City of Sacramento
Planning and Design Commission Report
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www.cityofsacramento.org

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Informational Presentation: Urban Land Institute Technical Assistance Panel Report - ONE HEAT (LR26-005)

File ID: 2026-00571

Location: Citywide

Recommendation: Review and comment on the Urban Land Institute (ULI) TAP Final Report.

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Applicant: Not Applicable.

Property Owner: Not Applicable.

Attachments:
1-Description/Analysis
2-Background
3-One Heat: Advancing Heat Resilience in Partnership with the City of Sacramento and Sacramento County Final Report
4-Presentation

Additional Description/Analysis
Issue Detail: Sacramento continues to experience increasing extreme heat impacts that pose significant risks to public health, infrastructure, and mobility, particularly in areas with limited tree canopy and high levels of impervious surface. In 2025, the City of Sacramento and Sacramento County participated in the Urban Land Institute (ULI) Technical Assistance Leadership Exchange (TALE) program focused on advancing extreme heat mitigation and resilience strategies.

Through this program, ULI convened a multidisciplinary panel of national and local experts to examine opportunities for integrating heat mitigation into land use planning, urban design, development standards, and public-realm improvements. The resulting report, ONE HEAT: Advancing Heat Resilience in Partnership with the City of Sacramento and Sacramento County (see Attachment 3), summarizes key observations and near- and long-term recommendations.

The purpose of this item is to present the findings of the ULI Technical Assistance Panel to the Planning and Design Commission and provide an overview of how the report may inform future climate adaptation and heat mitigation efforts.

Policy Considerations: The General Plan and Climate Action & Adaptation Plan include goals and policies focused on extreme heat mitigation:

General Plan Policies:

ERC-8-1: Cooling Design Techniques: Through design guidelines and other means, in all new development the City shall promote the use of tree canopy, cool pavements, landscaping, cool roofing and other cool building materials, and site design techniques that provide passive cooling and reduce energy demand. In particular, the City shall promote the use of voluntary measures identified in the California Green Building Code (Title 24, Part 11 of the California Code of Regulations) to minimize heat island effects, including hardscape and roof materials with beneficial solar reflectance and thermal emittance values and measures for exterior wall shading.

ERC-8-2: Large Heat Islands. The City should work with property owners and businesses identified in urban heat island hot spots, informed by Figure 7-2 to address the urban heat island effect and reduce ambient temperatures in surrounding residential areas. City actions may include the following:
• Facilitating coordinated action among property owners; and
• Providing information and incentives for cost-effective heat reduction strategies, including front yard tree plantings and vegetation where streets lack room for street trees.

ERC-3-2: Tree Canopy Expansion. The City should strive to achieve a 25 percent urban tree canopy cover by 2030 and 35 percent by 2045. Prioritize tree planting and maintenance in areas with the lowest average canopy cover and explore strategies to reduce barriers to tree planting in disadvantaged communities and improve tree health.

Climate Action & Adaptation Plan Goal A-2: Create built environments that reduce exposure to extreme heat and mitigate urban heat island effect.

Economic Impacts: Not applicable.

Environmental Considerations: Review and comment on the Urban Land Institute Technical Assistance Leadership Exchange Report is exempt from review under the California Environmental Quality Act as it consists of an organizational activity that will not result in direct or indirect physical changes in the environment (CEQA Guidelines Section 15378(b)(5). Any actions that could result in a physical change in the environment would be identified as projects and would be subject to CEQA review.

Sustainability: Participation in the Urban Land Institute Technical Assistance Leadership Exchange program supports the City's ongoing efforts to advance sustainability and improve resilience to extreme heat impacts.

Commission/Committee Action: Not Applicable.

Rationale for Recommendation: Presenting the ONE HEAT report to the Planning and Design Commission provides an opportunity to share the findings and increase awareness of potential strategies to create built environments that reduce exposure to extreme heat and mitigate the urban heat island effect.

Financial Considerations: Not applicable.

Public/Neighborhood Outreach and Comments: Not applicable.
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2-Background

Sacramento faces increasing and intensifying extreme heat that poses significant risks to public health, infrastructure, economic activity, and quality of life. These impacts are most acute in neighborhoods with limited tree canopy, high concentrations of impervious surfaces, and historic patterns of disinvestment and affect communities across the Sacramento region. Addressing extreme heat therefore requires coordinated, cross-jurisdictional approaches that integrate land use planning, urban design, development standards, infrastructure investment, and equity considerations.

In recognition of this challenge, the City of Sacramento and Sacramento County jointly applied to and were selected to participate in the Urban Land Institute (ULI) Technical Assistance Leadership Exchange (TALE) program focused on extreme heat mitigation and resilience. The program is administered by ULI and funded by the ULI Randall Lewis Center for Sustainability in Real Estate, which supports communities in advancing sustainable, resilient, and equitable development through applied research and expert technical assistance.

As part of the program, ULI convened a Technical Assistance Panel (TAP) in September 2025, bringing together a multidisciplinary group of national and local experts in urban design, land use planning, climate resilience, municipal finance, equity, and real estate development. The panel worked collaboratively with City of Sacramento and Sacramento County staff over a multi-day engagement that included briefings, site visits, stakeholder discussions, and working sessions. The TAP was structured to examine extreme heat through a systems-based lens, with particular attention to how development regulations, design standards, public-realm investments, and public-private partnerships can collectively support heat mitigation and long-term climate resilience.

A central feature of the effort was the collaboration between the City of Sacramento and Sacramento County, rooted in the recognition that extreme heat does not align with jurisdictional boundaries and that coordinated strategies can improve effectiveness, efficiency, and equity. The panel engagement provided a shared forum for City and County staff to explore aligned goals, identify opportunities for coordination, and consider approaches that could be scaled or adapted across jurisdictions. This collaborative framework was consistently reinforced throughout the TAP process and is reflected in the panel’s overarching guidance.

The TAP focused on high-level questions related to climate-responsive design and development, regulatory pathways for integrating heat mitigation into planning and development processes, incentives and funding mechanisms, strategies to address

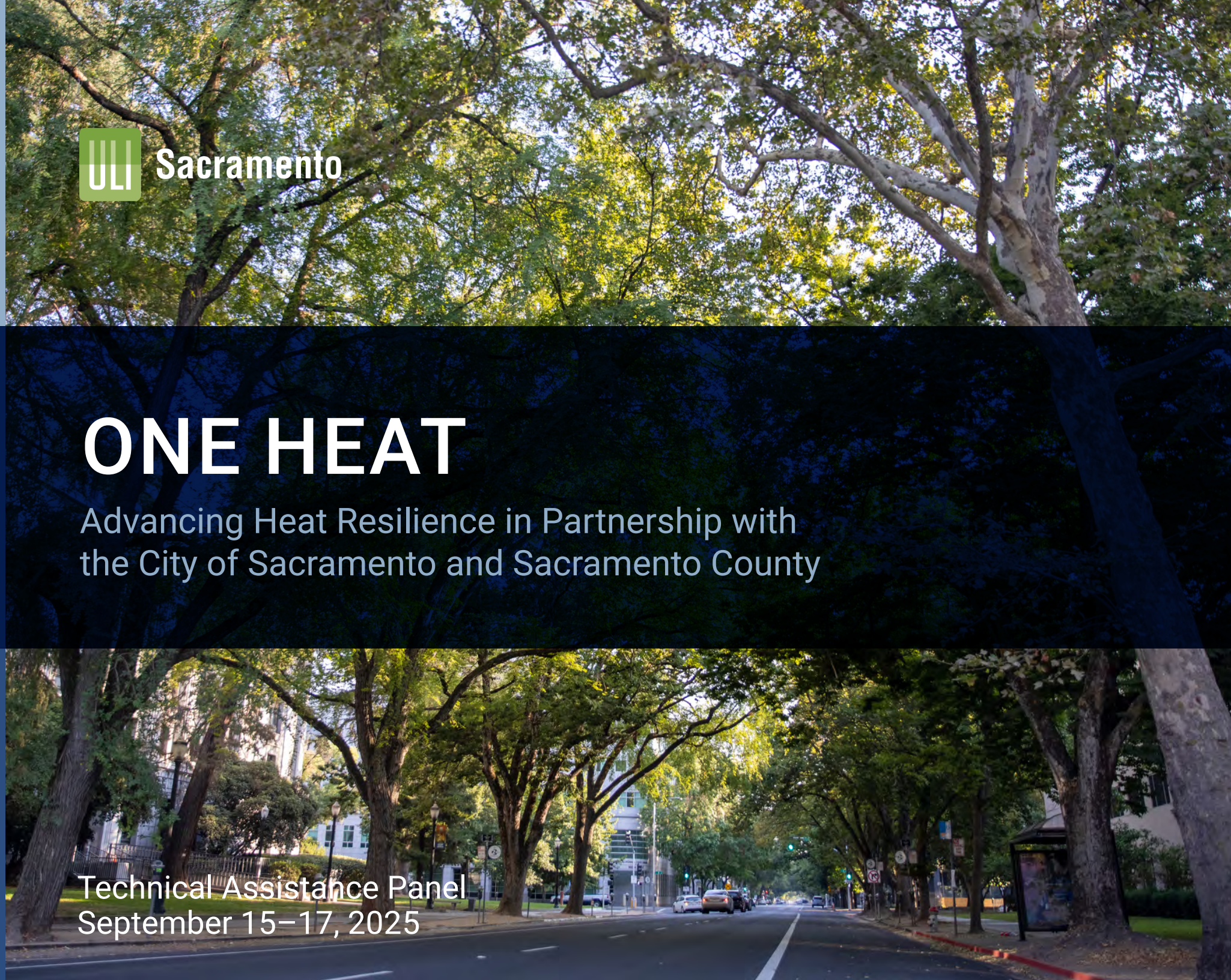
inequities in underserved communities, and the role of the private sector in advancing heat resilience. Rather than prescribing specific code language or project designs, the panel emphasized guiding principles, implementation considerations, and strategic sequencing to help inform future City and County actions.

The panel's findings and recommendations are documented in the attached Technical Assistance Panel report. The report includes detailed observations of current conditions, guiding principles, and near- and long-term recommendations. Participation in the TALE program directly supports implementation of the City's Climate Action & Adaptation Plan as staff advance planned heat mitigation work with the benefit of national expertise. The panel's recommendations may inform future consideration of development standards, design guidance, and related policies.

ULI Sacramento

ONE HEAT

Advancing Heat Resilience in Partnership with the City of Sacramento and Sacramento County



Technical Assistance Panel
September 15–17, 2025

About

Urban Land Institute

Urban Land Institute is a global, member-driven organization comprising more than 48,000 real estate and urban development professionals dedicated to advancing the Institute's mission of shaping the future of the built environment for transformative impact in communities worldwide. ULI's interdisciplinary membership represents all aspects of the industry, including developers, property owners, investors, architects, urban planners, public officials, real estate brokers, appraisers, attorneys, engineers, financiers, and academics. Established in 1936, the Institute has a presence in the Americas, Europe, and Asia Pacific regions, with members in 84 countries.

ULI Randall Lewis Center for Sustainability in Real Estate

The ULI Randall Lewis Center for Sustainability in Real Estate leads the real estate industry in creating places and buildings where people and the environment thrive. In collaboration with ULI members and partners, the Lewis Center drives industry transformation, cultivates leaders and champions, and helps foster solutions for sustainable, resilient, healthy and equitable cities and communities. The Center pursues these goals via cutting-edge research, global convenings, community technical assistance, and other strategies. The Center's main programs are Decarbonization, Urban Resilience, and Healthy Places.

California-Nevada Technical Assistance Leadership Exchange

The ULI California-Nevada Technical Assistance Leadership Exchange advances innovative solutions to regional land use and climate resilience issues through collaboration between local governments, public sector leaders, and the real estate industry. The program facilitates connections, dialogue, and expert exchange to explore strategies for creating resilient and sustainable communities through land use and real estate interventions.

Seven public agencies in California and Nevada were selected to participate in this program. Working in tandem with their closest ULI District Council, each of these agencies hosted a Technical Assistance Panel focused on a specific and resilience and land use challenge in their communities. The fundamental goal of the effort is to provide concrete ideas and strategies to public sector leaders to advance resilience in the built environment. Through its work, the program will create resources to help all ULI members accelerate resilient land use in their communities.

Cover photo: Tree canopy in a residential neighborhood close to downtown Sacramento. (ULI)

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ULI Sacramento

ULI Sacramento brings together real estate professionals, civic leaders, and communities across the region for educational programs, initiatives, and networking events, all in the pursuit of advancing responsible and equitable land use throughout the region. With over 350 members, ULI Sacramento furthers ULI's mission by locally delivering on the Institute's best practices in leadership development and by facilitating regional community service and enhancement of land use policy and practice. ULI serves the entire spectrum of land use and real estate development disciplines. Using this interdisciplinary approach, ULI examines land use issues, impartially reports findings, and convenes forums to find solutions.

ULI Sacramento Leadership

Joanna Mack
Principal in Charge of Community and Culture
HMC Architects
Chair, ULI Sacramento

Megan Shanahan
District Council Coordinator
ULI Sacramento

Technical Assistance Panel (TAP) Program

Urban Land Institute harnesses its members' technical expertise to help communities solve complex land use, development, and redevelopment challenges. Technical assistance panels (TAPs) provide expert, multidisciplinary, unbiased advice to local governments, public agencies, and nonprofit organizations facing complex land use and real estate issues in the region. Drawing from its professional membership base, ULI Sacramento offers objective and responsible guidance on various land use and real estate issues ranging from site-specific projects to public policy questions. The sponsoring organization is responsible for gathering the background information necessary to understand the project and present it to the panel. TAP panelists spend two days interviewing stakeholders, evaluating the challenges, and ultimately arriving at a set of recommendations that the sponsoring organization can use to guide development going forward.

About

Technical Assistance Panel

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Acknowledgments

ULI would like to thank the leadership and staff of the City of Sacramento and Sacramento County for inviting ULI to conduct this study and for their work leading up to and during the technical assistance panel. In particular, ULI thanks Joelle Inman, Principal Planner, Sacramento County, and Vic Randall, Senior Planner, City of Sacramento, for their leadership and assistance leading up to and during the two days of work onsite. From the City of Sacramento, ULI would also like to thank Laura Tuller, Associate Planner, Long Range Planning, Bruce Monighan, Urban Design Manager, Rachel Patten, Climate Action Lead, Public Works, Remi Mendoza, Long Range Planning Manager, and Greg Sandlund, Planning Director. From the Sacramento County Planning and Environmental Review department, ULI thanks Todd Smith, Planning Director, Jacob Dawe, Senior Planner, Long Range Planning, Nathan Serafin, Associate Planner, Long Range Planning, Dustin Littrell, Design Review Administrator, and Mike Wall, Design Review Landscape Architect. Finally, ULI thanks the nearly 70 stakeholders who shared their insights and perspectives with the panelists, which proved critical to the panel's discovery process.

ULI Sacramento also thanks longtime sponsor, SMUD, for its commitment and partnership with ULI's local Sustainable Communities program.

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Executive Summary

Like many communities across the United States, Sacramento, California, is wrestling with rising temperatures and an increasing frequency of extreme heat days. Residents are struggling to keep cool, and the public sector is rising to the challenge.

Recognizing that the built environment plays a role in this challenge, exacerbating some of the issues through the use of high carbon materials and mitigating the negative impacts through the use of new technologies and building practices, the City of Sacramento (the City) and Sacramento County (the County) joined forces to partner with the Urban Land Institute Sacramento District Council (ULI) to study the challenge and explore potential solutions for advancing heat resilience across the entire community.

The study questions posed by the City and County asked ULI to explore design and development strategies that mitigate heat, regulatory pathways that could encourage or require new approaches, potential incentives and funding for the work, the role of the private sector in the effort, and the particular impact that heat has on equity and underserved communities.

To address these questions, ULI convened a technical assistance panel (TAP) of real estate professionals with expertise in the sectors at hand. Following a two-day intensive study, including tours and stakeholder interviews, the panel delivered the following recommendations to the City and County.

Design Strategies

The panel sought to lift up design and development strategies that will further leverage work already underway, with a keen eye on creating spaces that are shaded and cooled with natural materials and processes and made more accessible to the broader community.

