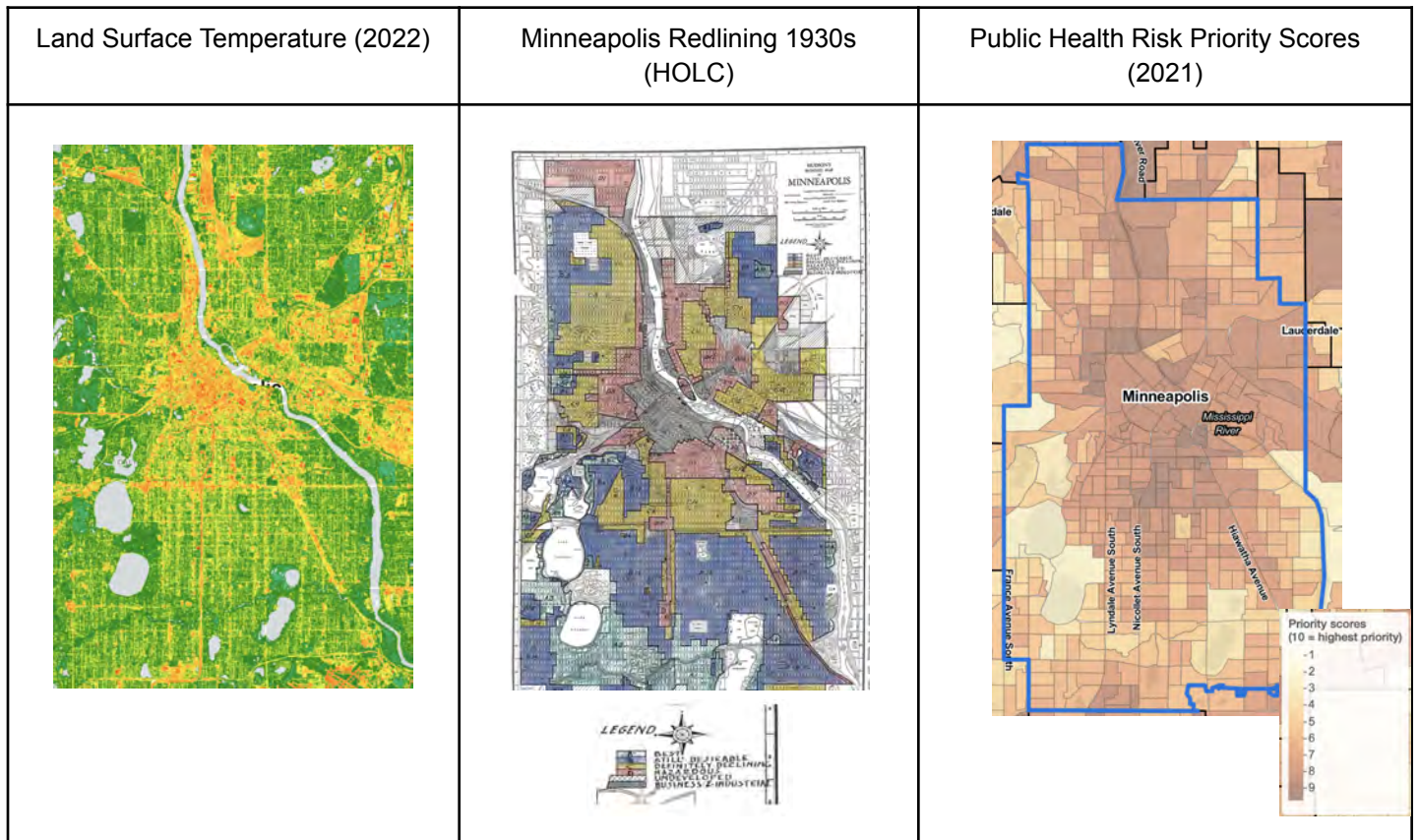


Chart Caption: *Minnesotans are uniquely vulnerable to extreme heat. It impacts the health and safety of our residents, but this is not felt equally.*

