



Cooling Corridors Study

In 2024, Metro launched this study to understand ways to prevent heat-related illness and death, assess regional heat risks, identify priority areas and recommend cooling strategies.

Extreme heat is not a distant or abstract threat but a present and pressing regional challenge. Lives, infrastructure and ecosystems are already at risk, and the burden falls most heavily on our most vulnerable neighbors including older adults, people with housing insecurity, people earning low incomes and people living in urban heat islands.

The severity and reality of the changing climate conditions were made apparent in 2021 when the greater Portland region experienced a multi-day heat dome that killed more than 80 people in the tri-county area, with more than 70 deaths in Multnomah County alone.

The Cooling Corridors Study was guided by four primary goals:

- Reducing annual heat-related deaths in the region to zero
- Reducing heat-related illnesses
- Reducing outdoor temperatures in public rights-of-way, especially in hotter, underserved areas
- Increasing access to cooling resources for vulnerable communities during extreme heat events

The study builds on the growing number of heat-related research projects and initiatives in greater Portland.

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corridors-study](https://oregonmetro.gov/tools-partners/grants-and-resources/cooling-corridors-study)

Metro's commitment to climate action

The Cooling Corridors Study advances Metro's greater climate objectives and provides a blueprint for integrating climate resilience into everyday planning and investment decisions.

Metro's Climate Smart Strategy, Regional Transportation Plan and policies for long-range land use and natural areas all emphasize reducing greenhouse gas emissions, adapting to climate change and protecting the most vulnerable from climate-related risks.

Focusing on extreme heat through targeted cooling strategies in streets, parks, natural areas and public facilities can reduce risk, improve equity and align with the region's vision for a more sustainable, resilient and thriving region.

Engagement process

The study recommendations were shaped by direct engagement with people who have experienced the impacts of extreme heat and professional experts paired with thorough background research. The recommended strategies respond to community priorities, while being grounded in scientific research and best practices from other places.

Throughout the study, Metro conducted focus groups, convened an expert panel and held technical advisory meetings with both internal and external partners.

During the engagement process, the project team spoke with:

- Community-based organizations, climate advocates and resilience groups
- Vulnerable regional residents, including unhoused residents and older adults living in high-heat areas
- Heat, climate and public health experts
- Public agencies and private partners

Project timeline

- **July to Oct. 2024:** Project kick-off and data collection
- **Oct. 2024 to April 2025:** Research, engagement and analysis
- **April to July 2025:** Draft findings and recommendations
- **Aug. to Nov. 2025:** Final report and recommendations

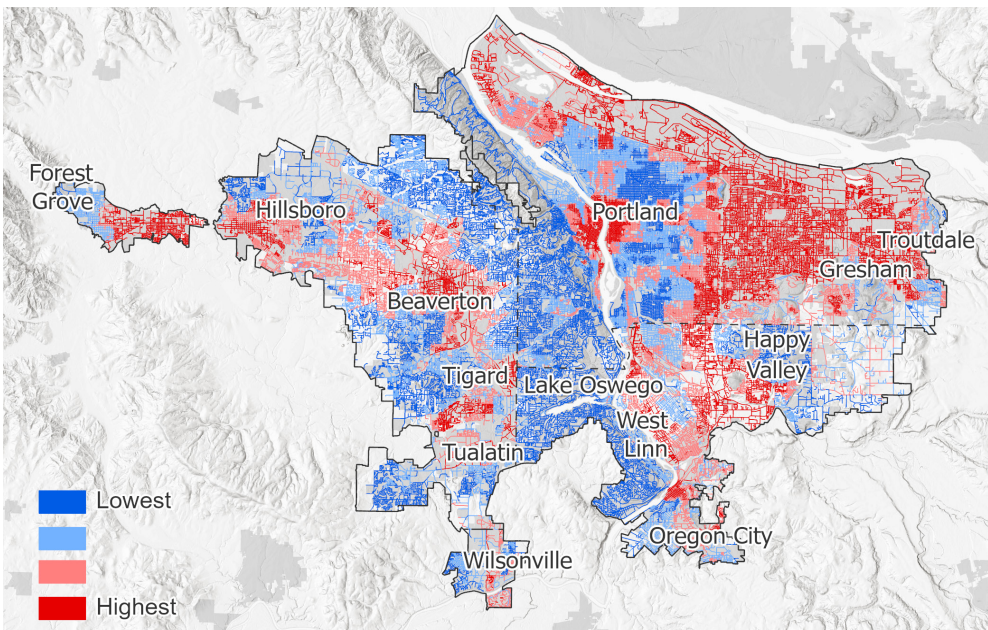
Key research findings

The Cooling Corridors Study produced several important findings that highlight both the scale of the region's heat challenges and opportunities for local and regional action.