Pursue heat resiliency that supports civic life. Spaces that support the resilience of residents and visitors are important in creating a public realm that welcomes the community. These public projects can also serve as pilots or proof-of-concept projects for deployment by the private sector.

Classify green infrastructure as critical infrastructure. Trees in particular provide such a wide array of important benefits that the panel strongly encourages the public sector to shift its thinking to include green infrastructure and trees as critical public infrastructure along with roads, bridges, water, and utilities. By way of example, this shift would focus on supporting better tree growth along sidewalks through the use of sand-based structural soils and modular soil cell systems (ex. silva cells).

Use depaving to reduce the urban heat island (UHI) effect. Depaving vacant or underutilized parking lots can be a low-cost and short-term strategy to reduce the heat island effect at a particular site and in the surrounding environment.

Plant microforests. Microforests are dense planting areas that can be planted in dense urban environments, helping reduce the UHI, absorb stormwater, and improve air quality.

Use climate-responsive design tools. Design tools such as building orientation and adding street trees and shade structures are important elements in reducing UHI.

Panelists tour representative neighborhoods and public spaces across Sacramento to see the challenges and experience the conditions first hand.

Use site-responsive performance-based design. Performance-based design measures allow designers and developers to leverage each site's unique characteristics to maximize potential climate and heat island responsive strategies.

Near-term priority actions:

- **Depave select sites.**
- **Provide shade for priority locations**, with an early focus on playgrounds.
- **Pilot green infrastructure solutions**.

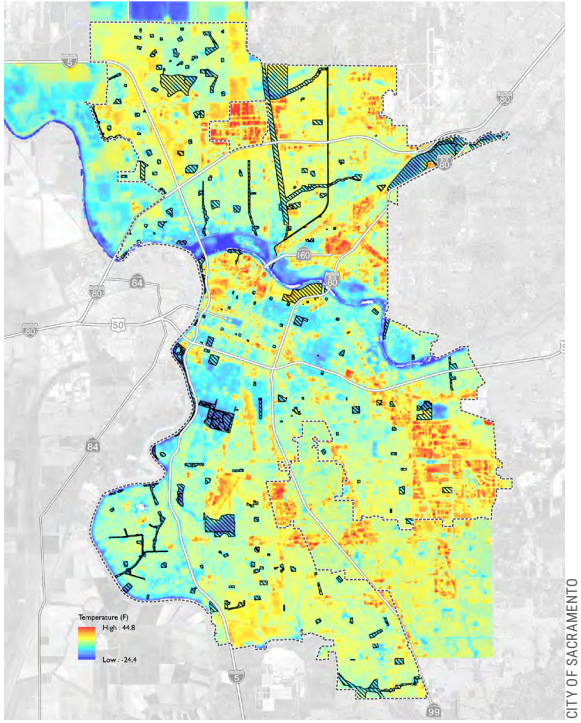
Longer-term priority actions:

- **Move to performance-based design review standards**, particularly for large sites.
- **Identify priority shade goals** across neighborhoods, and require more shade in all developments.
- **Incorporate pilots on public land** that can be scaled and incentivized in future private development.

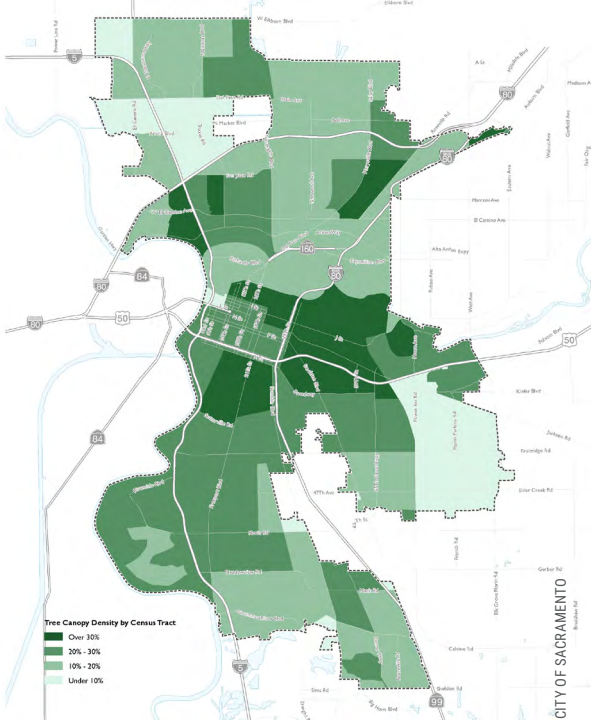
Regulatory Approaches

The following regulatory tools can help encourage and selectively mandate measures that will help mitigate heat and support community cooling and resilience.

Promote a more robust and nuanced tree canopy. The panel recommends moving from an area-average tree canopy percentage to a nuanced approach that follows best practices, considers neighborhood context, uses outcome-based measurements, and is incorporated into area plans.



Urban heat islands in Sacramento are marked in orange.



Tree canopy coverage is more dense in dark green areas.

Align standards, goals, and enforcement.

- Align missing middle housing goals with canopy goals to reduce potential conflicts posed by density pursuits and urban forestry goals and plans.
- Use performance standards to encourage shade along pedestrian walkways, community spaces, and places with seating.
- Connect requirements and rules with enforcement for increased accountability and deeper community trust.
- Be prepared to take on scalable risk to meet the moment and support employees' decisions that advance these community goals.

Remember: shade is shade. Heat mitigation can be accomplished by shade from trees as well as other sources, and the public sector can support the use of other materials by also encouraging innovation and creativity in shade. Shade is shade. It is also important to plant trees today to prepare for future mature tree replacement.

Equity in Underserved Areas

It has been widely documented that the effects of extreme heat disproportionately impact communities that have historically been underserved. Special attention should be given to these underserved neighborhoods.

Near-term mitigation actions:

- **Support community-led organizations' provision of wraparound services**, and fund the gap needed to complete the La Familia Resilience Hub on Franklin Boulevard.
- **Support regular access to community cooling centers** beyond emergencies.
- **Shade 100 percent of play structures** in the City and County.
- **Relax noise ordinances** on 90+ degree days to allow laborers to work earlier in the day and avoid peak heat hours.

Longer-term strategies:

- **Support small businesses** in tree maintenance by providing leaf removal services.
- **Support workforce development in tree maintenance** and arboriculture.
- **Develop a shade master plan** for the public transit system.
- **Expand clean energy and efficiency programs** to more broadly fund insulation installation, heat pumps, and cool roofs.

Collaborations and Funding

The collaboration that brought together the City and the County for this technical assistance panel is an excellent model for how such a collaboration could and should continue, both in this work and in other community-wide initiatives.

Memorialize City-County collaboration. In the near term, the City and County should consider executing a partnership agreement or Memorandum of Understanding (MOU). Partners are also encouraged to identify and embrace community-based partners, conduct an economic assessment study, and create a nexus for funding pathways.

In the longer term, the panel recommends creating a Joint Powers Authority (JPA) to bring together community-based organizations and non-profit partners in a more formal organization that can continue to operate over the long term.

Create a climate resilience district (CRD). In addition to financing projects, a CRD can provide organizational engagement with local governments, businesses, and residents. A CRD can also take the lead on infrastructure improvements, promoting sustainability, and financing initiatives through a variety of vehicles.

Expand the tent. The public sector should seek to build and scale broader capacity through partnerships, particularly with private sector developers. In return, these developers may look to the public sector for incentives or relief from development fees. Encouraging developer participation in existing programs and revising minimum standards can expand the efficacy of efforts and increase impact.

ULI's Commitment

ULI Sacramento is committed to advancing heat resilience across the community with the following next steps.

- Launch a study tour to learn from other communities across the United States that are wrestling with these same issues and finding success.
- Continue to serve as a portal to the development community.
- Provide letters of support for grant applications.
- Continue to elevate the importance of heat strategies by creating a climate resilience category in ULI Sacramento's Vision Honors Awards.

Conclusion

As Sacramento's days become hotter and hotter days become more frequent, it is incumbent upon both the public and private sectors to understand the role they can play in mitigating the impacts of extreme heat on Sacramento's residents. From more energy-efficient building products to more sustainable building practices to incorporating resilience measures into building design, there are a number of paths to take in advancing a more resilient Sacramento.

Through this important City and County collaboration, the public sector is leading the way and supporting the pursuit of an environment in which everyone can find shade and cooling, where development supports comfort and commerce, and local government recognizes the leadership role it can play across a spectrum of activities.

Introduction and Background

Temperatures are rising across the country, and cities like Sacramento are experiencing an alarming and increasing number of dangerously hot days each summer. Experts in the region note in Sacramento County's Climate Action Plan that the region's current four days of extreme temperatures (an ambient temperature or heat index of 103.8 degrees and higher) will increase to forty days annually later this century. Finding ways to mitigate the effects of these extreme temperatures on the region's residents is a priority for both the City and County.

In cities like Sacramento, urban heat islands (UHIs) are often found in areas with a heavy presence of buildings, roads, and other infrastructure that absorb and re-radiate the sun's heat, creating an "island" of higher temperatures. epa.gov In contrast, landscapes with robust tree canopies, less hard surfaces, and bodies of water will absorb the sun's heat and allow the surrounding area to remain relatively cooler. Heat islands can affect communities by increasing summertime peak energy demand, air conditioning costs, air pollution and greenhouse gas emissions, heat-related illness and mortality, and negatively affecting water quality.

In the older and wealthier Sacramento neighborhoods, robust mature and old-growth tree canopies create significant cooling benefits for residents. The shade from these trees protects outdoor areas from the sun's direct rays and shades homes, allowing interiors to remain cooler

Study Questions

In pursuit of potential solutions for advancing heat resilience across the entire community, the City of Sacramento and Sacramento County posed the following questions to the ULI panel.

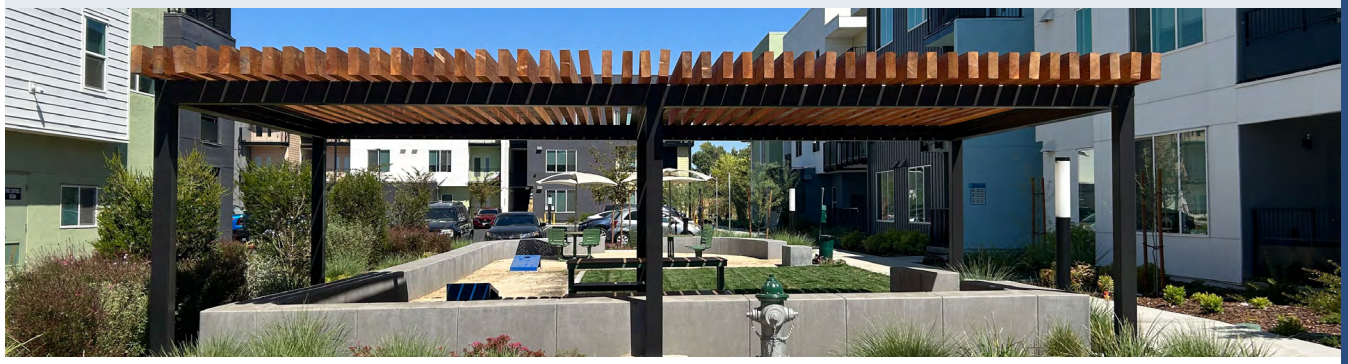
1. DESIGN AND DEVELOPMENT. What building and landscape design strategies have other cities and counties with similar climates implemented to mitigate extreme heat in both new and existing developments—especially in infill contexts—and how can these best practices be adapted to support our desired urban forms?

2. REGULATORY PATHWAYS. What flexible and effective regulatory approaches have cities and counties used to integrate heat mitigation through climate-responsive building design and green infrastructure (landscape and hardscape) requirements into development codes and design guidelines and standards without discouraging investment or creating significant permitting challenges?

3. INCENTIVES AND FUNDING. What public/private partnership models, funding sources, and incentive structures have proven effective in supporting climate-responsive building improvements and green infrastructure initiatives?

4. EQUITABLE AND UNDERSERVED AREAS. How can jurisdictions ensure equitable access to heat mitigation strategies (including building design and tree canopy/green infrastructure), particularly in communities that may not experience new development in the near future? What policy, partnerships, and funding strategies can address historic underinvestment and ongoing barriers to implementation?

5. ROLE OF THE PRIVATE SECTOR. What role can the private sector—including non-profits, developers, real estate professionals, and property owners—play in implementing strategies to mitigate public realm heat impacts while also promoting energy efficiency, increased comfort, and resilience within our jurisdiction's current and next generation of buildings? What process streamlining, incentives, education, recommendations, or requirements could support and encourage their participation?



Man-made shade structures can help provide important shade in public spaces and gathering areas.

and mechanical cooling systems to use less power than unshaded structures. Other neighborhoods lacking this robust tree canopy, which often include historically under-resourced neighborhoods and even some newer developments, can experience a 15-degree or more rise in outdoor air temperatures and therefore require more mechanical assistance to remain habitable and comfortable for occupants.

Recognizing that the urban heat island effect is often exacerbated by the built environment and in pursuit of solutions to extreme temperature challenges, leaders and staff from the City of Sacramento and Sacramento County turned to the Urban Land Institute — Sacramento District Council for guidance. ULI, using its trusted and objective technical assistance panel program, convened a panel of real estate and urban design professionals from across the United States with the expertise needed to address the City and County's pressing heat concerns.

The panel assembled over the course of three days to tour representative neighborhoods from the combined city and county geographies and interview stakeholders from the region's business, nonprofit, and public sectors. Informed by this information gathering process, the panel applied their professional knowledge to the questions posed and arrived at a series of recommendations that City and County leadership and staff can embrace as they consider where and how to apply public resources, potential regulations, and perhaps

What the Panel Heard

The panel interviewed over 70 stakeholders, including leaders and staff from City and County agencies and a wide range of developers, business and property owners, nonprofit sector leaders, and Sacramento residents who shared the feedback below.

What's Working Well

- There are a host of good planning documents already in hand at both the City and County levels.
- Local community organizations are strong and are bubbling up to support residents better.
- City and County professional staff have the skills and knowledge needed but require more enforcement to support their efforts.
- Elected officials are well-versed and well-informed—the question is where to start.
- SMUD is a great partner across a number of community-wide initiatives.
- The City and County collaboration for the TAP is an excellent start and a partnership that should continue.
- The issue can easily become complex. It will be helpful to simplify the issue and the related messaging.

Areas of Opportunity

- Days are getting hotter and hotter days are becoming more frequent.
- Heat does not differentiate between City and County.
- There are not adequate resources available to address climate resiliency at the City and County levels presently.
- Neighborhoods with mature trees can be 15 degrees cooler than neighborhoods lacking a robust tree canopy.
- Small businesses are held to same standards as large businesses, which can become overly burdensome.
- Parking lots that lack tree canopy coverage are areas of opportunity.
- Support the planting of native and or drought-tolerant plant material.
- Address homeowner insurance issues associated with aging tree canopies.
- Environmental justice communities are experiencing more intense urban heat island effects.
- Tree donations are great, but ongoing tree maintenance is an issue in both public and private realms.
- Retrofitting developments is a challenge.
- Incentives or other financial rewards can help spur adoption and should be used to encourage property owners to plant and maintain street trees to maturity.
- Regulations do not always align across departments, which can create conflicting priorities (e.g., the need for increased density and space needed for trees and tree growth).
- Enforcement of City and County ordinances is often challenging.
- Vacant surface parking lots could be repurposed into spaces for planting.
- There is some confusion around tax funding for tree maintenance across neighborhoods.
- Cooling options are needed where people already spend time as walking in the heat to find cooling is a deterrent.
- Climate resiliency is important but not as pressing as other community challenges.

incentives to create an environment of change where residents, business owners, property owners, developers, and the public sector can work together to lessen the impacts of heat on the region's residents.

Guiding Principles

Taking into consideration the unique Sacramento landscape, panelists agreed on the following guiding principles, which served as north stars, guiding the group's discussions and helping ensure that the recommendations they delivered remained practical and actionable.

Shade is shade. Although shade from the tree canopy typically dominates conversations of shade, shade cast by other elements—awnings, building overhangs, pavilions, etc—is also effective in protecting people from direct sunlight and heat.