Our Region is Equitable, Inclusive, and Welcoming

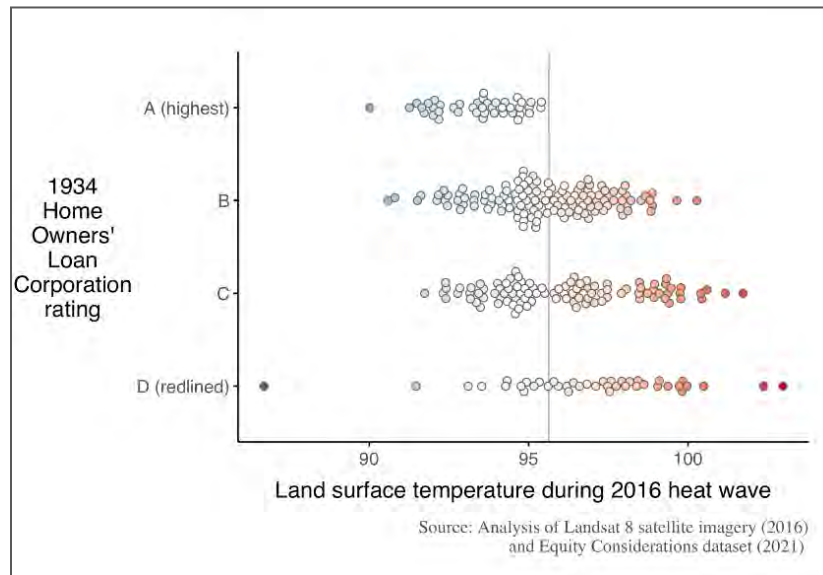


Chart caption: *The effects of redlining can still be seen today in elevated land surface temperatures in communities that are more likely to be low-income and communities with higher percentages of people of color.*

Extreme heat has unequal impacts on different residents' lives. Low-income individuals are more likely to live in previously redlined neighborhoods that are more industrial, and these areas experience a higher prevalence of concrete that traps heat. These conditions make them hotter both in the day and throughout the night, which leads to higher energy usage and a higher cost of trying to stay cool. Wealthier families are more likely to have access to air conditioning in their homes and workplaces, and wealthier neighborhoods more often have older trees that provide better shade canopy and create a cooler microclimate. These microclimates lead to less energy usage and lower costs when running air conditioning. However, access to air conditioning does not necessarily solve the problem of unequal extreme heat impacts. Many individuals, although they have air conditioning, do not have the financial means to run it. In the winter, the dangers of living without proper heating led to the passage of the Minnesota Cold Weather Rule, which bans utilities from disconnecting residential heat from October through April. No similar standard is in place during the summer when the heat can be equally deadly.

“We have the cold weather rule protection, you just pay what you can and they can't shut your power off. You never want somebody freezing in their house. But extreme heat has caused more fatalities than deaths due to cold.” - Catherine Fair

Extreme heat can be deadly when residents are isolated, but it can also create opportunities for community building. Elderly and disabled residents are particularly vulnerable to dying of heat-related illnesses due to higher rates of isolation, and an inability to regulate body temperature. Children are also unable to regulate their body temperature in the same way that

adults are. During periods of extreme heat, this can be very dangerous. Parents have to navigate the kids' needs to use up their energy without overheating. One of the many ways that families in the Metro area can cool off is by utilizing one of our many local lakes, while some go to parks with lots of shade and greenspace. These can be opportunities for residents to interact with others outside their typical networks, ultimately building stronger community connections.



One parent in St. Paul discussed how she likes to take her family to the wading pools in Minneapolis. She said "the Minneapolis wading pools are actually like two feet of water and sometimes some fountains but it's enough for a little kid to sit down up to their chin basically and actually cool off."



Rachel reported that access to transportation was also a contributing factor for those who did not have access to air conditioning. Air conditioning units are too heavy and unwieldy to transport for those who rely on public transportation, and for many it may simply not be possible to transport such a unit to their home. "To try and bring an air conditioner home on the bus is difficult. I think for the average person that's not an option." said Rachel. The risk of breaking the unit or not being allowed to bring it on the bus is a risk that some don't want to take.

