

## Built Shade: Why Regulatory Reform Is Needed to Reduce Outdoor Vulnerability to Extreme Heat in Los Angeles

### The Challenge

In Los Angeles (LA), extreme heat days (95°F+) are becoming more frequent and severe, increasing the likelihood of heat-related illnesses and deaths if no measures are taken (County of LA, 2021). Heat-related risks disproportionately affect low-income communities of color and are especially acute for outdoor workers, transit-dependent individuals, renters, unhoused people, and pedestrians — many of whom cannot avoid prolonged exposure to outdoor heat.

The City and County have done more heat planning than many other jurisdictions, though much more is needed to fundamentally transform shade in our outdoor built environment. Right now, the regulatory frameworks for built shade infrastructure are both complex and underdeveloped. Even well-intentioned plans are difficult to implement and require significant lead time. Without faster, more coordinated action, LA may fail to create the shade infrastructure needed to protect communities from worsening heat.



Photo from Drew Thomas, "Umbrella," licensed under CC BY-NC-SA 2.0.

# The Research

This brief distills key findings and recommendations from *Reducing Outdoor Vulnerability to Extreme Heat in Los Angeles*, a report by the Emmett Institute on Climate Change and the Environment at the UCLA School of Law. The report evaluates ways for the City and County of LA to strengthen their responses to extreme heat through built shade solutions (e.g., playground sails, bus shelters). ShadeLA — which is committed to increasing and preserving both natural and built shade — elevates research on built shade to complement our [policy brief](#) on tree-planting barriers and opportunities for permitting reform in the City of LA.

## Key Findings

### 1 LA City and County Regulations Constrain the Deployment of Shade Structures

#### LA City

- The City’s Municipal Code does not directly address how to permit street-level shade structures. However, it does provide guidance and standard requirements for comparable types of street infrastructure:
  - If shade structures were treated like **benches or canopies**, each structure would require a revocable (“R”) permit that grants conditional encroachment of the public right-of-way by private parties per Municipal Code § 62.61(b). “R” permits require approval from abutting property owners and insurance, making this a relatively stricter permitting pathway.
  - Treating shade structures like **bike racks** would involve less red tape, though each structure would require approval from the Department of Transportation and typically need additional construction permits from the Board of Public Works and/or Bureau of Engineering.
  - If the City recognized shade structures as “**public benefit projects**” under Section 14.00 of the City’s Municipal Code — like community centers and parks already are — shade structures could be installed in any zone unless specifically restricted. There is a strong case for categorizing shade structures as public benefit projects.
- LA City’s **anti-loitering policies** further undermine the City’s efforts to create shade that deliberately draws people into public spaces to shelter and protect them from heat.
- By contrast, the City’s **pedestrian-friendly policies** support efforts to integrate shade into the built environment. Zoning tools like Pedestrian Oriented Districts and Community Overlay Districts can enhance pedestrian thermal comfort and safety from extreme heat, while the Al Fresco program — which began as temporary outdoor dining zoning relief — demonstrates a potential model for streamlining legal requirements into permanent policy.

## Key Findings (continued)

### LA County

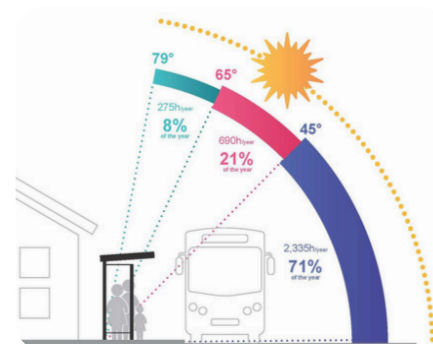
- In LA County, especially in unincorporated parts of the County, the permitting requirements for shade structures are not communicated as clearly as they could be.
  - LA County Building Code § 106.3(1) states that **smaller shade structures** — defined as not exceeding 120 square feet in gross floor area, 12 feet in height, and a 24-inch roof projection — are exempt from obtaining building permits.
  - The County similarly exempts “**canopies and awnings**” on private property from building permit requirements per LA County Building Code § 106.3(11).
  - However, any shade structure extending into the public right-of-way or on sidewalks may also require a **road encroachment permit** through LA County Department of Public Works and must meet several visibility, road safety, and ADA compliance requirements. The County is less clear than the City about which structures constitute obstructions to visibility.
  - The County’s Public Works website does not include shade structures on a list of examples of road encroachments requiring a permit, nor does it provide a webpage outlining the approval process for shade structure permits (as it does for all examples on the list).