Tree canopy is a public good and should be managed as critical infrastructure. Trees are often considered ornamental or a luxury. They should instead be classified as critical urban infrastructure, in the same way roads, bridges, utilities, and water systems are classified as critical to community health and safety.

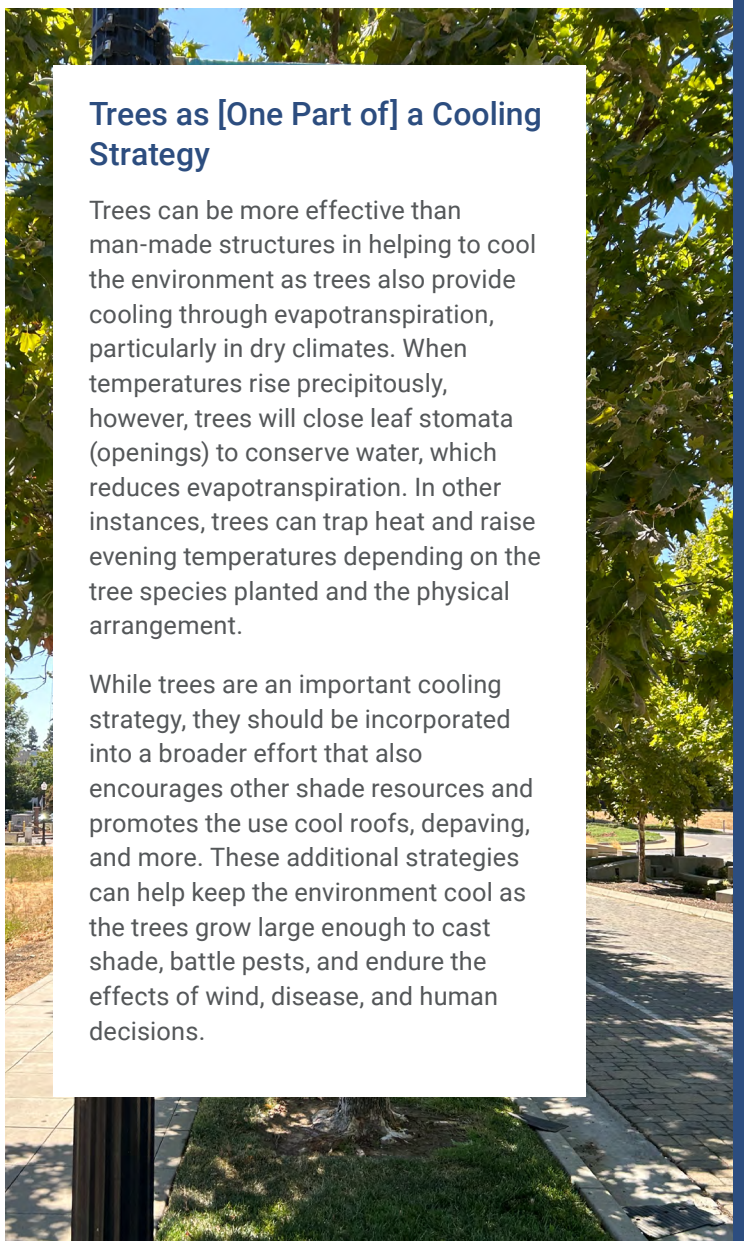
Use a systems approach. There are a host of public sector departments that impact the issue of urban heat. Although many may point to the Chief Sustainability Officer as the one responsible, the functions of and regulations from the various City and County departments must work in concert, and not at cross purposes, to solve this challenge. Private property owners, residents, community organizations, and businesses must also be considered in the region's systems approach to urban heat and partnerships across sectors will be important.

Rebuild trust with accountability. Broken trust, be that individual residents' trust in neighborhood services or businesses' trust in governmental support, needs to be mended before progress can be made. Instituting systems that have accountability built in can help rebuild needed trust.

Focus on and plan for cooling performance. Planning efforts to date have relied heavily on prescriptive measures; for example, parcels of a certain size will accommodate buildings of a certain square feet, and a specific percentage of open space must be maintained. Shifting new planning approaches to focus on performance of the building and the open spaces can provide developers and owners with flexibility to pursue creative approaches that can meet the guidelines while also delivering innovation that can be scaled elsewhere for even greater community impact.

Focus on the neighborhood scale. Neighborhoods across the region are as different as the people who inhabit them. A neighborhood-scale approach, rather than a city-wide dictate, can allow for guidance to flex and bend with the unique characteristics of the neighborhood and ultimately better serve the community through more impactful results.

Build and scale capacity through partnerships. Reducing the impacts of extreme heat on the region's residents will require an all-hands approach. Through partnerships with aligned organizations and area businesses, the City and County can extend their reach, capacity, and impact.



Trees as [One Part of] a Cooling Strategy

Trees can be more effective than man-made structures in helping to cool the environment as trees also provide cooling through evapotranspiration, particularly in dry climates. When temperatures rise precipitously, however, trees will close leaf stomata (openings) to conserve water, which reduces evapotranspiration. In other instances, trees can trap heat and raise evening temperatures depending on the tree species planted and the physical arrangement.

While trees are an important cooling strategy, they should be incorporated into a broader effort that also encourages other shade resources and promotes the use cool roofs, depaving, and more. These additional strategies can help keep the environment cool as the trees grow large enough to cast shade, battle pests, and endure the effects of wind, disease, and human decisions.

Design Strategies

The region's increasing temperatures and frequency of days of extreme heat have been topics of concern and previous planning efforts for both the City of Sacramento and Sacramento County. In a review of previous plans, the ULI panel sought to lift up previous recommendations that should have a positive impact when implemented, as well as contribute additional recommendations that leverage work already underway and unlock additional resources to further support the work.

Pursue Heat Resiliency that Supports Civic Life

The City and County have an important role to play in efforts to develop and redevelop resilient spaces within the public realm. Creating spaces that support the resilience and quality of life of residents and visitors is important in the delivery of welcoming third spaces and places for the community to gather. Cooler spaces will encourage people to be outside to interact, shop, and recreate, and designing the public realm to be cooler will have social, economic, and health benefits. These public realm projects can be used as pilot projects, demonstrating more climate-resilient materials and processes, providing a proof-of-concept for adoption by the private sector.

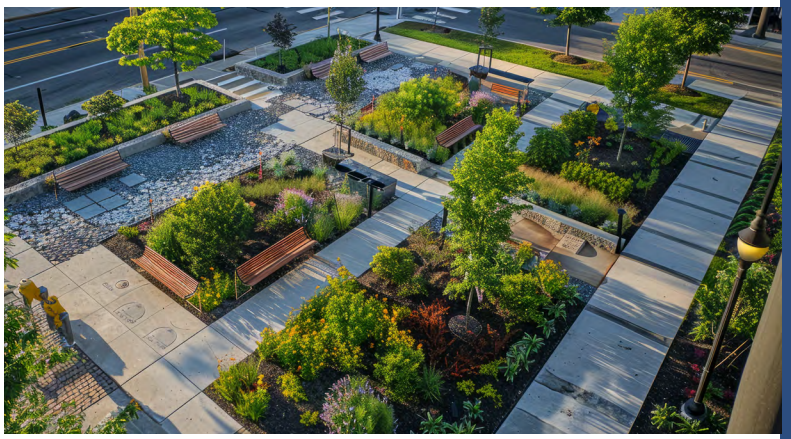
Heat-resilient strategies piloted in the public realm provide an excellent demonstration opportunity to showcase design typologies that celebrate local and cultural life and that can be welcoming to multiple generations.

When the community recognizes spaces as designed for them, for their families, and for their enjoyment, they will be more likely to use the space. This further activates important public areas, bringing the community to life, and, in this case, further encouraging neighbors to enjoy the benefits of a space that is designed to help them stay cool.

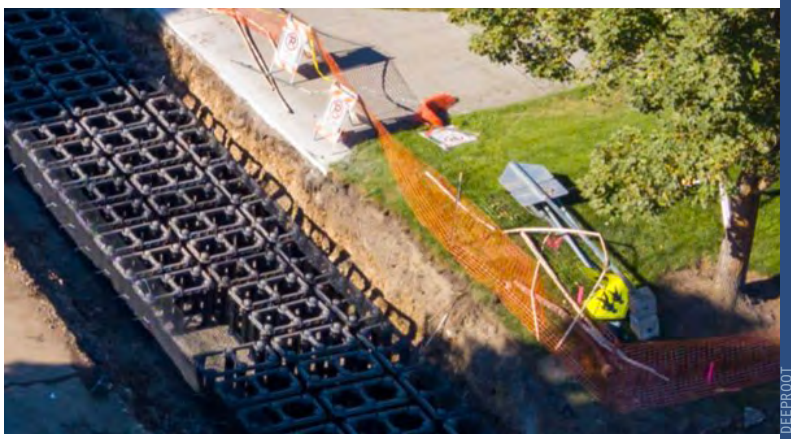
Classify Green Infrastructure as Critical Infrastructure

Over the years, trees and plants have often been relegated to an afterthought in design and development, ornamental items to add when budgets allowed. In pursuit of cooler spaces and more heat-resilient places, trees in particular provide such a wide array of important benefits that the panel strongly encourages the public sector to shift its thinking and consider trees and other green infrastructure as critical infrastructure. This shift more actively prioritizes tree planting and care and helps ensure that planning efforts are designed to meet the anticipated demands for shade and cooling across communities.

Support better tree growth along sidewalks. The traditional approach to planting street trees, planting in the strip between sidewalks and street pavement, often involves carving out a four-foot square space and planting a tree, sometimes with a decorative tree grate to surround its trunk. As the trees



Shade and cooling opportunities in the public realm should welcome all ages and cultures.



Silva cells are installed under other infrastructure and support the paved surfaces while providing space for planted trees' roots to grow and expand.

DEEPROOT

grow, the grates need to be replaced to allow for trunk growth. As the roots deepen and expand, they often encounter compacted soil supporting neighboring development, which limits expansion, sidewalks, or other pavement, which can buckle or crack under pressure from the expanding tree roots. By using a modular soil cell system, sand-based structural soils, or a product like Silva Cells, paving can continue as usual, and roots have the space needed for the tree to grow and thrive, eventually casting the desired shade. Although the City of Sacramento has not yet adopted these methods, these have become common national practices and should be revisited by the City and County.

Use Depaving to Reduce UHI

Depaving is the act of removing concrete and asphalt to re-establish the ecological function of a site. In an area with vast swaths of vacant or underutilized parking lots, depaving sections of those lots can prove to be a low-cost and short-term strategy to reduce the heat island effect at the site and have beneficial cooling effects in the surrounding neighborhoods as well.

DEEPROOT

Trees stunted by surrounding compacted soil (top) can grow as intended by using structured soil or Silva cells (below).

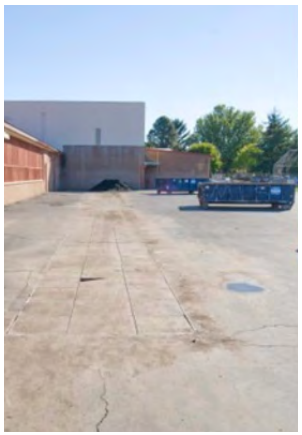
Depaving involves removing sections of pavement and breaking up the underlying compacted soil to make way for planting. Ideally, trees or other plant material are planted in these uncovered and restored areas and allowed to flourish. Even at its most basic level, with just the removal of the paving and no soil treatment or planting, the UHI can be reduced through basic depaving measures.

Plant Microforests

Even small spaces can have big impacts on lessening the intensity of heat in a neighborhood. In some spaces, microforests can be a great solution.

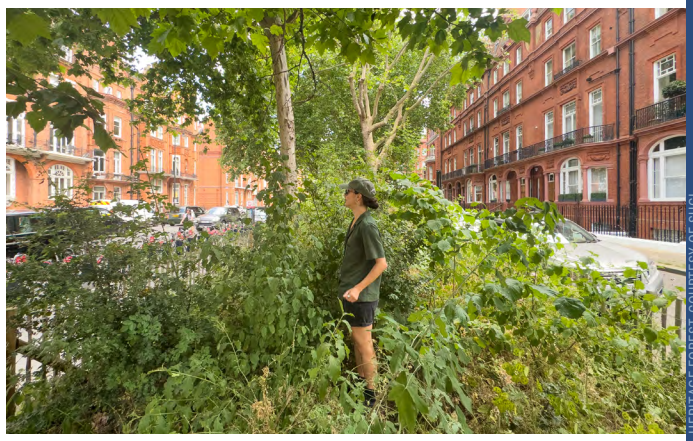
Microforests are dense planting areas that can easily fit into dense urban environments. These small urban forests help reduce the heat island effect in the area, provide water absorption, thereby diverting stormwater from the system, and improve air quality by

FLICKR BY STORMWATEROUTREACH



DEPAVE

Depaving unused parking areas can lower surface temperatures and assist with stormwater management.



HERITAGE FOREST, COURTESY OF SUGI

Microforests can be planted in small spaces and produce large environmental benefits.

> In May, analysts at Earth Economics, a nonprofit, studied three of Elizabeth's microforests and found that for each dollar invested, the public will gain on average $10.90 in benefits like air quality and heat reduction. Thermal drone images show that the microforests can be 4 degrees Fahrenheit cooler than mature trees, and 50 degrees cooler than the asphalt in adjacent parking lots, which can reach 132 degrees in the summer.
>
> *In New Jersey, Benefits Bloom in Tiny Forests*

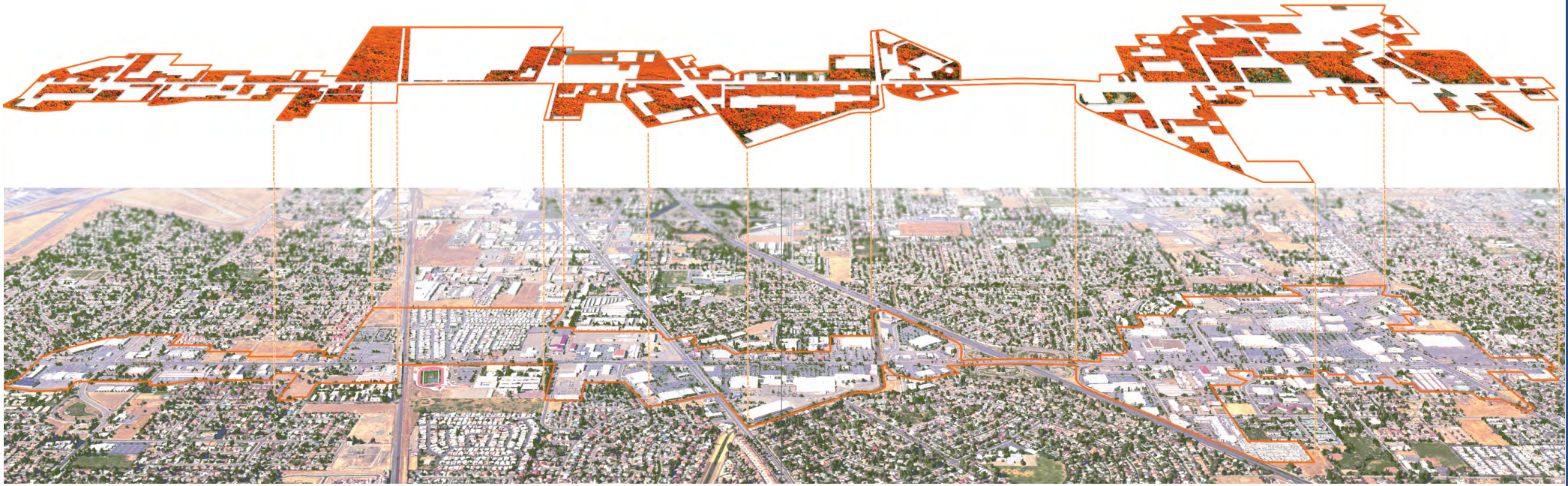
sequestering carbon. Parks, vacant sites, and underutilized public spaces can serve as potential sites for microforests. SUGi Pocket Forests could be a good resource for exploring this topic further.