Finding 1: Uneven vulnerability across the region

Extreme heat does not affect all communities equally. The study found that neighborhoods with higher concentrations of older adults, people of color, unhoused individuals and low-income households experience greater risks during heat events. Many of these communities are located in areas with more pavement and fewer trees, parks or natural spaces. These environmental and social inequities overlap to create "hot spots" where residents face compounded risks to their health and safety.





Map showing **priority streets for cooling**, which are streets in the region that have (1) the most people and jobs within 500 feet, (2) the least canopy and highest surface and air temperatures within 50 feet and (3) the highest neighborhood-level demographic vulnerability

Finding 2: Infrastructure and urban design impact heat exposure

Areas of non-reflective pavement, dense urban development without shade and limited access to natural cooling features like water or green space create unsafe conditions during extreme heat events. Without immediate intervention and strategic investment in alternative cooling strategies, these design patterns will continue to put vulnerable communities at heightened risk of illness and death.

Finding 3: Nature-based solutions provide the strongest long-term cooling

Trees, green spaces and water features emerged as some of the most effective tools for reducing outdoor temperatures and providing affordable cooling options for residents in the region. Expanding tree canopy, especially in historically underserved neighborhoods, not only lowers air and surface temperatures but also improves air quality, reduces energy demand and enhances mental health and community livability. Similarly, preserving and expanding parks, restoring habitats and incorporating water features such as splash pads or fountains create cooler environments while delivering multiple social and ecological benefits.

Finding 4: Community resilience strategies save lives

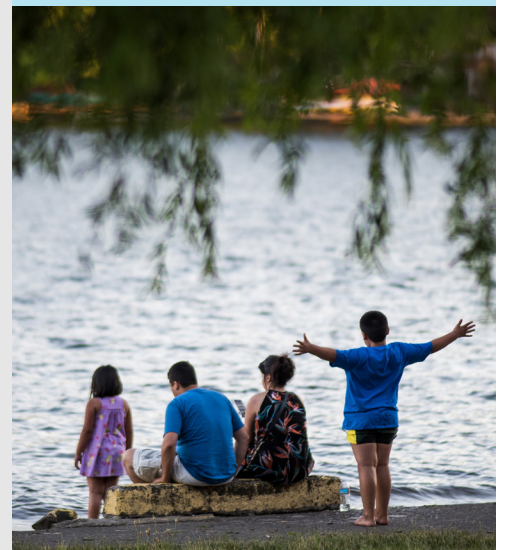
Physical cooling strategies must be paired with community-centered interventions. Public awareness campaigns, resilience hubs and cooling centers provide critical lifelines during extreme heat events. Training programs in schools and workplaces can build a culture of preparedness, while coordinated emergency response ensures resources are deployed quickly and equitably. Community-based organizations and trusted local partners play a central role in ensuring that messaging and resources reach those most at risk.

Implementation opportunities

The Cooling Corridors Study provides a framework for immediate local and regional action but also an opportunity for the region to become an international leader in community-centered climate resilience and “de-pave” the way for partners across the globe.

Options to consider:

- Strategic funding and political commitment
- Strong, enduring partnerships between community organizations, public agencies and regional leaders
- Weaving resilience, equity, community care and reverence for our places



No single strategy is sufficient

The study reinforces that there is no single action that can address the impacts of extreme heat across the region.

The most effective course of action is a layered approach that combines immediate relief measures with long-term cooling strategies.

For example, a corridor may integrate reflective pavement, tree planting, shaded transit stops and nearby resilience hubs.

Together, these strategies create safer, healthier environments that protect the region's most vulnerable residents while building resilience across entire neighborhoods.