Canopies and awnings that extend into the public right-of-way may require a road encroachment permit. Original photo by Monica Nouwens for [Places Journal](#).

## 2 Design Principles for Shade Structures Should Prioritize Heat Safety, Accessibility, and Optimal Sun Protection.

- Shade structures that absorb and re-radiate heat can unintentionally increase ambient temperatures. Materials should be selected to minimize heat gain and improve cooling performance.
- People do not typically alter their routes or routines to seek shade. Shade structures should be placed exactly where heat-exposed people are, such as transit stops, schools, and parking lots (Derakhshan et al., 2023).
- In LA, the most intense sunlight comes from the south and west. Shade structures that are not oriented correctly can fail to protect users. For instance, transit shelters on the north side of east–west streets may cast shade behind them instead of where people are waiting.



Some transit shelters in LA shade users just 8% of sunny days due to sun elevation patterns. Image courtesy of JCDecaux.

# Recommendations

## 1 Clarify Permitting Requirements and Strengthen Land Use Policies to Support Street-Level Shade Structure Deployment

Actor	Recommendation	Benefit
LA City	Clarify the steps and authorizations required under the Municipal Code for installing street-level shade structures, with the goal of minimizing red tape. (Consider, e.g., defining shade structures as “public benefit projects” and clarifying that anti-loitering policies do not apply to them).	Removes legal uncertainty and streamlines approvals to speed shade deployment in the public right-of-way.
LA City	Adopt a development impact fee requiring new construction and major renovations to provide on-site shade or pay an in-lieu fee to support City-funded local heat resilience measures.	Creates a dedicated funding stream for the City to build shade structures and incentivizes developers to create shade themselves.
LA City	Update/create Community Design Overlays with shade/thermal comfort design standards for development projects and parking areas.	Uses the City’s overlay power to craft neighborhood-specific standards for context-sensitive, durable shade improvements.
LA County	Set clear visibility/line-of-sight standards for shade structures (i.e., define what constitutes an impermissible obstruction to visibility by adopting the City’s definition of “visibility triangle” or the City’s AI Fresco program’s 15ft setback requirement).	Establishes predictable design standards to improve compliance and reduce permit denials/requests for revisions.
LA County	Amend the County code to exempt certain non-obstructing canopies from road encroachment permit requirements, and expand building and road encroachment permit exemptions for modest shade structures.	Reduces permitting requirements for low-risk shade structures, accelerating deployment and lowering costs.
LA County	Add shade structures to County Public Works’ website as a road encroachment example and publish a clear approval pathway listing all requirements.	Publicizes a transparent, predictable permitting process that reduces applicant errors and speeds the permit approval process.
Both	Require or incentivize the construction of shade structures alongside new buildings, substantial additions, and new/expanded surface parking, similar to existing tree/shade coverage requirements.	Integrates outdoor heat mitigation into routine development, gradually increasing shade coverage.

## Recommendations (continued)

Both	In coordination with the State, promote parking lot shade structures (including solar canopies) with local incentives, to align with state incentives (e.g., SB 49 (2023)).	Mitigates large heat-island areas and adds distributed clean energy and grid benefits.
Both	Incentivize or require shade and outdoor heat-resilience measures on private property (e.g., shaded courtyards, sidewalk awnings, shade/solar canopies in parking lots, cool/green roofs and surfaces).	Expands shade network beyond the public right-of-way.