Use Climate Responsive Design Tools

To support the work at the municipal level, in the public realm and in rights-of-way, the panel also considered how the City and County's design review process and standards could be shifted to focus on creating more high-performing and climate-responsive sites for development.

Using high-performance strategies, such as the sample list that follows, sites can be positioned from the outset to deliver a more climate-responsive environment for residential buildings and commercial spaces.

- **Use building types and orientation to create shaded outdoor spaces.** Courtyard-style buildings can create shaded spaces that feel protected from outside activity as well as intense direct sunlight. Used in multifamily scenarios, this same configuration can provide multiple households with proximate access to shade. Similarly, building orientation can play a significant role in creating more welcoming outdoor spaces in areas where shade is more prevalent and the sunlight less intense.
- **Use street trees to cast afternoon shade on western facades.** Trees planted on the western sides of buildings can provide



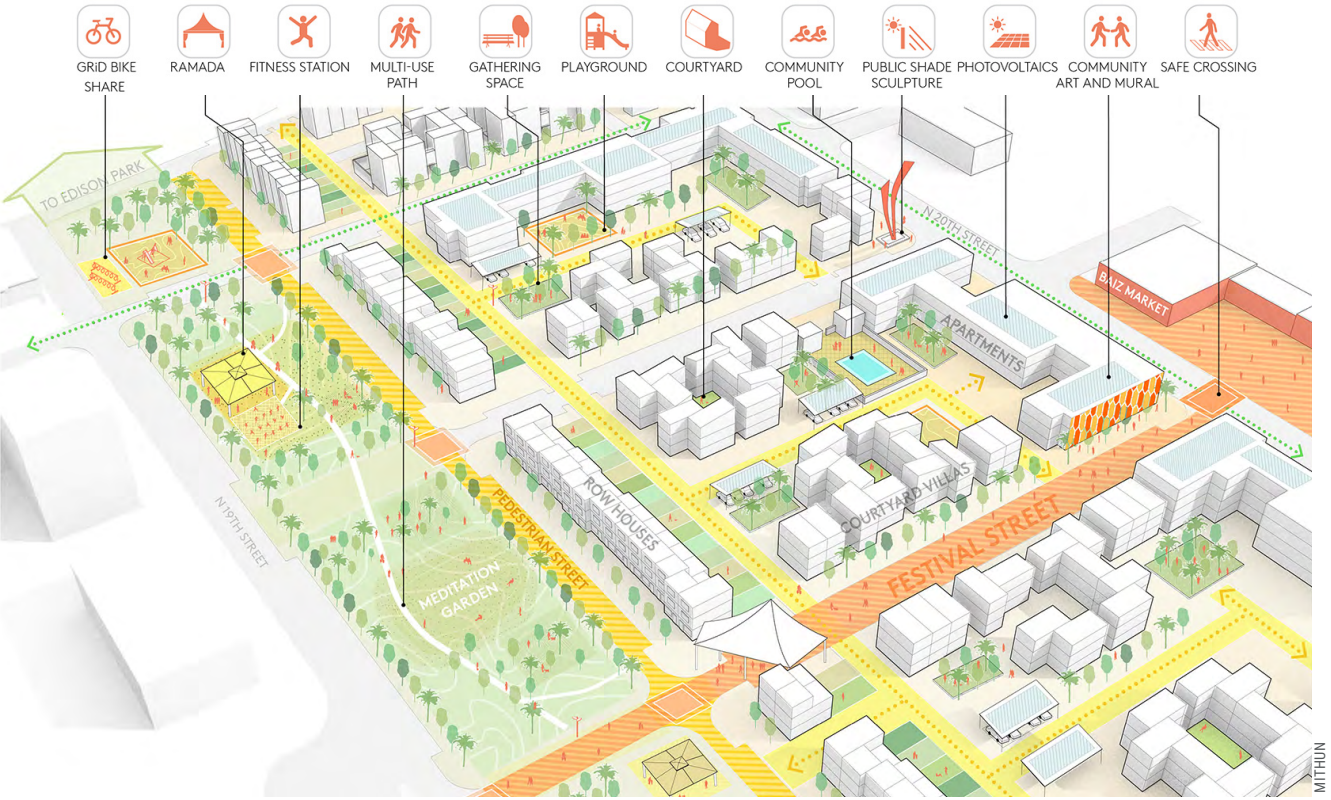
An arterial road for South Sacramento, Florin Road runs 3.5-miles from Hwy 99 to Hwy 5. Examining the vacancy along Florin Road, the corridor occupies six million square feet of impervious paving area. Image courtesy of Atlas Lab.

helpful shade and cooling in spaces where the afternoon sun prevalent and known to be more intense than morning sun.

- **Install shade structures at civic outdoor spaces.** Spaces designed to attract groups of people and encourage gathering will go unused without adequate shade. In the absence of adequate tree coverage, shade structures should be installed.
- **Tuck parking lots behind buildings and under canopies.** Pushing parking behind buildings can allow more space for tree planting in the front and along sidewalks. Additionally, using solar canopies to shade parking areas can generate energy while keeping vehicles cooler for eventual occupant use. It could be helpful to study the City and County regulations to see if there is an opportunity reduce the amount of paving needed for parking more broadly.

Use Site-Responsive Performance-Based Design

Planning departments across the country often turn to prescriptive measures to encourage the type of development the jurisdiction and the community wishes to see. By using performance-based design measures instead and embedding them in area plans and site-specific plans, designers and developers can begin to leverage each site's unique characteristics to maximize potential climate and heat island responsive strategies. Through this reorientation of design review processes and standards, the development focus can be placed on creating



This Mithun illustration depicts a number of elements that can be built into a neighborhood to assist with heat mitigation, energy efficiency, and community well-being.

In the top photo, prescriptive measures dictate tree planting on the development site, which in this case were planted on the west side of the pedestrian zone, casting little pedestrian shade while shading buildings. Below, a different design approach positioned trees closer to the walking path, providing ample shade along the entire walkway.

more consistently high-performing, climate-responsive sites that will better serve the community in the years ahead, rather than checking boxes that prescribe setbacks, lot coverage, tree placement, and more. The Green Factor approach utilized by Seattle, Washington and Cambridge, Massachusetts could be a helpful resource. These cities use score-based code requirements to increase the amount of and improve the quality of landscaping in new development.

Design and Development Priorities

In the near term, the panel recommended the following actions:

- **Depave select sites.** The City and County should identify and prioritize depaving opportunities along Florin Road and Stockton Boulevard, where parking lots are vacant or largely underutilized and the urban heat island effect is particularly pressing. Additionally, the planting of microforests on vacant sites should be encouraged as an interim condition for development.
- **Provide shade for priority locations.** Play structures across the City and County, bus shelters, and other public gathering spaces used in daily life should be adequately shaded.
- **Pilot new infrastructure.** Implementing a modular soil cell system and/or sand-based structural soils is a proven, successful method to support long-term tree planting within the built environment. These solutions increase access to soil volume and stormwater capacity compared to traditional streetscape parkway design standards, which typically have limited available space for trees. Such methods should be tested in Sacramento to determine best practices.

Looking ahead, the panel outlined longer-term recommendations that may take additional time to plan, approve, or require additional investment and longer-term budgeting support. Planning should begin now, however, to support these future actions.

- **Move to a performance-based review process.** City and County design guidelines, standards, and plan review processes should be updated to support improved climate performance in new development, particularly for large sites.
- **Require more shade.** Through more robust requirements for tree canopy and physical shading, new development can better support the resilience and comfort of building occupants.
- **Incorporate pilots.** Building in opportunities to pilot new ideas and technologies in standard public works practices can lead to better baseline improvements and outcomes that can then be scaled and incentivized in private development.
- **Identify priority shade goals.** Using a neighborhood approach, the City and County are encouraged to identify and prioritize shade goals and strategies within specific plans and area plans in order to leverage neighborhoods' existing resources and best meet the needs of specific communities.

Playgrounds and gathering spaces should provide ample shade for those using the spaces.

Case Study

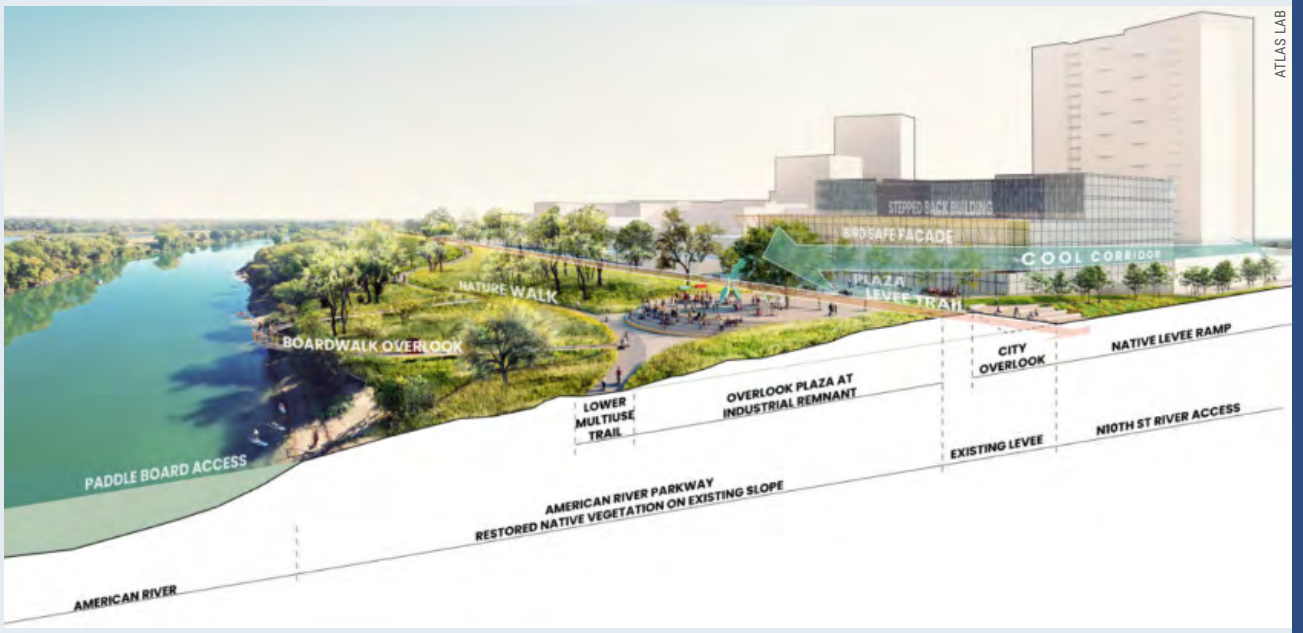
River District Strategic Plan

Atlas Lab led the comprehensive Strategic Vision Plan for Sacramento's River District, a plan to activate and connect over three miles and 830 acres of Sacramento's riverfront.

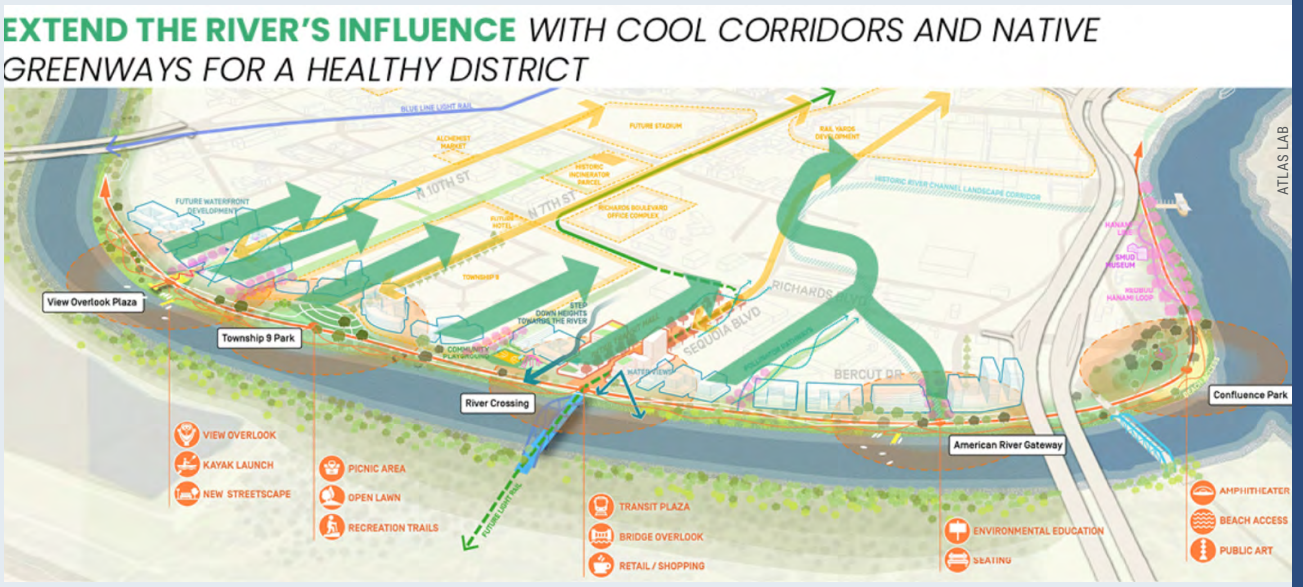
The vision Atlas posed establishes a distinct visual identity and public realm that seeks to reconnect downtown Sacramento to the American River through a series of greenways and cool corridors that draw on the cooling properties of the natural waterway, creating channels down the greenways and corridors for the cooler air to permeate the built environment beyond.

As stated in the Vision Plan: *"Another defining feature of the Vision Plan is its approach to riverfront development. Departing from rigid, parallel setback lines, the plan proposes sectional and perpendicular relationships with the river—inviting views, activating programming, encouraging active transportation, and drawing in natural breezes and native ecology to the heart of the district. This approach fosters a more intimate, dynamic, and ecologically responsive connection to the waterfront."*

In its planning efforts, the team also addressed the potential siting of buildings along the riverfront, stair-stepping in height away from the river to provide maximum view corridors and access to river breezes. Buildings are positioned with minimal western-facing sides to reduce the buildings' direct exposure to the afternoon sun.



This riverfront design demonstrates how development can be stair-stepped away from the American River to provide ample views of the river and green spaces for each of the buildings beyond.



The Vision Plan for the River District uses cool corridors to facilitate air flow and cooling from the American River, drawing air into the developed areas and providing associated view corridors.

Regulatory Approaches

There are a host of opportunities for both City and County governments to use regulatory tools to help encourage and even mandate measures that can help mitigate heat and support community resilience in times of extreme heat.

Promote More Robust and Nuanced Tree Canopy

Sacramento has already taken important steps forward in setting tree canopy goals for the city. Although the current 40 percent tree canopy coverage average is a great start, taking a more nuanced approach that follows best practices for establishing tree canopy goals would be a good next step.

East Sacramento, with its older trees and larger, more plentiful planting areas, already enjoys a tree canopy of 35 percent. Expecting this same percentage across the region, where planting areas are less plentiful and often smaller, is not realistic.

- **Use outcome-based measurements.** The City and County are encouraged to shift toward outcome-based measures for efforts related to shade, climate resilience, tree health, and maintenance. These measurements should incorporate tree canopy, urban heat island, and impervious surface coverage, and begin to measure performance against these initial baseline measurements.
- **Set tree canopy goals at the neighborhood scale.** Neighborhoods identified by the City and County as particularly vulnerable and areas identified as known heat islands should be prioritized for a more nuanced approach to tree canopy goals. Pending confirmation from the community, the Natomas neighborhood, the River District, the Arden-Arcade area, and the neighborhoods along Stockton Boulevard and in South Sacramento may be good places to start. Working with community partners, the public sector can establish specific goals for each neighborhood based on measured temperatures, existing tree canopy, and development context, and determine what actions would help meet the neighborhood targets. While trees should be prioritized, neighborhood goals should include all shade types.
- **Locate the shade goals within specific plans where possible.** The specific plans and area plans provide established mechanisms for this type of neighborhood-scale goal setting. In other areas, where a specific plan is not yet in place, the public sector can work with neighborhood leadership and community members to set their goals and identify opportunity areas.