Opportunities for local and regional action

The study identifies **nine overarching recommendations** that could provide a multifaceted framework for addressing extreme heat risk in the greater Portland region. These recommendations are broad priority areas that identify **what needs to be done**, while the potential supporting actions within each describe **how they could be accomplished**. *The recommendations and actions are not directive to Metro or local partners; they are intended to be a resource to inform future action and collaboration at the local and regional levels.*

Some recommendations focus on changing policies and practices, others emphasize protecting people directly by raising awareness, supporting community-led efforts and strengthening emergency response, and others call for the urgent transformation of the built and natural environment through investment in streets, trees, parks and other climate-resilient infrastructure that will provide lasting cooling benefits.

Recommendation 1: Elevate extreme heat as an issue of regional concern

Extreme heat should be treated as a top-tier regional concern that intersects with climate, health, housing and transportation. Recognizing heat as a regional priority ensures resources, leadership and accountability are directed toward preventing death caused by extreme heat. Potential actions include:

- Declaring extreme heat an issue of regional concern and designating a regionwide heat season
- Establishing a Chief Climate and Resilience Officer at Metro
- Tracking progress on implementing study recommendations

Recommendation 2: Apply a heat-resilience lens to planning and policy

Planning and investment decisions should be made with heat resilience in mind, using the best available data and practices. This ensures that projects being scoped today have a meaningful impact on the heat-resilience of the future. Potential actions include:

- Establishing a centralized hub for heat and climate data
- Integrating extreme heat considerations into relevant plans, policies, project designs and investment decisions
- Identifying opportunities to use public facilities as demonstration projects for heat-resilient design and practices

Recommendation 3: Raise public awareness of heat risks

Public awareness and preparedness save lives. By educating residents, workers, and agencies, the region can reduce illness and mortality during extreme heat events. Potential actions include:

- Creating and maintaining a regionwide map of cooling resources
- Exploring opportunities to leverage transit stops and vehicles to share heat safety information and connect riders with resources
- Expanding Metro education programs and curricula to include extreme heat

Recommendation 4: Support and coordinate community-led and government actions

Community-based organizations and local governments are on the front lines of heat resilience. Coordinating their efforts ensures that resources are used effectively and equitably. Potential actions include:

- Convening a regional work group on heat and climate resilience
- Creating a community-based work group to coordinate grassroots efforts
- Offering technical assistance for local climate adaptation projects

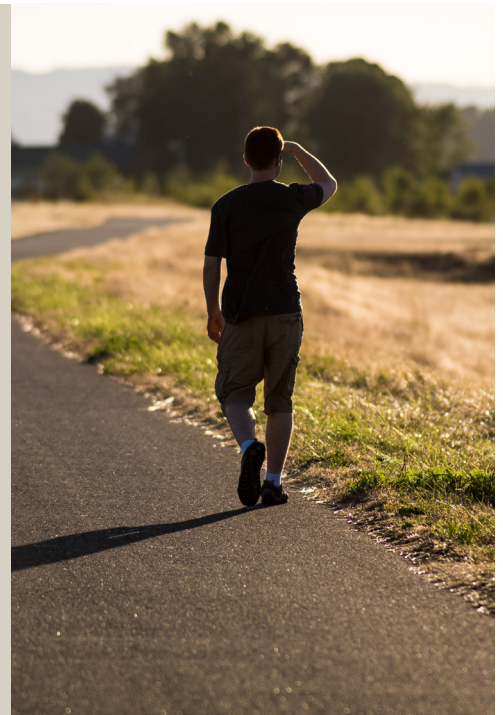
Recommendation 5: Strengthen emergency response system

Managing extreme heat events requires rapid, well-coordinated action. Expanding emergency systems protects the most vulnerable and ensures critical services reach people when they need them most. Potential actions include:

- Identifying and equipping resilience hubs, or trusted local places (like community centers, libraries, or schools) enhanced with resources to help people before, during and after heat emergencies
- Expanding the use of public facilities as cooling centers
- Identifying partnerships and funding to support providing free transit service during heat emergencies

Recommendation 6: Improve access to home weatherization and indoor cooling

Safe indoor cooling is often the difference between life and death during extreme heat. Expanding access to air conditioning, especially for vulnerable populations, is one of the most direct ways to save lives.