## 2 Leverage Existing Programs in New Ways to Expand Shade in Targeted Outdoor Spaces

Actor	Recommendation	Benefit
LA City	Use Pedestrian Oriented Districts to encourage/require shade interventions on façades, sidewalks, and parking areas.	Targets shade to high-use corridors and leverages the City's overlay power to supersede barriers.
LA City	Integrate heat-resilience measures and incentives for shade structures into the Transit Oriented Communities program.	Aligns housing and transit goals with outdoor heat protection and targets shade where foot traffic is highest.
LA City	Direct StreetsLA to work with City Council districts and bus shelter manufacturers to leverage the Sidewalk and Transit Amenities Program to prioritize equitable, heat-focused placement of bus shelters and accelerate deployment by exempting/streamlining permit requirements.	Builds better-sited bus shelters where riders face the highest heat, with a faster rollout and more community acceptance.
LA County	Coordinate with the California Strategic Growth Council to maximize Affordable Housing and Sustainable Communities funding for shade, clarify qualifying shade measures, provide model technical justifications, and expand technical assistance for applicants.	Makes shade projects more competitive for state funds from the Greenhouse Gas Reduction Fund and scales investments in vulnerable areas.
LA County	Develop pilot shade structure-building programs in strategically chosen Community Standards Districts (CSD).	Enables pilot programs in high-priority areas using existing CSD designations.

## Recommendations (continued)

Both	Direct StreetsLA and County Counsel to work with manufacturers to streamline transit shelter installation by promoting standardized modular “kit-of-parts” designs and providing clear ADA guidance on siting and design.	Reduces design/installation time and promotes uniform ADA compliance across variable streetscapes.
Both	Direct the departments serving as CEQA lead agencies to use CEQA more strategically to assess and mitigate outdoor heat exposure.	Helps ensure large projects do not worsen outdoor heat exposure by focusing attention on the issue during environmental review.
Both	Reframe bus shelters as public amenities, and publish unified departmental guidance and process maps for bus shelters across the public works, engineering, and planning departments.	Reduces administrative friction, speeds approvals, educates those seeking to build bus shelters, and improves interagency coordination.



## Grow and Invest Public Dollars in Heat Interventions

Actor	Recommendation	Benefit
Both	Establish Climate Resilience Districts as authorized by SB 852 (2022) — a type of Enhanced Infrastructure Financing District — to fund heat resilience projects in high-priority areas.	Secures long-term, locally-controlled funding via tax increment financing.
Both	Pursue State general obligation bond funding dedicated to heat resilience measures, including shade structures, parks, and transit shelters.	Unlocks large-scale capital for shade and cooling, and complements local funds for services and outreach.
Both	Coordinate with the California Department of Insurance (CDI) to explore parametric insurance for extreme heat response costs, and develop a pilot program with CDI and City and County risk managers.	Ensures swift, flexible payouts that reduce fiscal shocks and free local dollars for proactive shade investments.

For more details on these findings and recommendations, see the full report [Reducing Outdoor Vulnerability to Extreme Heat in Los Angeles.](#)

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## Disclaimer

Any opinions, findings, and conclusions expressed herein are those of the authors and do not necessarily reflect the views of the University of California or the University of Southern California.

## About ShadeLA

ShadeLA is a people-powered campaign to cool Los Angeles, co-organized by USC Dornsife Public Exchange and UCLA Luskin Center for Innovation, and with participation by the City of Los Angeles, County of Los Angeles Chief Sustainability Office, L.A. Metro, Southern California Association of Governments, the Los Angeles Organizing Committee for the 2028 Olympic and Paralympic Games (LA28), and 20+ nonprofit, design, and other impact partners. The campaign combines policy, planning, design, and public engagement to bring shade to the places that need it most as a legacy of major sporting events like the 2026 FIFA World Cup, 2027 Super Bowl, and the 2028 Olympic and Paralympic Games. ShadeLA aims to reimagine our public spaces — not just for the global spotlight, but for the Angelenos who call LA home.

For more information, please visit our website [shade-la.com](https://shade-la.com) or contact us at [shadela@usc.edu](mailto:shadela@usc.edu).



## Research Methodology

This policy brief is informed by *Reducing Outdoor Vulnerability to Extreme Heat in Los Angeles*, authored by Cara Horowitz, Elizabeth Kent, Heather Dadashi, and Brennon Mendez of the Emmett Institute on Climate Change and the Environment at UCLA School of Law. The authors combined a literature review of extreme heat in LA with case studies of the City and County's legal frameworks, as well as land use and zoning regulations, to identify solutions that address the regulatory barriers to deploying built shade. This brief was edited by Mia Yancich, Marianna Babboni, Edith de Guzman, and Colleen Callahan.

## References

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