Align Standards, Goals, and Enforcement

- **Align missing middle housing goals with tree canopy goals.** The panel recognized the potential conflicts posed by a code that encourages density to achieve missing middle housing goals when trying to also achieve urban forestry goals. Tying shade and tree preservation and planting to missing middle housing innovation may provide a beneficial solution. Developers may seek relief from certain code elements, and if that relief results in greater canopy or tree preservation, everyone benefits. A potential local design competition focused on missing middle housing and an alignment with the tree canopy could begin to elevate new design ideas that meet all of the goals.

  Example: The City of Tacoma, Washington, recently tied its tree codes to missing middle housing production, creating an alignment that would support the City's goals while meeting developers' needs. A specific example allowed building setback reductions in pursuit of heritage tree preservation.
- **Use performance standards to encourage shade.** A performance standard, like the Green Factor noted on page 13, could be used to regulate and advise development, setting aside the more typical and broad set of numerical figures. Shading pedestrian walkways, community spaces, and places with seating should be prioritized with a specific focus on placing shade in high-pedestrian-traffic areas and places designed for young children or seniors. A shade standard (percentage of area covered) and a green ratio could be used to help quantify the amount of shade,

green space, and impervious surfaces and would help elevate cooling goals.

- **Connect requirements and rules with enforcement.** Several stakeholders interviewed during the TAP noted the challenges the City and County face in enforcing tree requirements, primarily related to adequate staffing. In addition to supporting trust building across populations by following through on promises, such as enforcing the tree canopy goals, leads to increased accountability, additional revenue through fine collection, and presumably a richer and robust tree canopy when the codes are followed. If there are funding constraints that are hindering staff resources, additional enforcement could potentially pay for the services required by the enforcement actions.
- **Be prepared to take on scalable risk to meet the moment.** The public sector is understandably risk-adverse given its need to operate with the public's trust. That said, piloting projects, testing ideas, and considering what initial small risks could lead to broader and scalable outcomes are important and efforts that the public sector should explore. In some communities, jurisdictions use documented risk tolerances to clearly outline the levels of acceptable elevated risk the jurisdiction is willing to take in the pursuit of certain community goals (e.g., climate resilience and equity). This documentation can provide public sector employees with the support they need to make decisions that advance important community goals.

Remember: Shade is Shade

Although much of what the panel sought to encourage was in pursuit of a more robust tree canopy, the focus of the study questions centered on heat mitigation, which can be accomplished by shade from other sources as well. Shade is shade.

- **Encourage shade through additional innovation and creativity.** There are countless opportunities to create new shade and shaded spaces, and the arts community in Sacramento may be an excellent partner in this pursuit. Incorporating artists and art to enhance shade opportunities can help build excitement about how extreme heat can be managed in engaging, colorful, exciting, and yet functional ways.
- **Do not rely on the tree canopy you see today.** The large mature trees that line neighborhoods and parks today will not last forever and may soon be at the end of their lifecycle. The City and County are encouraged to conduct an analysis of the city/county tree health today and extrapolate that canopy out 10-20 years in order to make needed replacement preparations. If it is not already underway, planning for the successful replacement of the region's mature trees should commence immediately.

These woven tapestries are strung together to shade the marketplace below in a visually-engaging manner.

Shade sails turn otherwise hot unusable space into a popular community gathering space.

Equity and Underserved Areas

It has been widely documented that the effects of extreme heat disproportionately impact communities that have historically been underserved. These same communities are also often impacted by long-standing racial injustices and subjected to proven environmental harms. In Sacramento, these documented Environmental Justice communities lack adequate tree cover, need more and better shade structures, and have often found resourceful ways to create community cooling resources. These same neighborhoods should be prioritized in the City's and County's efforts to mitigate Sacramento's dangerous heat.

Near-term Mitigation Actions

The panel outlined the following actions that the City and County can take in the near term to begin to mitigate extreme heat in the region's Environmental Justice communities.

- **Support community-led organizations in their provision of wraparound services.** In many ways, the community cooling work has already begun. Neighborhood-led efforts are already providing critical cooling resources in certain areas of Sacramento. The City and County could pilot providing enhanced cooling centers, which, in addition to providing cool spaces for community members, also provide charging opportunities for devices, refrigeration for medicine storage, and other critical services needed to meet daily needs.

  The La Familia Resilience Hub on Franklin Boulevard is a great example of a community-led enhanced cooling center that should be funded to completion. While those backing the work had received confirmation of project funding, federal resources have been retracted, leaving a critical funding gap and stalling progress. The City and County are strongly encouraged to find paths to providing financial support to help La Familia close its funding gap and bring this important community resource to completion.

  Support regular access to community cooling centers. Community members should be able to access cooling centers every day, not just in times of a declared heat emergency. Centers operating on an emergency basis rely on community members' ability to access an online posting of hours, or otherwise require people to walk by to see if the center is open, either of which could be challenging or prove to be a barrier to those seeking help.

  The City and County are also encouraged to inventory all public facilities that could potentially be used as cooling centers and create a plan to leverage those buildings going forward. Community centers are cooling centers.

- **Shade play structures.** Using shade structures, the City and County should cover 100 percent of public playground equipment, prioritizing communities with heat islands. Roughly 25 percent of play structures at affordable housing developments are shaded today.

> "Community centers are cooling center opportunities."
>
> *–ULI Panelist*

About Heat and Its Impact on Communities

By the mid-21st century, California is projected to experience a significant rise in daily maximum temperatures, with an increase of 4.4ºF – 5.8ºF above the 1950 average. Heat waves, which are already a growing concern, are expected to last up to two weeks longer in regions like the Central Valley and occur 4 to 10 times more frequently in areas such as the Northern Sierra. In urban centers, heat-related deaths are projected to triple, disproportionately affecting vulnerable and marginalized populations.

The health impacts of extreme heat are not felt equally across communities. Social determinants of health—such as income, access to resources, and living conditions—play a critical role in how well individuals can cope with rising temperatures. The impact of extreme heat is further compounded by long-standing systemic inequities, including racial and environmental injustices, that leave certain communities more exposed and less resilient.

CalEPA / Office of Environmental Health Hazard Assessment

Similarly, the public sector should encourage shade structures on private property, in housing developments, and on school playgrounds.

- **Support laborers in avoiding extreme heat.** The City's current noise ordinance limits outside laborers from using potentially loud power equipment before 8:00 am. On days when the temperatures are expected to top 90 degrees, these laborers and their companies should enjoy an exception to the noise ordinance, allowing time for yard work and maintenance in earlier hours of the day and avoiding the later hours of dangerous peak heat.

Longer-Term Strategies

Looking ahead, the following longer-term strategies should be factored into today's planning work, understanding that these efforts may require years to complete.

- **Support small businesses in tree maintenance.** Small businesses operate on narrow margins, are often located within rented facilities, and are frequently owned by people who may also live in vulnerable neighborhoods. These challenges compound to make tree maintenance on commercial properties a burden for small businesses. The cost of tree maintenance can actually create a disincentive for small business owners who would rather cut down a tree rather than pay for its care. In addition to removing maintenance costs from their budget, they are also eliminating the benefits trees can bring to their business environment, such as increasing customer comfort, mitigating heat on outdoor seating, and enhancing storefront attractiveness. The panel recommends extending residential tree services, including leaf removal, to Sacramento's small business community.
- **Support workforce development.** There are also interesting workforce development opportunities associated with tree maintenance and arboriculture. The City and County are encouraged to work with community-based organizations to create a pipeline to green careers that could support employment goals in the region, as well as provide additional services upon which community members and business owners can rely for tree assistance.
- **Develop a shade master plan for the public transit system.** The lack of shade at Sacramento's bus stops can be an impediment to ridership. For those who have no other transportation option, being forced to stand in the direct sunlight while waiting for the bus can be detrimental to individual health. The City and County should collaborate with SacRT on a shade master plan leverages work the SacRT already has underway at shelters and addresses the entire system, identifying critical early shade improvements.
- **Expand clean energy and efficiency.** SMUD is a great partner across the region and should be encouraged, along with the City and County, to support and expand existing utility programs that help fund insulation installation, project costs associated with heat pumps, and the low-interest business loan programs for cool roofs. These measures can help relieve energy cost burdens in vulnerable communities, encourage lower energy consumption, and support lower-carbon environments across the region.

  It is also important to note that the region's long-term reliance on mechanical air conditioning hinges on the resilience of electrical grid. When the power goes out, passive cooling strategies and public facilities and community centers with backup power becomes critical.

Laborers working outside are often still working during the heat of the day, facing dangerous conditions.

Collaborations and Funding

The collaboration that brought the City and the County together for this technical assistance panel should continue. Building on the existing efforts of both jurisdictions and close collaboration now taking root, the two jurisdictions should strengthen these nascent ties and their associated partnerships with community-based and nonprofit organizations. This collaborative approach, geographic reach, and deep community-focused collaboration are essential for success in mitigating Sacramento's extreme heat.

Memorialize City-County Collaboration

The collaboration between City and County should be memorialized so that it can be replicated across departments and strengthened over time.

In the near term, the panel recommends the following actions:

- **Consider executing a partnership agreement.** A partnership or Memorandum of Understanding (MOU) can play a pivotal role in detailing the roles and responsibilities of each party in the work. The City, County, and other partners should take a holistic approach to coordinating climate protection efforts and memorialize their particular role through an MOU. This could potentially include other special districts, such as water purveyors, utility providers, and other cities, to ensure that all entities with key roles to play are involved in the formation of the strategies and agree to the execution plan and related timelines.

County and City staff leadership take the panel on a tour of several Sacramento neighborhoods to demonstrate the challenges developers and the private sector face in reducing the impacts of extreme heat in the region.

- **Identify and embrace community-based partners.** Across the city and county, there are organizations and nonprofit partners that should be deeply connected to this work. These organizations can play important roles in coordinating efforts within the region, creating and disseminating information, deepening partnerships, and building and strengthening community trust. These organizations can also become excellent partners in grant pursuits that could further support the work.

  The City and County should each designate a staff lead who can spearhead grant funding pursuits. Grants at the partnership/MOU stage can help the partners explore potential governance models, identify a potential structure for the emerging partnership, and fund early pilot programs.

- **Conduct an economic assessment study.** After the above partnership formation and memorialization work is complete, the collaborative should create a nexus, establishing the connection between the collaborative and the State of California. This nexus will help detail the financial implications, cost of inaction, and potential return on investment from the collaborative's actions.

Create a Joint Powers Authority (JPA). In the longer term, the panel recommends the formation of a JPA to serve as a centralized place for community-based organizations and nonprofit partners to coordinate and

collaborate with the City and County on joint goals that will help, in this instance, advance climate resilience. Examples in the region include the Sonoma County Regional Climate Protection Authority (RCPA) and the San Francisco Bay Restoration Authority.

The benefits of a JPA include the ability to make joint investments and pursue and attract grant funding. The JPA also operates under a set of shared standards, pools the resources and expertise of the organizations, and reduces potential organizational redundancies. In this scenario, a Climate Resilience District JPA makes sense.

Create a Climate Resilience District

The panel's recommendation to form a Climate Resilience District (CRD) provides Sacramento with a designated entity that can finance projects that mitigate the impacts of climate change and help build climate-resilient communities.

A CRD would engage in the following activities:

- **Organizational engagement.** The CRD would engage local governments, businesses, and residents in regional planning and disaster preparedness.
- **Infrastructure improvements.** A CRD has the ability to integrate sustainable infrastructure, expand green spaces, and adopt renewable energy to address flooding, heat waves, and sea-level rise, as well as other factors related to climate change.
- **Promote sustainability.** The CRD would work to promote environmental sustainability and create healthier, safer, more adaptive communities for the future.
- **Pursue financing and finance projects.** Such a district would hold broad and encompassing financing powers, which would include the ability to issue tax increment bonds, levy assessments and special taxes, issue revenue bonds, issue general obligation (GO) bonds, and impose property-related fees and charges. The CRD also has the ability to finance facilities and services.

Expand the Tent

The public sector cannot advance heat resilience alone. The private sector and other partners need to come alongside to help advance the community's goals through private investment and development that reduce heat impacts, create more resilient spaces, and reduce future impacts on the environment that might exacerbate the community's existing heat-related challenges. The public sector should seek to build and scale broader capacity through partnerships.

Developers can play an integral role in advancing the public sector's goals and initial work in this area. Specifically, public sector actions that might impact

or incentivize the private sector and development community include the following:

- **Provide incentives.** Developers who advance work beyond the stated requirements could be eligible for a development or financial incentive.
- **Provide developer relief for fees.** Whether it is fee credits or some other form of fee relief, developers could find associated financial savings worthy of the additional effort required to pursue or install the more sustainable or resilient option.
- **Encourage existing program uptick.** There are existing programs on the books, e.g., rebates for turf removal, that developers and contractors should be encouraged to use in their work. Additional informational or marketing support can help raise the visibility of these programs and encourage additional participation by the private sector.
- **Revise the minimum standards.** There are developers who will only deliver on the minimum municipal building requirements. By revising these minimums to better meet community goals, the code can begin to ensure that new development is advancing progress.

  One developer noted that a simple reduction in driveway minimums from 20-feet to 18-feet wide would be a welcome change. Making this revision in the face of other baseline modifications could help ease adoption of the stricter minimums. The City and County are encouraged to explore other similar options.

Economic Analysis Tools

There are economic analysis tools that can be used by jurisdictions to determine and then help demonstrate how the addition of certain requirements could be anticipated to impact development costs.

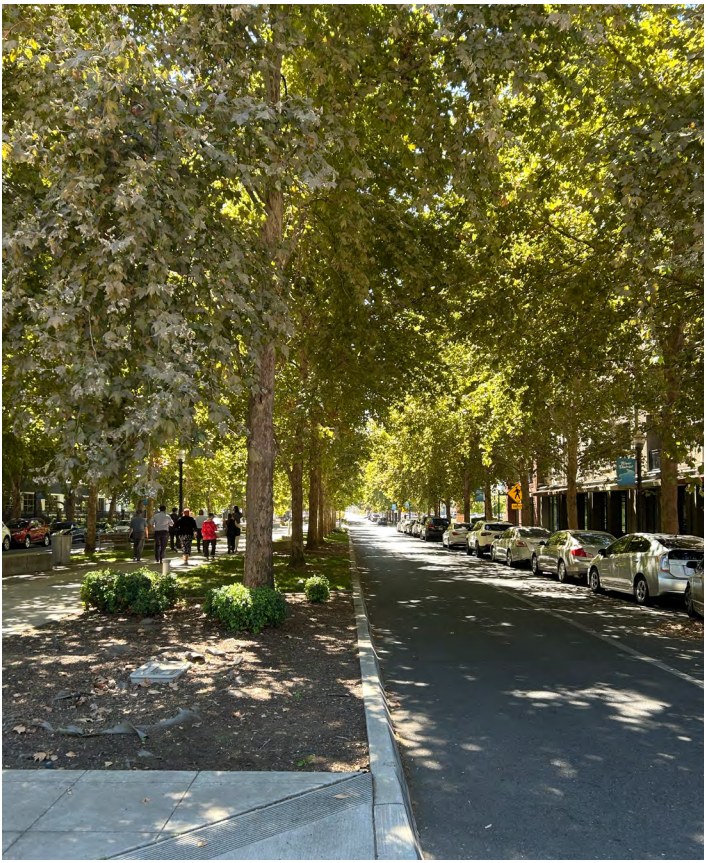
Residual Land Analysis can help determine the residual value of land once all of the development's hard costs have been met and help calibrate developer relief to community benefits. The jurisdiction identifies the land's additional value that could be applied to the community. With that figure, the jurisdiction can then calibrate the fee relief or other incentives to that value, ensuring that as the community benefits, the actions are not resulting in additional development costs nor are they impacting the jurisdiction's bottom line.

Mature trees, as seen in this older Sacramento neighborhood, can cool the surroundings by as much as 15 degrees.

Next Steps

Ongoing Support from ULI Sacramento

In addition to the work the panel recommended to the joint sponsors of this study—the City and the County—ULI Sacramento is also committed to advancing heat resilience across the community and pledges to take the following next steps to support the public sector and raise awareness within the private sector, particularly within the development community.