Residents in Minnesota have spotted the gaps in the existing systems and have been working to fill them. Ad hoc mutual aid groups have started to help support their neighbors in need. Several summers ago, two Met Council employees worked together to provide air conditioning units to those in need. Many residents that were helping had moved during the cooler months and were unaware of how hot their new home would be. Renters particularly struggled with being able to access cooling because their leases included restrictions on window air conditioning units. Some renters moved with their own air conditioning units to a new home where the windows could not accommodate that size or style of the unit. Rachel, one of those engaging in mutual aid, said, "landlords should provide air conditioning and we should publicly support them doing it. Especially with climate change, we've reached the point that not having air conditioning would be like providing housing without heat, which we wouldn't allow, and state law prevents."

The Minnesota Cold Weather Rule protects residents from utility disconnection during the winter months, but no similar rule protects residents from utility disconnection during hot weather. If a county declares an extreme heat event, then the consumer protections preventing disconnection do apply, but there are no protections in place to reconnect customers to utilities during those events. When disconnections happen, this can cause a crisis for low-income families. The Executive Director at Energy CENTS Coalition, Catherine Fair, told a story from when she was working on energy assistance. She received a call from a mother of three kids who “got home from work and the lights and refrigerator in her apartment are shut off, and she just got groceries with the one time a month that she gets food stamps, so everything in her refrigerator went bad.” She went on to say that “access to utility services - consistent utility services - is a basic need.”

There are Federal programs to help low-income individuals with [energy bills](#) and [home weatherization](#). In Minnesota, many think of these programs as winter programs, in part because funding for these programs generally runs out by May. According to Catherine Fair, these programs only “serve one in five households that are eligible, and then a subset of that population is who is getting weatherization assistance.” Weatherization assistance is a critical program that reduces the overall cost burden of energy usage. Ms. Fair was critical of the aid available to low-income individuals and families saying “the federal government does not fund the state to serve everyone, at least in a meaningful way that would actually lower their energy burden.”

Local programs also work to help increase households’ energy efficiency and reduce utility costs. These local programs, like CENTS, are not tied to federal restrictions and can help a broader range of low- and middle-income individuals and families. Utility-funded programs fund part or all the cost of installing more energy efficient bulbs and appliances. It is easier for homeowners to access programs such as these because they have the ability to authorize changes in their home. Renters also have the ability to access this funding, which landlords can use to improve the energy efficiency of their properties. However, it can be a slightly longer process for renters because of the added hurdles to get landlord approval. Catherine also stated that landlord investments in weatherization and energy efficiency “does follow the housing market. We had a lower uptick in participation during the pandemic.”

Many cities are now starting to make cooling centers available to residents. These investments are important, but do not solve the problem and have several flaws. Many cooling centers are only open during the day when many working residents are at work. Once these close, individuals are sent back into the hot night and back to buildings that have not cooled off. Additionally, people experiencing homelessness will have to return to an environment that does not provide relief from the heat. As mentioned previously, even when people have air conditioning in their homes, they might not be able to afford the energy cost of running it. If families can afford to run their AC unit, this increased energy demand puts additional pressure on the electric grid, and ultimately results in an increase in the greenhouse gas emissions that contribute to a more variable climate and more frequent extreme weather events. Energy

efficiency and better weatherization of buildings should be emphasized along with more natural and urban design solutions.

[Existing policy examples from around the region](#)

[Video of Catherine talking about power shut off of single mom](#)

Our Communities are Healthy, Safe, and Vibrant

Dr. Laalitha Surapaneni, an assistant professor of internal medicine at University of Minnesota Medical School, says she has always been aware of extreme heat, having grown up and studied in South India. When she moved to Minnesota, a place historically much colder than South India, she realized Minnesotans actually are uniquely vulnerable to the effects of extreme heat. “Northern Midwesterners have the lowest heat awareness scores of everyone in the country,” she explains, sharing the story of a patient who collapsed from dehydration in her garden on an 82-degree day (see below). Other heat-related illnesses typically experienced include heat exhaustion and heat stroke. In addition to illness, it also is [predicted](#) that instances of aggression, violence, and conflict will increase as our world gets hotter, further threatening people’s health and safety.

[Video: Laalitha telling her story about 82 degree day patient](#)

However, just as the capability to stay cool is experienced inequitably, so too are the public health impacts associated with extreme heat. These adverse effects are then exacerbated by other compounding factors that leave many residents in much more vulnerable positions. Laalitha believes that centering the social determinants of health is key to addressing the health inequities brought on by extreme heat. “Social determinants of health” are defined by the CDC as nonmedical factors that influence health outcomes, such as economic policy, racism, and climate change. When asked what factors compound the health impacts of extreme heat, she explains, “the two main things that I’ve seen play out are the built environment as well as economic stability,” citing the example of a patient she had a couple of summers ago.

“The biggest line throughout my practice has been that climate change is a health equity issue.” -Laalitha Surapaneni

Her patient was asthmatic and had an asthma attack due to the summer heat. The asthma attack was so severe that it ended up triggering a heart attack as well. She lived downtown in an urban heat island and hadn’t been able to fill her three medications for her asthma. By the time she was getting discharged, she left with five medications. Laalitha describes the difficulties these barriers pose to medical care: “Even though we had given her assistance to fill a month’s supply, it felt like we were putting her right back into that environment that, at least in part, triggered her asthma attack and her heart disease in the first place.”

She explains that many of her patients have little control over their home or work environments and are therefore unable to implement most of the preventative measures that she advises. There are often instances where people who live in urban heat islands must choose between using their air conditioner or paying for their medications, or for food. In some situations, Laalitha has been able to work with hospital social workers to prescribe air conditioning units to patients with health conditions that put them at high risk during extreme heat events. This action would legally require a patient's landlord or building owner to provide an AC unit to that patient, and would keep the AC from being shut off by the utility company. While this acts as a solution, it is very individualized and cannot be widely implemented. Situations like these, she explains, illustrate the importance of systems in social determinants of health and, therefore, patient health outcomes. We must address health equity issues at the systemic level, not solely the individual, if we are to build adaptation plans that do not leave certain communities behind.

By highlighting her experiences treating outdoor workers, Laalitha also spotlights the instrumental role that the built environment plays in exacerbating the impacts of high temperatures through the urban heat island effect. Gloria Iacono, an urban farmer in Minneapolis, described the temperatures of summer 2022 as "relentless," saying her main strategy to beat the heat was to get up early and be finished with all of her work by 11a.m. or 12p.m. Gloria's experience stresses Laalitha's claim that the lack of outdoor worker heat standards is one of the main issues the metropolitan region and the state needs to address. She gives the example of California which has created statewide outdoor heat standards that require workers to be within two minutes of access to drinking water and a bathroom, as well as take a specified break each hour. Laalitha argues for the metropolitan region to implement similar adaptation measures, along with better nature-based solutions for urban heat islands (UHIs) and high risk communities, that improve residents' adaptive capacity and make the region's cities and rural areas as cool as possible.

Media/Chart: People more affected by high heat exposure with quote: "These are all barriers that impact medical care." -Dr. Laalitha Surapaneni ** SDOH - [MDH map overlays](#)

We Lead on Addressing Climate Change

We know the UHI is directly related to land use. Pavements and buildings that absorb more heat, coupled with less green spaces that act as cooling systems result in urban pockets with higher and unequal heat impacts for those who live there. How we've built our cities is the reason why extreme heat exists within them, which means, there are ways to build ourselves out. Mo Convery is a Landscape Architect at Confluence, an urban design and planning firm with offices in many large cities around the midwest. She brings her background of respiratory health into her role when designing urban spaces. "We've really created all of this," Mo says, "from the patterning of our buildings, to how we design for people to move around the city, and how much green space is allotted to certain people but not others."

The newly [updated extreme heat map tool](#) gives precise locations of where heat is excessively collected throughout the metro, with hotspots located along transportation corridors, areas with large amounts of impervious surfaces, and with none to small amounts of [tree canopy](#). This tool can help planners explore where extreme heat is collected and how the built and natural environment affects land surface temperature. Moreover, it now can and should be viewed from both a macro *and* micro perspective when considering policy and implementation strategies.

Taking a systems thinking-approach to heat mitigation strategies is crucial given the intersectionality of the problem, and it's important that planning efforts are developed for communities to be resilient in a changing climate. Mo thinks about her work from both perspectives, from planning large scale projects with the Minneapolis Parks and Recreation Board, to selecting trees that have high pollution absorption rates at sites closer to highways. "When you bring it down to the human level [like a city block], you have to think about what can best go there," says Mo, "from tree spacing and shade structure considerations, to types of concrete versus none - these are all things planned at the site level that can create a really important microclimate and impacts how we experience our built environment." This is important when planning our urban areas where we have really limited space. It's critical that we develop plans for our communities to be resilient in a changing climate, and there should be more emphasis on thinking about how planning efforts can improve the experience of those who use the space, big or small.

Cities around the world are realizing the benefits of integrating green interventions into our built environment which generates a wealth of co-benefits for citizens. This often involves thinking about how to build with—rather than against—nature. "From a design perspective, we think a lot about the preservation of mature trees, selecting native plantings, transitioning away from turf and hardscape installations, and utilizing stormwater runoff in ways that have benefits for both the built and natural environment and how people interact with it." We're lacking design standards in the metro that aim to combat the effects of a changing climate, especially extreme heat. Though this may be true, there are many examples of intentional projects and planning efforts that work to optimize and engineer our urban landscape in the wake of lacking regulations.

Some designs can be utilized to combat extreme heat. Some design examples include:



No standards currently exist here in terms of breaking up parking lots via adding vegetation, for example. This is voluntarily being done on a case-by-case basis based on how much clients are willing to extend themselves.



Green roofs atop urban buildings are a high currency intervention that not only act as natural coolers, but also reduce air pollution, increase biodiversity, mitigate stormwater runoff, increase life spans of traditional roofs (sometimes by 40 years), and function as natural insulators which reduces building energy costs.

The city of Eden Prairie has started installing green roofs on all new park buildings, along with garden plots, rain barrels, and low-mow grass. It's the first project in the state to reach the 'Advanced' level of the Minnesota Green Path Certification.

https://www.swnewsmedia.com/eden_prairie_news/news/community/green-neighborhood-unveils-playground/article_3b3299c2-9979-583c-a79b-5f33ca3ff707.html



The city of Philadelphia is converting 10,000 acres of their urban environment into spaces including stormwater landscapes, or green stormwater infrastructure to not only help curb extreme heat, but also to improve air quality and human health, provide habitat, and overall positively changing quality of life for their residents.

<https://e360.yale.edu/features/with-a-green-makeover-philadelphia-tackles-its-stormwater-problem>



The Ford Site Redevelopment also showcases innovative ways in which green infrastructure can create multipurpose solutions through water design.



Splash pads can serve as a form of direct relief for residents during extreme heat days. These are highly utilized free resources for city dwellers with children who need a place to escape and cool down.

The challenge Mo faces is how she can be progressive with her designs while also being realistic. “From a design perspective, you have many city, state, and federal standards that you have to follow,” Mo states. These notably exist for a reason, but if current standards and regulations aren’t revised to consider extreme climate conditions, especially in locations that are uniquely vulnerable such as the metro region, this makes it harder to create safe and resilient spaces that serve multiple purposes. “Design standards in the southwest are built around extreme heat considerations such as building surfaces which reflect heat and certain types of concrete that don’t absorb heat as others do,” Mo says, “We should be looking to these cities (or even California) to implement those kinds of standards here.” An opportunity at the site level is to develop more strict regulations for how much impervious surface can be used on a site. “One of the largest areas of heatsink air we see is from large parking lots,” Mo says. Many parking standards around the metro don’t take into consideration the magnitude of their heat impact, and vegetation for example isn’t required in design. According to Mo, most retail parking lots have been designed with the “black-friday” mass consumer in mind and are often only 30% full on the average day. Communities such as [St. Louis Park and Eden Prairie](#) have or are working to implement parking lot enforcements that prevent the overbuilding or parking and incorporate more green space to reduce the heat island effect.

Examples of regulations:

- Other cities such as Denver have passed ordinances that require new buildings and additions to new buildings greater than 25,000

square-feet to have a cool roof while complying with at least one other Green Building requirement including on-site solar, green roofs, or obtaining green-building certification among other things.

- The metro doesn't require tree trenches as they do in other southwestern states where tree's require larger areas to root and thrive.

All of these are a means to push for more green infrastructure, and things that city planners in the metro can work to implement themselves. However, it's important to consider that allowing for voluntary approaches can perpetuate inequality in terms of where this work is happening and for whom. As we think about how to remediate past harm that our built environment has caused, there should be extensive and thoughtful inclusive processes when planning design projects here in the metro. We have an opportunity with green infrastructure to invest in a way that can help solve multiple urban problems, but only if we focus on the places where it's most needed.

We Protect and Restore Natural Systems

It is important that we integrate nature-based solutions into our infrastructure in order to not only mitigate UHIs, as Mo highlights, but also to change the narrative that people are separate from nature. Western culture's ideology of humans traveling *to* nature rather than living *within* it has led us to forget the importance of incorporating nature, big or small, into our built environment. This in turn has created major inequities in the access to nature and, further, in the adverse impacts of extreme heat. Therefore, this narrative cannot be discussed without acknowledging the injustices that exist between our built and natural environments.

Though St. Paul and Minneapolis park systems have a long standing ranking as "Best in the Nation" by [The Trust for Public Land's ParkScore Index](#), racial disparities permeate the metro region through how and where we build these parks/nature. In this context, we must also look to repair harm that the colonial agenda has caused, particularly for communities that have been **deemed less worthy**.

Dr. Kristi White, a behavioral psychologist and assistant professor of medicine at the University of Minnesota Medical School, asserts, "We wouldn't have climate change as we know it today if we didn't view certain communities as worthy of sacrifice." These marginalized communities, or "sacrifice zones," historically have been overly-burdened with living in more harmful environments due to redlining, toxic waste or chemical plant siting, and less green spaces and vegetation. For example, Kristi explains, "There are certain communities where there is greater exposure to toxic waste and pollution, and asthma and cancer rates are higher in those communities because of increased exposure." These areas often tend to have higher land surface temperatures, therefore compounding the adverse health effects experienced in these frontline communities and having striking impacts on one's ability to withstand extreme heat.

Gloria Iacono, an agricultural farmer and consultant at the Four Sisters Urban Farm, testifies to living and working in Minneapolis's East Phillips neighborhood, a historical sacrifice zone: “[We have] increased rates of asthma and other health conditions because East Phillips in general is a low income community, overburdened by pollution - we have the asphalt plant nearby.”

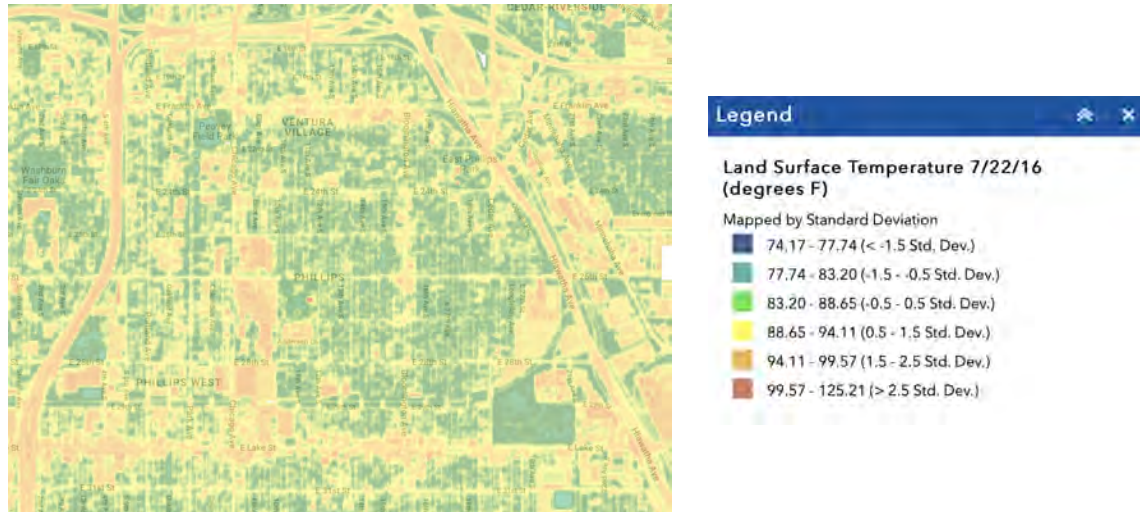


Figure: East Phillips neighborhood, land surface temperatures 2022 ****UPDATE W 2022 LEGEND****

The mental health impacts of living in sacrifice zones are compounding, as well. People often experience these impacts through solastalgia, the distress that one gets by the environmental change that impacts people who directly connect to their home environment. Kristi, who researches environmental stress and how it impacts one's psychological well being, explains, “It can manifest differently for people and different experiences just like other types of grief and loss.” For example, indigenous communities who have deep connections to the land, similar to a familial connection, the loss or destruction of those places can be felt very similarly to grieving for a family member. And while solastalgia and greater climate anxiety is a newer concept for many people, for those living in sacrifice zones it shows up through historical trauma and intergenerational stress, as they have been dealing with the mental health impacts of these changes for decades. Despite these great injustices, inequities, and adversity that frontline communities endure, they have been resilient in the face of climate change and extreme heat with little to no systemic support.

“Marginalized folks have always had to be really adaptive... So I'm continuously inspired by the resiliency of the folks in this community and Native folks.” -Gloria Iacono

“Things are very clearly out of balance,” claims Kristi, “But we can look at high currency interventions that work for both humans and the environment, and also serve multiple purposes beyond that.” By utilizing high currency interventions to improve our residents' total wellness and resiliency, and prioritize nature-based solutions. “There's vast literature that shows

exposure to pleasant natural environments is associated with all kinds of improvements to psychological and physiological health,” Kristi shares, explaining that spending time in nature has a “direct impact on important biomarkers like lowering cortisol and blood pressure levels, improving A1C for people with diabetes, and mental health benefits like improving self esteem, and lowering anxiety, stress, and depression.” Hospitals around the world are beginning to plant on-site gardens to promote their patients’ recovery, not only through the simple benefits of viewing nature, but through social cohesion and education as well. Kristi exemplifies the hospital gardens as a means to demonstrate growing solutions that function to increase human-nature benefits and connections, all while creating more resilient and sustainable communities in the process.

“My dream is to one day see hospitals across the globe using their built infrastructure symbiotically with the natural environment for both human and planetary benefits, hitting on several benefits all at the same time with one thing.” -Kristi White

Gloria Iacono also bridges this gap between people and the natural world by supporting social engagement and urban biodiversity with her work at Four Sisters Urban Farm. It is a project working in collaboration with the Native American Community Development Institute to transform three lots into an urban farm, providing the community with a place to connect, learn, and restore health and well being. “I work to facilitate connections between people in the community and nature,” she explains, describing how our physical connection to the living world benefits both personal and community health and wellbeing.

Gloria’s work naturally involves building social cohesion at the community level nature-based infrastructure. “What inspires me about this work and the culture of growing things is how inherently collaborative it is,” Gloria says, “Sharing a common goal, such as caring for the plants, really makes people want to help one another.” The visibility of a community garden, for example, can reach many people when it comes to stewardship and re-building relationships with nature. “These gardens are a way to reframe and reimagine our urban spaces to not be so human-centered,” she says, expressing that we can find inspiration in the Native philosophy of understanding ourselves as a part of nature, as opposed to being in charge of it.

Conclusion

Minnesotans are uniquely vulnerable to the increasing threat of extreme heat largely because of lack of awareness. Until recently, addressing extreme heat has not been a primary goal when planning our urban areas. Extreme heat highlights significant inequities that exist within our region, through the types of programs available and help offered, how it directly impacts people’s health and wellbeing, and how our built infrastructure and natural systems can perpetuate, or alleviate, the problem. These issues can only be solved through collaborative, systems thinking. While the Metropolitan Council’s 2050 vision statements are a good first guiding step, tangible actions need to be implemented if we want to see our region thrive and be resilient, equitable, and safe.




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