Potential actions include:

- Seeking funding to expand cooling programs
- Better equipping schools that do not have air conditioning
- Expanding weatherization and utility bill assistance programs for low-income households

Recommendation 7: Invest in green infrastructure and climate-resilient streetscapes

Streets, public spaces and private developments must be designed with cooling in mind. Green and engineered infrastructure can significantly reduce heat exposure in daily life. Potential actions include:

- Incentivizing reflective and permeable pavement
- Educating developers on the cost and benefits of cooling design features
- Identifying opportunities and funding to make transit stops and public spaces cooler and more comfortable during hot weather

Recommendation 8: Expand and maintain the region's tree canopy

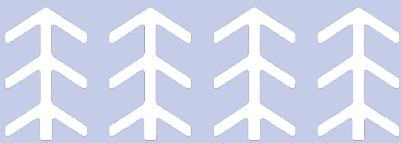
Trees are among the most effective and affordable cooling strategies, but their benefits depend on equitable planting and long-term care. Expanding canopy cover also improves air quality and community livability. Potential actions include:

- Setting equity-focused tree canopy goals
- Implementing street tree planting pilots in the neighborhoods most vulnerable to extreme heat
- Partnering with community-based organizations for tree care and habitat restoration workforce programs

Recommendation 9: Preserve and enhance access to parks and open spaces

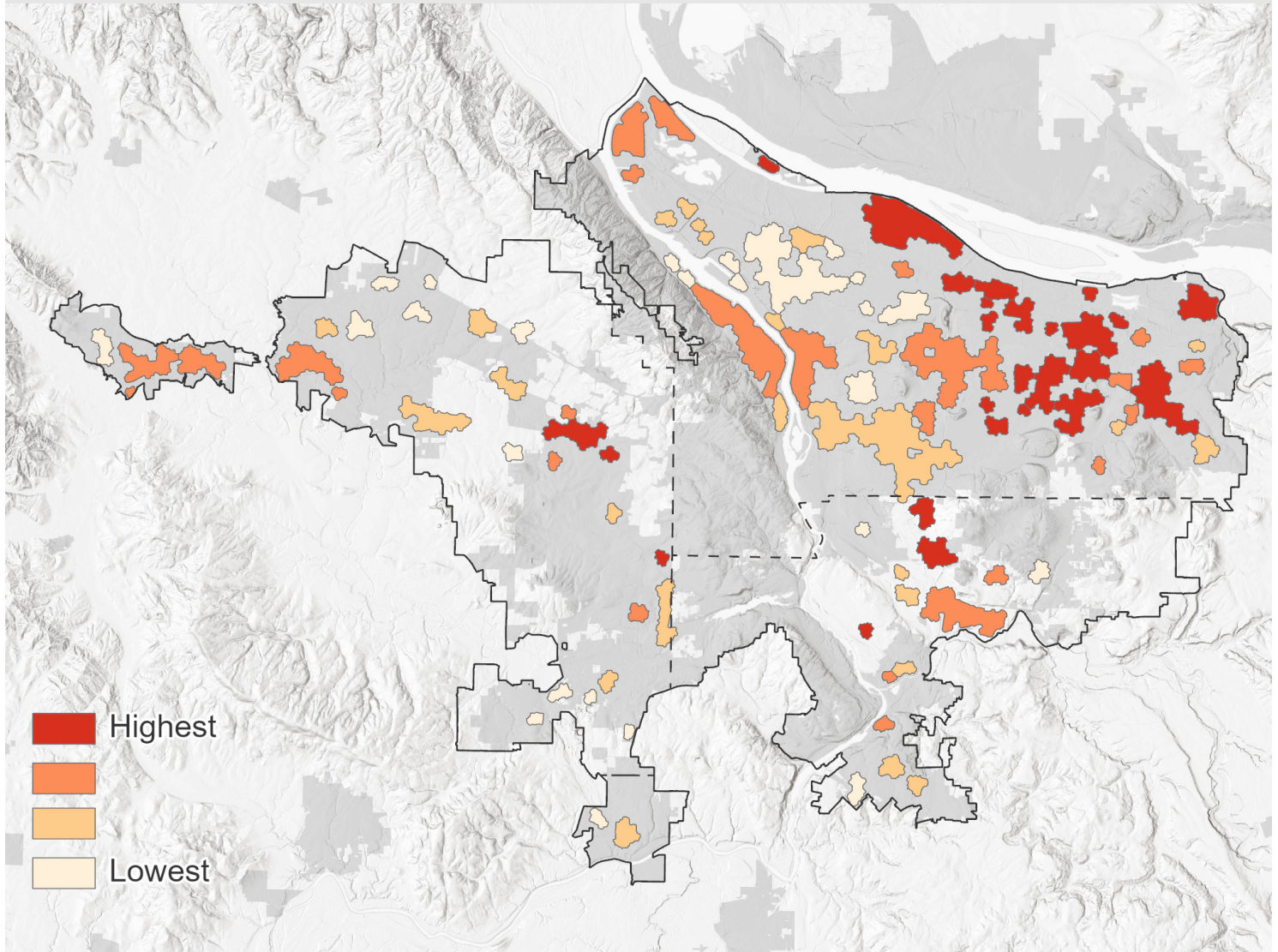
Parks and natural areas double as critical cooling refuges while delivering ecological and social benefits. Preserving and expanding access ensures everyone has a safe place to escape dangerous heat. Potential actions include:

- Continuing and expanding programs that preserve existing parks, acquire land for conservation and support habitat restoration
- Exploring opportunities to extend hours of access to local and regional parks during extreme heat events
- Expanding safe, pedestrian-friendly public access to rivers



Priority cooling corridor gaps

This map shows areas that (1) lack existing cooling corridors, which are defined as neighboring natural areas of vegetation or water greater than about 10 acres and (2) include a portion that is more than 1,000 feet from existing cooling corridors. These areas were then ranked by averaging the intersecting scores from the priority streets for cooling and neighborhood level vulnerability.



Priority areas for local and regional action

East Portland, Gresham and areas near the Columbia River have the largest gaps in Multnomah County. 82nd Avenue, Clackamas Town Center, McLoughlin Boulevard and areas east of Johnson City have the largest gaps in Clackamas County. Areas in Tigard, Beaverton, Cornelius, Forest Grove and Hillsboro have the largest gaps in Washington County.

Investing in the streets with the largest gaps can provide short- to medium-term benefits for people living and travelling in these corridors. Identifying these areas can help the region build on and support existing efforts, identify opportunities to coordinate efforts and fill gaps that will lead to longer term neighborhood-level cooling and resilience.



About Metro

Metro is the regional government in greater Portland. Metro manages public services and regional systems that protect the environment, support the local economy and ensure every community can thrive.

Metro coordinates regional planning and funds new affordable homes and supportive housing services. It manages 19,000 acres of parks and natural areas and the region's garbage and recycling system. Metro also runs the Oregon Convention Center, Portland's 5 Centers for the Arts, the Portland Expo Center and the Oregon Zoo.

Metro is led by a nonpartisan elected council. It serves 1.7 million people in 24 cities across Clackamas, Multnomah and Washington counties.

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A foundation for future work

The findings and recommendations provide a roadmap that can inform updates to Metro's broader climate and land use policies, guide future investments in transportation and infrastructure and shape partnerships with cities, counties and community based organizations.

Charting a path forward

At its core, this work is about more than cooling streets or planting trees. It is about building a healthier, more resilient and connected region where every resident has access to safe refuge today and 100 years into the future.

The study provides a comprehensive framework for local and regional action that combines recommendations for immediate protections, future planning, partnerships and investment to help prevent heat-related illnesses and deaths. The potential actions outlined here recognize that no single solution is sufficient, but together they chart a path forward. As climate impacts intensify, the findings here can inform other areas of climate resilience planning, from wildfire smoke preparedness to flood mitigation.

Realizing these opportunities will depend on strong and enduring partnerships between community organizations, public agencies and regional leaders. By working together, the region can ensure that investments in cooling corridors do more than respond to extreme heat. These investments can weave resilience, equity and care for place into the fabric of the region, leaving a legacy of innovation and community care for the generations that follow.