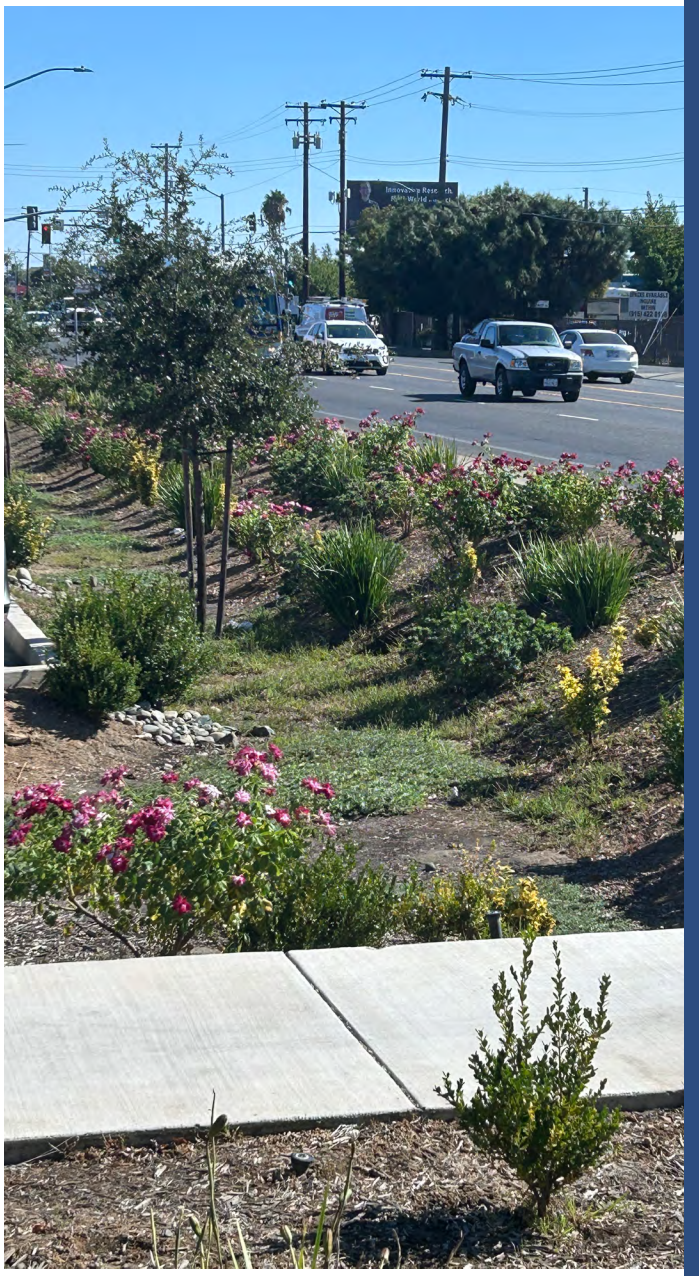
Ample shade protects pedestrians on the sidewalks and helps shade parked cars as well.

Launch a study tour. Throughout the study, it was clear that there is much to learn from other communities across the United States that are wrestling with these same issues. ULI will plan a study tour for key City and County staff and other stakeholders to communities that are finding success in mitigating extreme heat. The goal is to see and experience first-hand what is working in these communities and learn from the people leading the efforts in other similarly situated metropolitan areas.

Continue connections to developers. ULI will continue to serve as a portal to the development community, providing engagement opportunities where the public and private sectors can discuss these issues and together help identify paths forward to potential solutions.

Provide letters of support. For those efforts where the City/County collaborative seeks grant funding, ULI Sacramento is pleased to provide letters of support for those future grant applications.

Continue to elevate the importance of heat strategies. ULI will continue to look for opportunities in which to raise the issue of extreme heat, its impacts on the community, and the opportunities to reduce those impacts through innovations in the built environment. Specifically, ULI Sacramento's Vision Honors Awards could provide an interesting venue for a new award featuring a project that meaningfully advances climate resilience.



This green infrastructure is using planted materials to help absorb the water that drains from the roadway and the nearby surface parking lot.

Appendix:

Additional Resources

Additional Resources

The following resources could prove helpful in Sacramento's heat mitigation work and might be worth exploring further.

Economics

- Studies from LA County on heat and climate cost:
  - Health and Social Services During Heat Events
  - Los Angeles County's Climate Cost Challenge: A $12.5 Billion Bill to Protect Communities Through 2040
  - Neighborhood investments ideas and a policy menu: Smart Surfaces Policy Memo: Mitigating Extreme Heat and Managing Stormwater with Green Stormwater Infrastructure
- Urban Heat Island Summary Report (Sac Air District) Summary Report: Capital Region Urban Heat Island Mitigation Project.pdf
- Economic Impact Report (Phoenix, AZ): Economic Assessment of Heat in the Phoenix Metro Area
- Living with Heat | ULI Boston/New England

Neighborhood Interventions

- Tactical Urbanism: Tactical Urbanism Toolkit: A guide to demonstration and interim projects focused on active transportation and placemaking
- A block in Massachusetts is the test site for ways to cool cities in the summer

Plantings

- Urban Meadows: Smart Surfaces Policy Guidance: Urban Meadows
- Tiny Forests: Tiny Forests: Growing Resilient Cities
- Community Gardens as Cool Micro-climates: Urban gardening as a solution to urban heat islands

Surfaces

- Smart Surfaces Coalition
- Depaving interventions: Depaving the way to a climate-ready city

Roofing

- Cool Roof Rating Council
- San Antonio Under 1 Roof program

Shade

- Shade LA
- Shade as an Essential Solution for Hotter Cities. The UCLA team referenced in the article added a shade tool to the American Forests Tree Equity Score. Choose a location, zoom to a zone, and click to choose map layers and scroll down to the environmental indicators.
- Shade is Social Justice This is a project in Cambridge involving physical shade in public realm led by Claudia Zarazua that comes from a public art perspective.
- Park Shade: City Council Supports Private Fundraising for Park Shade Structures

About the Panel

Randy Sater

Panel Chair
President
Stonebridge Properties

Randy is President of StoneBridge Properties, part of the Teichert Family of Companies, headquartered in Sacramento, California. Randy's experience ranges from both infill and greenfield master planning and community development, residential real estate development and urban strategy. Projects include master-planned communities and vertical development in Sacramento and Truckee, California. Randy is actively involved in the community having chaired numerous non-profits throughout the region, including the Crocker Art Museum, Valley Vision and Sacramento Urban Land Institute.

Marissa Aho

Director, Executive
Climate Office
King County

Marissa Aho, AICP is the first Director of the Executive Climate Office for King County, WA. She leads a growing team that is charged with advancing and accelerating climate action to make a more sustainable, equitable and resilient King County. She previously served as Policy Director/Chief Resilience Officer for the Washington State Department of Natural Resources. She began her public service career as the first Chief Resilience Officer for the city of Los Angeles as part of the Rockefeller Foundation's 100 Resilient Cities program and then served as the first Chief Resilience Officer for Houston after Hurricane Harvey. Aho led the development and implementation of the cities' resilience strategies that are focused on preparing for catastrophic events and addressing chronic stressors. Prior to public service, she was a private urban planning and land use consultant in Southern California. She recently served as an editor of the 5th National Climate Assessment, as a member of FEMA's National Advisory Council from January 1-24, 2025 and as a commissioner on the (Los Angeles) Blue Ribbon Commission on Climate Action and Fire Safe Recovery. Aho holds a B.A. in Political Science and Communications, Legal Institutions, Economics and Government from American University and a Master of Planning degree from the University of Southern California.

Brad Barnett

Associate Principal
Mithun

Brad is an urban designer with over a decade of experience working throughout across the US and internationally. Brad's experience ranges from district frameworks and urban strategy to master plans and design guidelines. Current projects include urban design frameworks and design studies for 11 new light rail stations across Seattle, a neighborhood master plan in Pittsburgh, and an innovative station area plan that incorporates mass timber, district energy, and affordable housing strategies. Prior to Mithun, he led Sasaki Strategies, an interdisciplinary team of designers and technologists pushing new techniques for integrating data, visualization, and design.

John Bolduc

Principal Planner
Weston & Sampson

John Bolduc is a practitioner in climate change planning and implementation in both mitigation and adaptation. He has worked for 40 years in the municipal environmental and climate planning field. Currently, he is a Principal Planner with Weston & Sampson, based in the Boston area, which provides environmental engineering and climate planning services and is adjunct faculty at Boston University where he teaches Actionable Sustainability. Previously, John was a climate planner for the City of Cambridge, MA for 25 years. His experience covers climate change vulnerability assessments, community resilience planning, urban heat island mitigation, urban forest planning, coastal and inland flood management planning, greenhouse gas emissions inventories, climate action plans, building energy benchmarking and performance, climate and sustainability zoning, municipal policy and administration, state policy making, regional planning and collaboration, community building, climate communications, and climate strategy. John received a Bachelor of Science degree in Resource Economics from the University of California at Davis and a Master of Arts from Tufts University in Urban & Environmental Policy.

Kimberly Garza, PLA, ASLA

Principal
ATLAS Lab

Kimberly Garza is the Founder and Principal of ATLAS Lab Inc, a woman and minority-owned, mission-driven landscape architecture, urban design, and public art studio. With a steadfast commitment to effecting conscious change in the built environment, Kimberly spearheads initiatives aimed at fostering accessible, positive, and progressive impacts on communities. Kimberly's design-research focus is centered on increasing cool equity in the Sacramento region. Kimberly's dedication to innovation and leadership has earned her accolades, including being named the 2023-24 Landscape Architecture Foundation Fellow for Innovation and Leadership, as well as being recognized as a 40 Under 40 Urban Innovator by NextCity.org and a 40 Under 40 Honoree by the Sacramento Business Journal.

Kara Gross

Executive Director
Silicon Valley Economic Development Alliance

Kara serves as Director of Public Sector Climate Initiatives at Joint Venture Silicon Valley, a nonprofit serving the South Bay and Peninsula of the San Francisco Bay Area, where she delivers contract services to public sector clients in support of environmental initiatives. She previously managed the Public Sector Climate Task Force, a collaborative of 40+ agencies developing greenhouse gas emissions reduction strategies. She is also Executive Director of Silicon Valley Economic Development Alliance, a collaborative of 30 cities within Joint Venture that develop and share subject matter expertise on pressing issues for local government such as business support programs and builds relationships with partners such as the Urban Land Institute. She served on ULI San Francisco's Technical Assistance for Communities committee for 10 years, including 5 as co-chair. Her prior experience includes government consulting and support at the regional, state, and national level in San Jose, Sacramento, and Washington, DC.

Maisie Hughes

Creative Director & Co-Founder
The Urban Studio

Maisie Hughes is a landscape architect, social entrepreneur, and artist who co-founded The Urban Studio and leads the Community Design Lab, a Maryland-based nonprofit whose mission is to democratize design through art, service learning, and community-led projects. With nearly twenty years of experience spanning urban forestry, planning, and nonprofit leadership, she has advanced environmental justice and equitable access to nature through design education and community engagement. A 2019 Landscape Architecture Foundation Fellow and 2024 Planet Women Fellow, Maisie's work explores how identity, creativity, and place shape belonging in urban environments.

Braden Kay

Extreme Heat & Resilience Program Manager
Governor's Office of Land Use & Climate Innovation

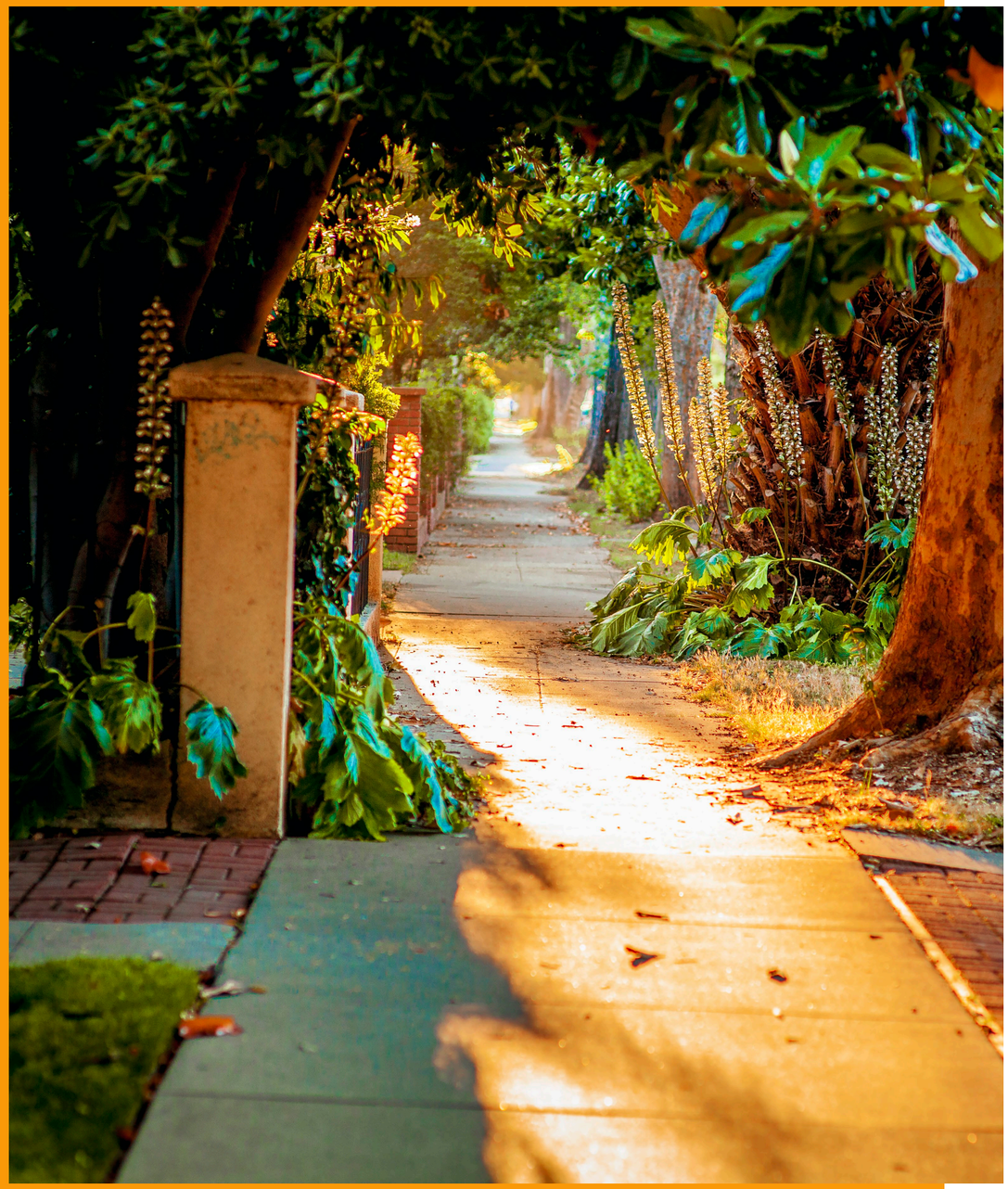
Braden Kay is the Extreme Heat and Community Resilience Manager at the California Governor's Office of Land Use and Climate Innovation. He holds a PhD in Sustainability from Arizona State University and was formerly in local government positions working on climate policy and programs.

Megan Quinn

Director, Municipal + District Finance
Harris & Associates

Megan Quinn is a municipal finance consultant dedicated to equitable growth, strategic planning, and practical funding solutions. As Director of Municipal & District Finance at Harris & Associates, she leads the firm's development impact fee and cost reimbursement review teams. With two decades of experience in public finance, real estate economics, land use planning, and financial analysis, Megan helps cities, counties, and special districts navigate complex funding challenges and plan for sustainable economic growth.

At Harris & Associates, Megan has managed numerous projects related to assessing public facility needs, including public facility financing plans, AB1600 nexus studies, fiscal impact analyses, due diligence related to Development Impact Fees, financial feasibility studies, and land-secured financing options, among other areas. She pairs rigorous financial analysis with a deep understanding of policy and planning to craft equitable, actionable funding strategies for critical infrastructure and community development. Megan holds an MBA with a concentration in Urban Land Development and a B.S. in Business Administration with a concentration in Real Estate and Land Use, both from California State University, Sacramento. She also serves as UrbanPlan Chair and Executive Committee member for ULI Sacramento.



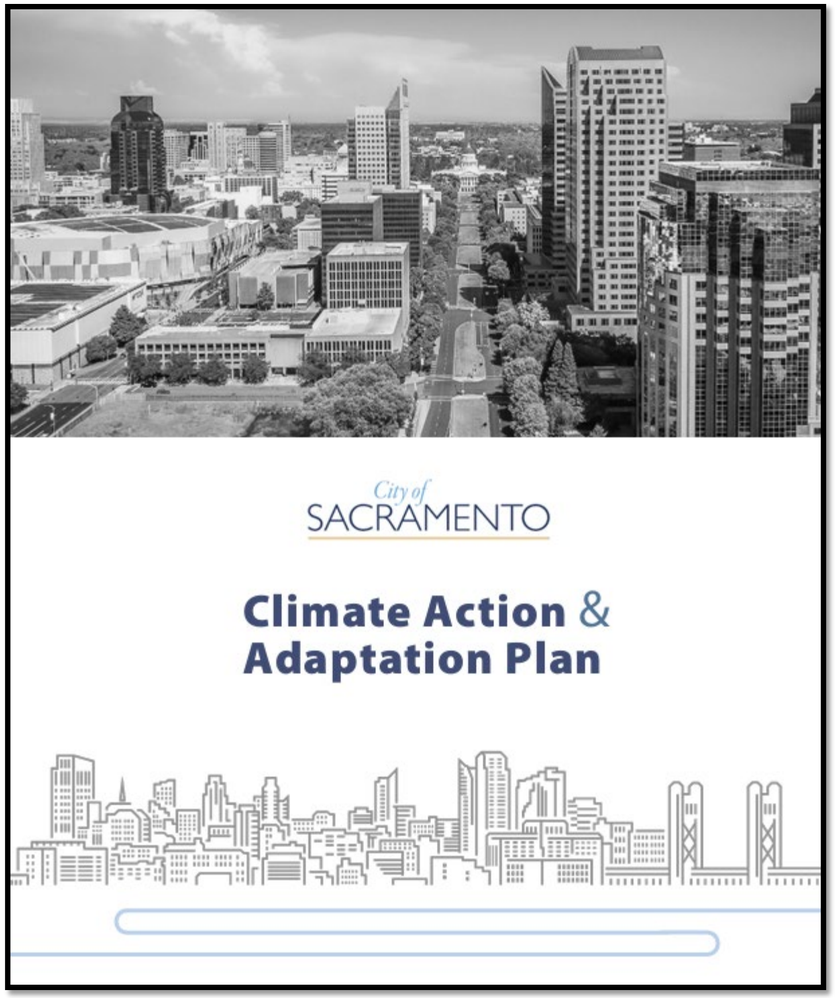
ULI Technical Assistance Leadership Exchange

Extreme Heat Mitigation

Planning and Design Commission

March 12, 2026

Background



Climate Action & Adaptation Plan Goal A-2:

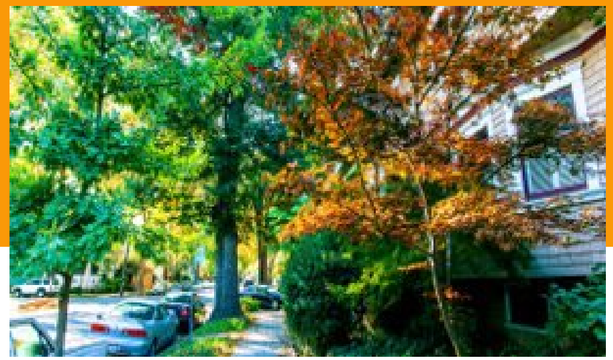
Create built environments that reduce exposure to extreme heat and mitigate urban heat island effect.

Background

CAAP Implementing Actions

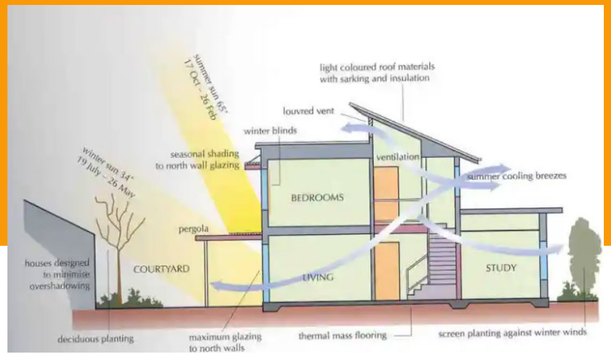
Heat Reduction in the Public Realm

Explore opportunities to amend development standards and guidelines to promote the use of **heat mitigation strategies** to reduce temperatures in the public realm, **particularly on active transportation networks, commercial corridors, near light rail stations, and along transit corridors**.



Minimum Tree Requirements

Review and amend the planning and development code as necessary to require **minimum levels of tree planting** in new development and significant remodels and improve tree canopy inclusion



Heat Resilient Design Techniques

Evaluate the feasibility of updating design guidelines, standards, and the municipal code to require **building materials and site design techniques** that provide **passive cooling, reduce energy demand and minimize radiated heat to the neighboring area**

Background

Urban Land Institute

Real estate and urban development professional organization dedicated to shaping the future of the built environment for transformative impact in communities worldwide

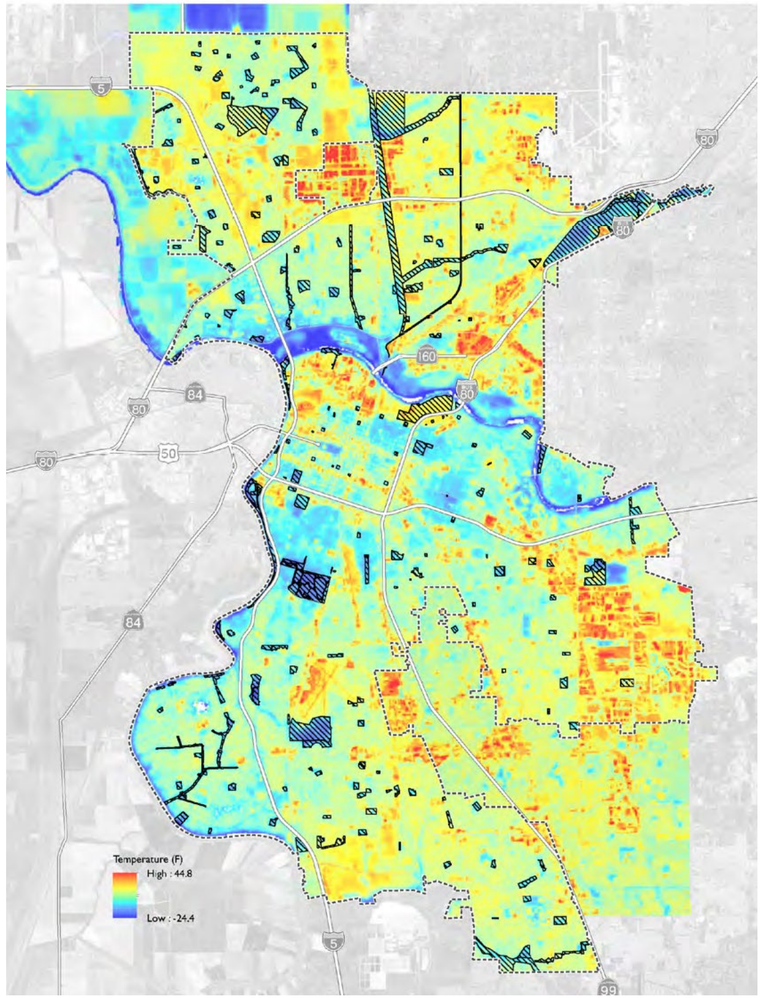
ULI Randall Lewis Center for Sustainability in Real Estate

Drives industry transformation, cultivates leaders and champions, and helps foster solutions for sustainable, resilient, healthy and equitable cities and communities

ULI CA-NV Technical Assistance Leadership Exchange

Seven public agencies were selected to participate in Technical Assistance Panel focused on local resilience and land use challenges

City-County Collaboration



Shared Challenges	Heat does not know municipal boundaries
	Our constituents do not know municipal boundaries
	EJ communities are mixed between City and County
Shared Strengths	Resilience and climate adaptation strategies
	Policy framework to address challenges
	Partners like ULI and other stakeholders

TALE Process

Prepare

Staff developed questions and briefing materials, prepared a tour, and an interviewee list

Convene

Panelists toured locations in County and City and interviewed local care-holders

Recommend

Panel made near- and long-term recommendations for each question

Implement

Collaborate with care-holders to maintain momentum and implement heat mitigation strategies

Our Questions to the TAP

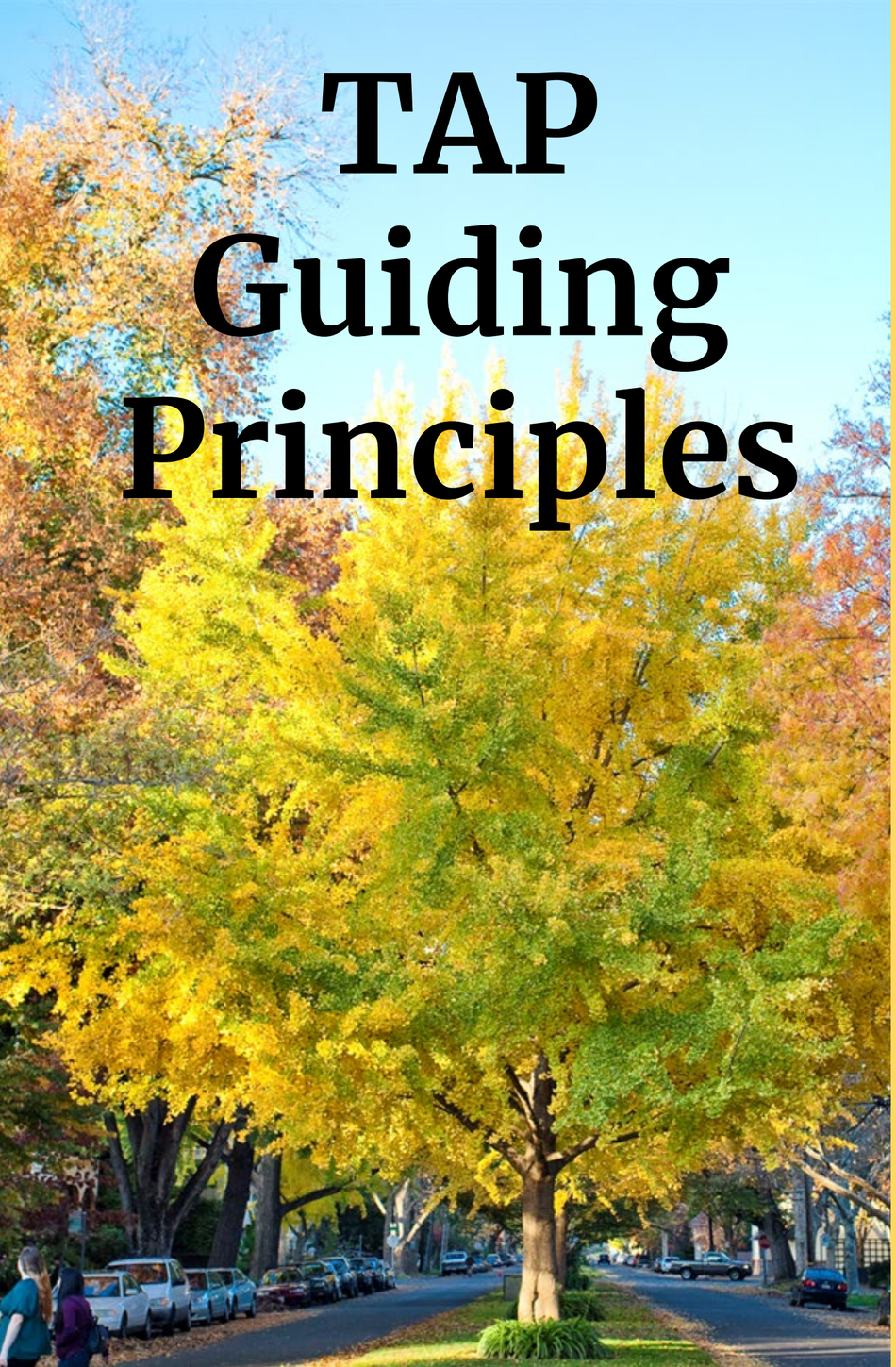
- Best Practices for Design & Development
- Regulatory Pathways
- Incentives & Funding
- Equity & Underserved Areas
- Role of the Private Sector

Shared Core Challenge

How can we embed cooling strategies into our densifying urban fabric, including in under-resourced areas without undermining housing production?

List of Care-holders

- Elected Officials
- Staff
- Private Sector
- Nonprofit Sector
- Local Agencies
- State Agencies
- Educational Institutions
- Community-based Organizations



TAP Guiding Principles

- **Shade is Shade**
- **Tree canopy is a public good** – Should be managed as critical infrastructure
- Use a **systems approach**
- **Rebuild trust with accountability**
- Focus on and **plan for performance**
- Focus on **neighborhood scale**
- Build and scale capacity through **partnerships**

Design and Development:

Near Term Recommendations

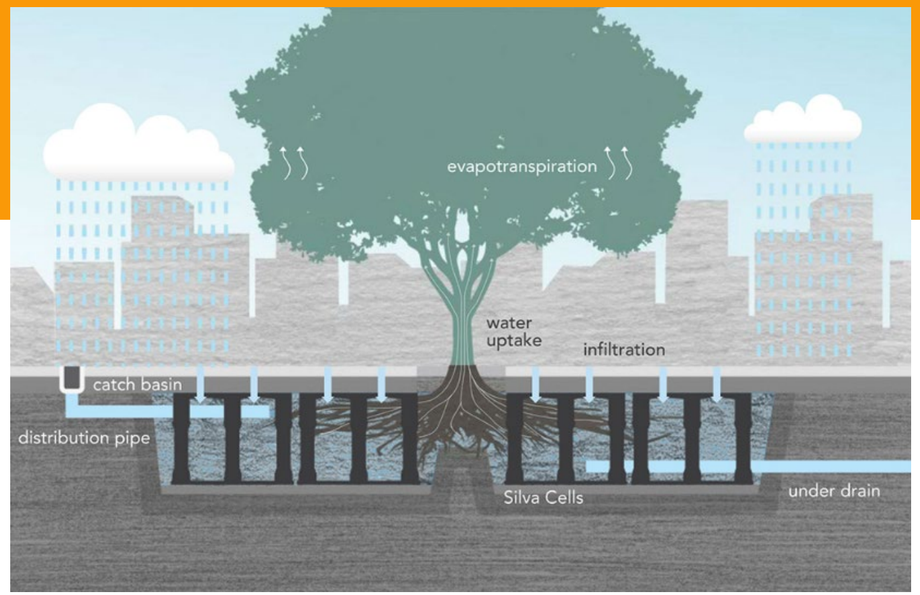
Prioritize de-paving + micro-forests

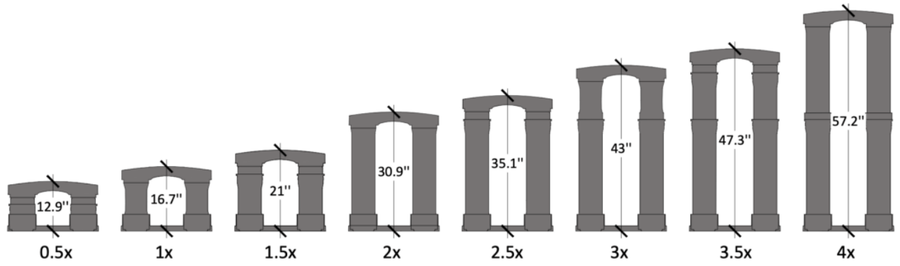
Shade for priority locations

Pilot new green infrastructure techniques

Design and Development:

Near Term Recommendations

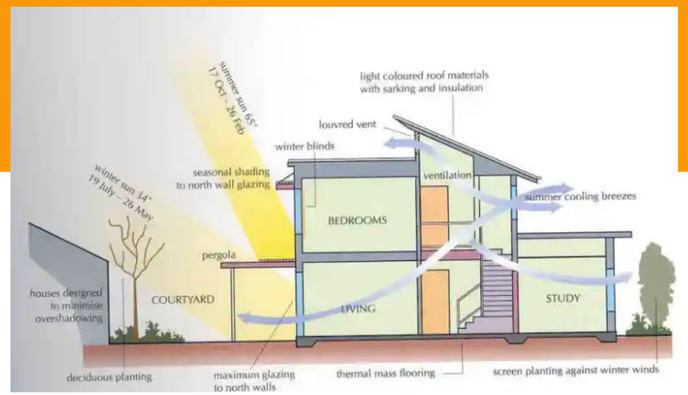




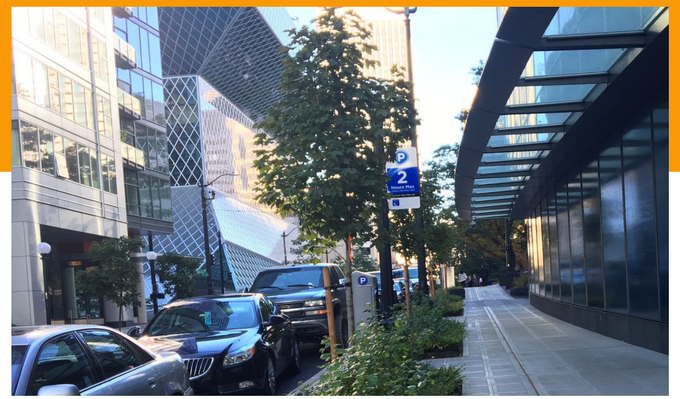
Source: [Silva Cell Tree and Stormwater Management System]

Design and Development:

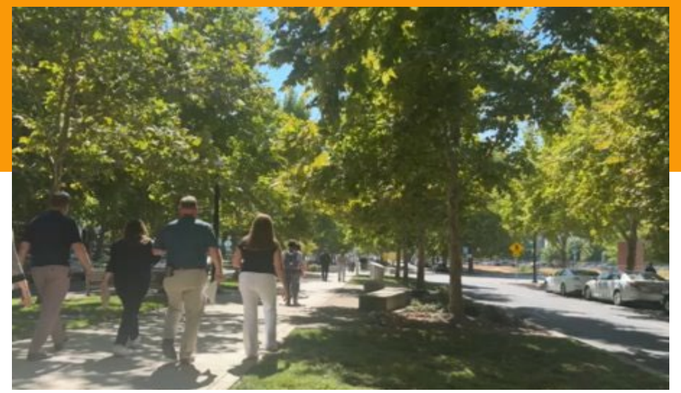
Long-Term Recommendations



Update Design Guidelines, standards, and review process for climate performance

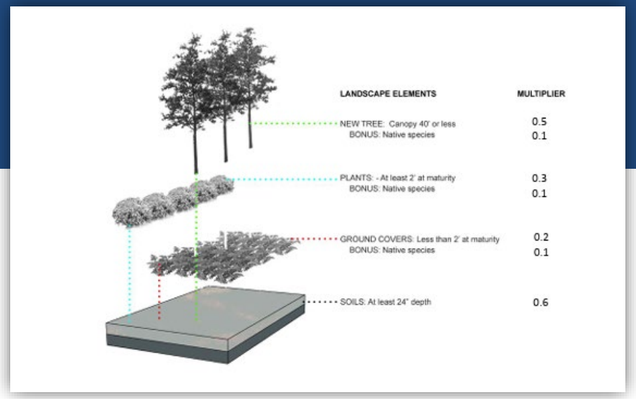


Require more shade for new development

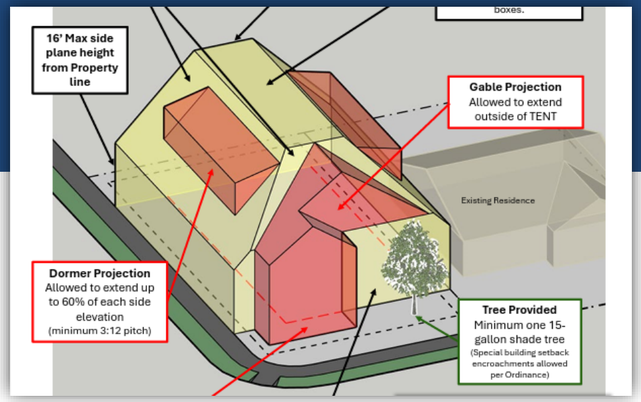


Identify priority shade goals using a neighborhood approach

Regulatory Approaches



Use outcome-based measures and set canopy and shade goals at the neighborhood scale



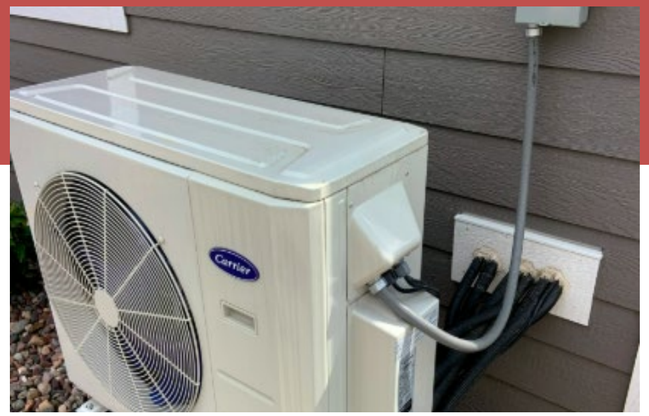
Align our codes with urban forestry goals and policies

Pair requirements and rules with enforcement

Equity and Underserved Areas

Near-Term Recommendations

Support Community-Based Organizations (CBO)



Improve access to cooling centers and air conditioning

Shade play structures & support laborers in avoiding extreme heat

Equity and Underserved Areas

Long-Term Recommendations

Support small businesses and homeowners in tree maintenance

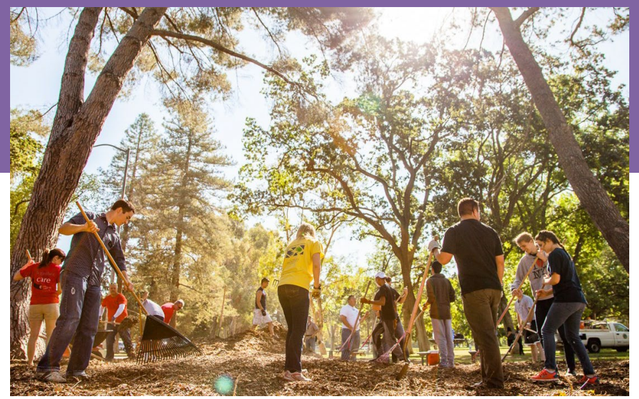
Support workforce development

Expand clean energy and efficiency programs

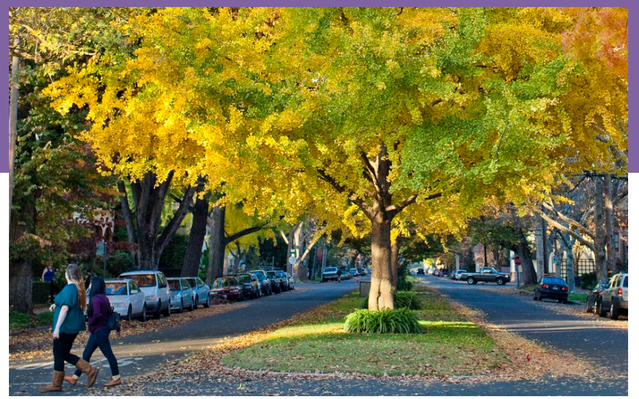
Collaborations and Funding

Near-Term Recommendations

Consider extreme heat focused MOU between City and County



Identify and engage with CBO partners



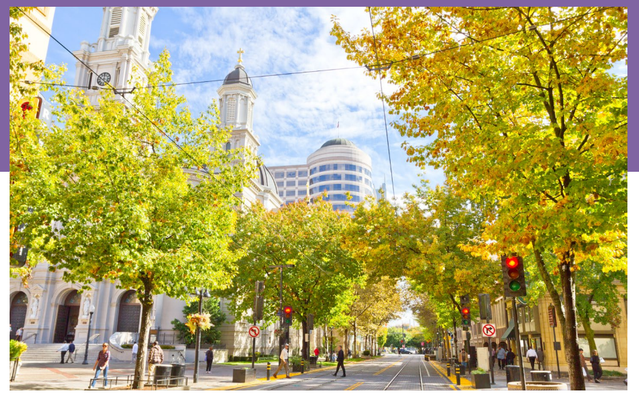
Collaborate on grants to support implementation

Collaborations and Funding

Long-Term Recommendations

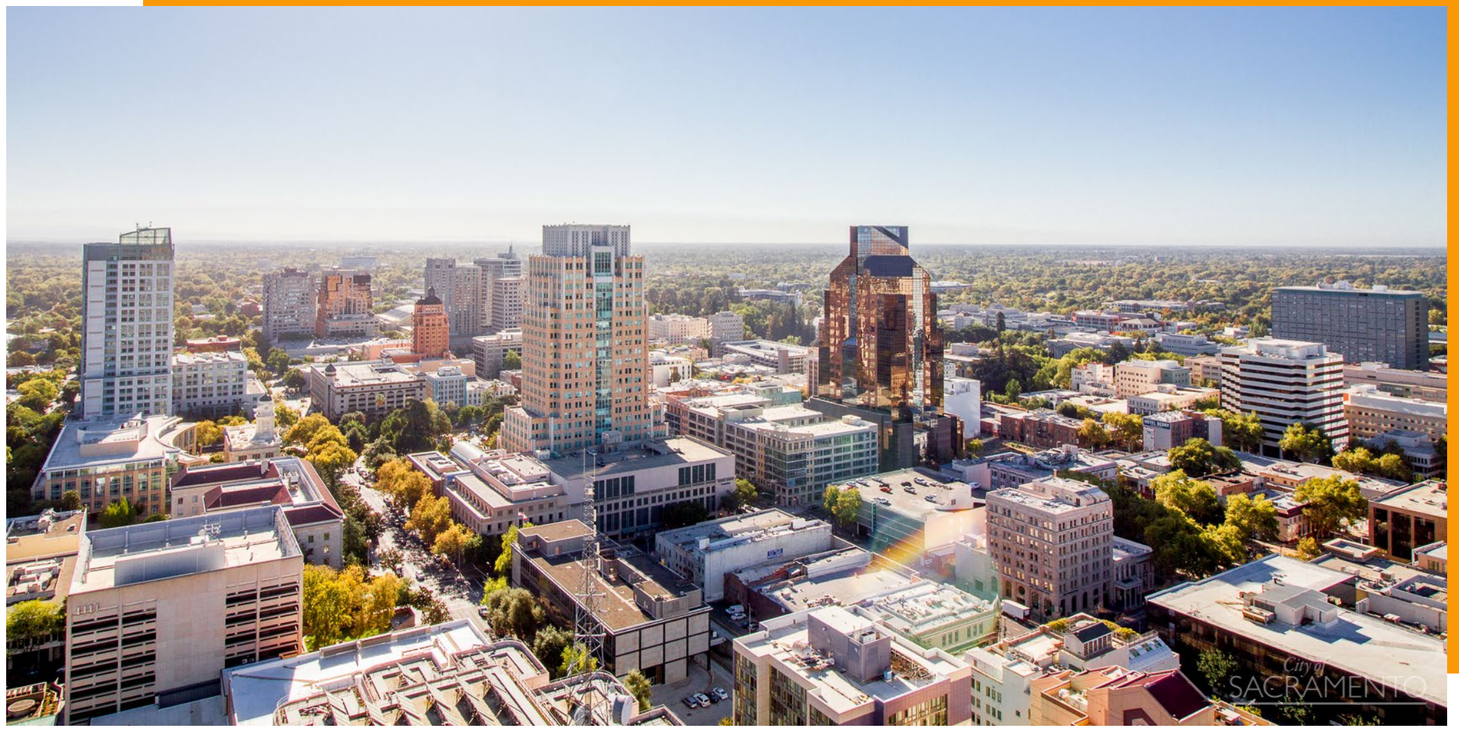
Explore a Joint Powers Authority such as a Climate Resilience District

Move toward durable sources of funding



Expand the Tent – Engage Developers and other care-holders, including CBOs

Next Steps:
County + City



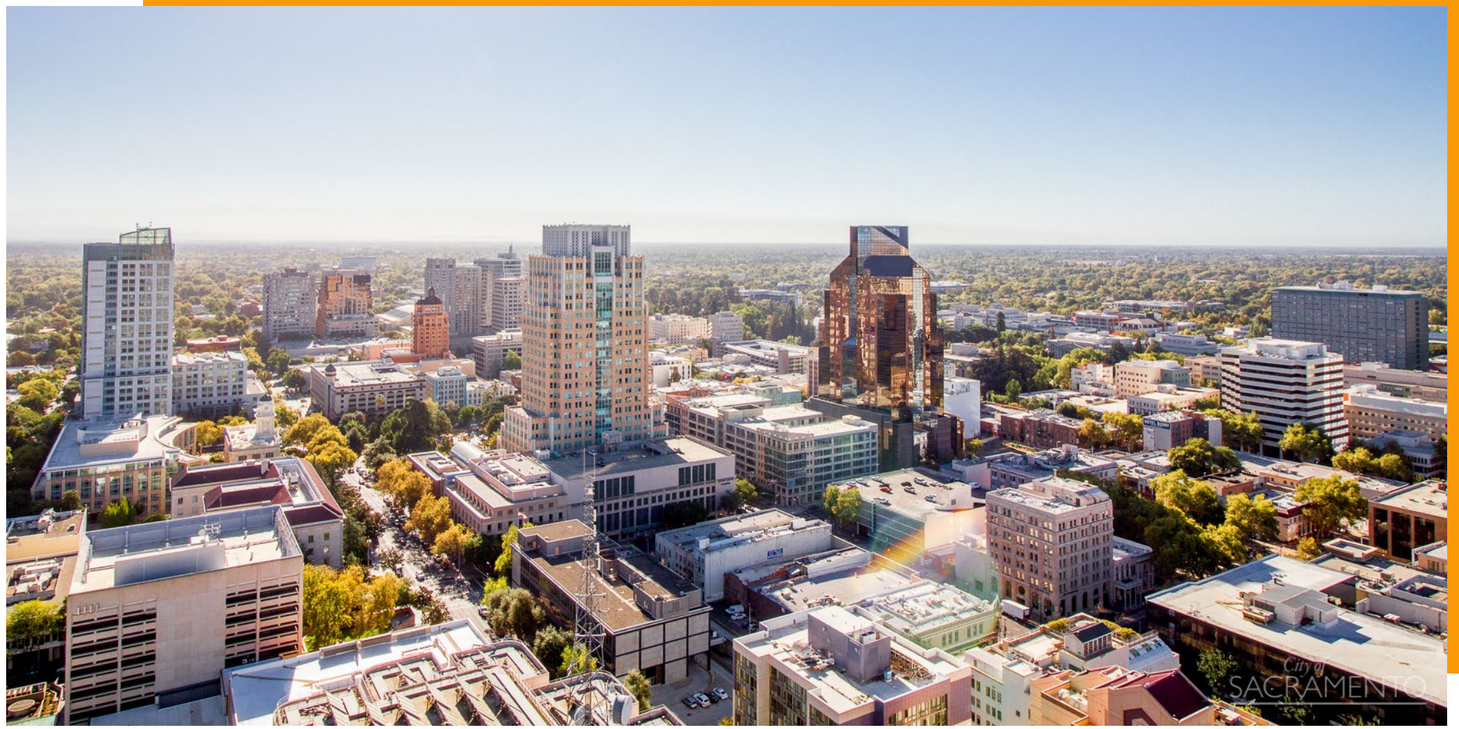
Prepare an MOU to guide ongoing collaboration

Document policy options

Conduct informational interviews

Coordinate with Current Planning & Zoning Administration

Next Steps:
ULI



Launch a study tour

Continue connections to developers

Provide letters of support

Continue to elevate the importance of heat strategies

Thank you!

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Laura Tuller, Associate Planner
ltuller@cityofsacramento.org

Vic Randall, Senior Planner

Rachel Patten, Sustainability Manager

Extreme Heat Mitigation webpage: