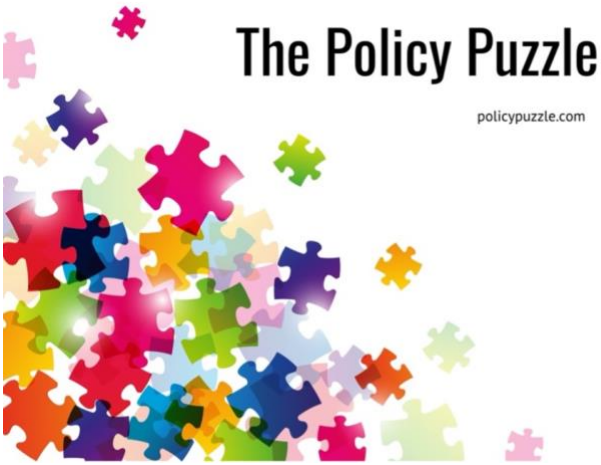

Your Partner in Clear, Impactful Policy Analysis

Trees as Public Health and Climate Resilience Infrastructure

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Key Takeaway

The City of Bakersfield should adopt the City of Fresno's Urban Forest Management Plan.

Problem Statement

The City of Bakersfield's approach to managing urban trees over the last decades has resulted in a significant loss of trees, in parks and along streets. The Tree Plan [1] outlines visions to improve tree management, leading to an increase in tree canopy coverage over time. To accomplish this the City of Bakersfield needs to shift its core approach to tree canopy. Trees should be viewed not just as landscaping or amenities, but as vital public health and climate resilience resources. Trees help prevent illness, cool buildings and streets, lessen the effects of climate change, and clean the air.

Evidence Base

Decades of research show that trees reduce stress hormones, strengthen immune function, and improve cardiovascular health [2, 3, 4]. In public health terms, trees are not amenities; they are preventive health infrastructure. The City of Bakersfield experiences some of the highest chronic disease burdens in California's urban areas, driven by elevated rates of asthma, diabetes, heart disease, and obesity [5,6]. According to the CDC PLACES dataset [7], Bakersfield's adult prevalence of diabetes, hypertension, COPD, and obesity all exceed state averages, and its asthma rates are among the highest of any major California city. The California Health Interview Survey [8] similarly shows that Bakersfield residents report higher levels of poor or fair health and chronic disease related limitations than statewide urban benchmarks. Together, these indicators place Bakersfield among the least healthy large cities in California, mirroring the broader patterns seen across Kern County.

A 2025 Urban Sustainability study [9] shows strong causal evidence. Researchers used high-accuracy air-temperature sensors during a heatwave. They found that the tree canopy explains 67% of the air temperature variation in a city. Increasing tree canopy by 10% to 30% lowers air temperatures by 0.8–1.5°C. Bakersfield mirrors these conditions: low tree canopy, high impervious surfaces, and extreme summer heat. Sparse tree canopy drives localized heat islands. Shade and vegetation lower both surface and air temperatures [10]. Seen through the lens of health determinants, more tree canopy is a preventive health strategy.

Trees function as critical green infrastructure by simultaneously capturing atmospheric carbon and improving local water retention. Peer reviewed physiological studies show that trees actively sequester carbon in both biomass and soils, contributing to measurable reductions in atmospheric CO_2 and stabilizing the broader carbon cycle [11]. Urban ecology research further demonstrates that trees are among the most efficient natural carbon sinks available to cities, with species specific differences in biomass and soil carbon storage that can be strategically leveraged in urban planning [12]. In addition to carbon capture, trees regulate hydrologic processes by enhancing infiltration, moderating evaporative cooling, and improving water use efficiency during climate stress, thereby strengthening local water retention and reducing runoff burdens on municipal systems [11]. Together, this evidence positions urban tree canopy as a dual benefit climate-resilience. Urban tree canopy boosts air quality by filtering particulate matter, absorbing gas pollutants, and cutting ground-level ozone. Large-scale U.S. Forest Service models show urban trees remove significant amounts of particulate matter, nitrogen dioxide, sulfur dioxide, and carbon monoxide through dry deposition. The greatest health benefits occur in densely populated areas with high pollution [13]. Field studies confirm that tree-lined streets and parks lower particulate and ultrafine particle levels by catching pollutants on leaves [14]. Research shows that more canopy results in lower air temperatures, which reduces ozone formation. This is vital in hot, inland areas like California's Central Valley [15]. Overall, expanding tree canopy is a proven way to improve air quality and reduce pollution-related health risks.

State-Level Leverage

State-level leverage is a city's ability to advance its own goals by aligning with statewide priorities, frameworks (such as state-created guidelines or best practice models), or funding (including competitive state grants). State policy creates supportive conditions, such as strategic plans (overarching state government plans), technical help (expert advice or resources), or grants (financial awards for projects). Local governments can use these to speed up or legitimize local action, even when there is no mandate.

California's passage of AB 2251 (2022) [16] established the state's first Urban Forestry Strategic Plan. This signals a commitment to expanding tree canopy cover, reducing extreme heat, and improving public health in urban communities. AB 2251 is not a mandate, but a strategic opportunity. The plan directs state agencies [17] to prioritize tree planting and ongoing maintenance in neighborhoods with documented tree canopy deficits (an equity issue). This aligns directly with Bakersfield's most heat vulnerable census tracts. By using this framework, Bakersfield can position itself to secure state funding, technical assistance, and

cross agency partnerships to accelerate local canopy expansion. In effect, AB 2251 provides a ready-made policy scaffold that supports coordinated city action and aligns local investments with California's climate resilience and equity goals.

Do Not Reinvent the Wheel

Cities like Fresno and Sacramento already treat trees as public health and climate resilience infrastructure. Statewide policies, such as AB 2251 and the California Urban Forestry Strategic Plan, reinforce these orientations. For Bakersfield, the best path is to transfer policy: study and adapt Fresno and Sacramento's governance models, canopy targets, and public health framing. Instead of starting from scratch, Bakersfield can accelerate progress by using proven approaches tailored to local needs. See the appended table for a side-by-side comparison of Fresno's and Bakersfield's core tree orientations.

This shift reflects a statewide need to align urban forestry with public health and climate resilience. As such, the issue suits the League of California Cities' policy agenda. The League routinely convenes cities to address shared challenges. Elevating urban forestry as a public-health infrastructure priority would help ensure that Bakersfield's transition is supported by statewide learning, technical assistance, and coordinated municipal action.

Recommended Action

Do This Now

1. Amend the General Plan and Master Plan to redefine trees as public health and climate resilience infrastructure.

    Set a citywide canopy target. Recognize trees as heat-mitigation and air-quality assets. Integrate efforts with the Hazard Mitigation Plan. Prioritize low-canopy, high-vulnerability census tracts (equity). This foundational shift is what Fresno and Sacramento have already made. Without it, every downstream policy remains fragmented.

2. Move urban forestry out of Parks & Recreation and into a cross departmental infrastructure framework.

    Bakersfield must create an Urban Forestry Division or appoint an Urban Forest Manager within Public Works, Sustainability, or a cross-departmental office, treating urban forestry as essential infrastructure. Parks & Rec manages amenities; Public Works manages infrastructure. Urban forestry must be

prioritized as infrastructure now.

3. Adopt a Fresno/Sacramento style Urban Forest Management Plan.
This is where policy transfer becomes distinct. Seize these key components: tree inventory and canopy analysis, species diversification and drought resilience standards, maintenance cycles, risk management protocols, equity-focused planting priorities, and health metrics tied to expanded tree canopy, and proactively implement them to achieve meaningful impact.

4. Update the Tree Ordinance to match the new policy orientation.
Replace the current landscaping-oriented ordinance with one that:

- Protects mature trees as infrastructure assets
- Requires replacement ratios (e.g., 2:1 or 3:1)
- Establishes planting and maintenance standards for developers
- Creates penalties for unauthorized removal
- Requires tree impact assessments for major projects

5. Integrate canopy expansion into public health and climate programs.
Act now and coordinate with Public Health and Sustainability leaders to develop impactful joint strategies for tree-related health initiatives:

- Heat illness prevention zones
- Air quality mitigation corridors
- School based shade and asthma reduction initiatives
- Cooling center strategies tied to canopy expansion

6. Leverage state frameworks and funding (AB 2251, CAL FIRE, CNRA).
Move quickly to align new city policies with the state plan, maximizing Bakersfield's eligibility for major funding:

- Urban & Community Forestry grants
- Extreme heat resilience funding
- Air quality mitigation funds
- Drought resilient landscaping programs

7. Bring the issue to the League of California Cities.
Lead vigorously by sponsoring a League of California Cities resolution now to establish urban forestry as critical public health infrastructure statewide:

- Recognize urban forestry as public health infrastructure.
- Encourage statewide canopy targets.
- Promote cross city learning and policy transfer.
- Support funding for disadvantaged communities

8. Launch a public facing Urban Canopy Initiative.
Create a branded initiative (e.g., “Shade Bakersfield”) that:

- Communicates the new policy orientation
- Engages neighborhoods in planting and stewardship
- Partners with schools, hospitals, and nonprofits
- Builds public legitimacy for long term investment

Author’s Note

The impetus for this policy brief comes from the dedicated local advocates working to improve tree maintenance and expand Bakersfield’s tree canopy. Their stories, documentation, and long-standing commitment to this issue shaped the questions I asked and the direction of this analysis. I am grateful for the opportunity to learn from their work and for the inspiration they provided.

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Side-by-side Comparison of Orientation Toward Trees

Dimension	City of Fresno	City of Bakersfield	Policy Concept
Core Orientation Toward Trees	Trees as public health and climate resilience infrastructure	Trees as landscaping and amenity assets	Policy Orientation or Policy Paradigm
Primary Policy Frame	Heat mitigation, air quality, equity, environmental justice	Beautification, maintenance, park aesthetics	Policy Framing
Location in City Government	Cross-departmental: Planning, Public Works, Sustainability, Public Health	Primarily Parks & Recreation; limited planning integration	Governance Model
Urban Forest Strategy	Formal Urban Forest Master Plan with canopy targets	No comprehensive urban forest plan; scattered references in landscaping standards; Relegated to the Parks & Recreation Department's Master Plan	Strategic vs. Operational Governance
Tree Canopy Goals	Explicit canopy targets tied to health and equity zones	No citywide canopy goals: tree planting is project-based	Goal-Setting vs. Compliance Orientation
Use of Data & Mapping	Heat-vulnerability mapping, CalEnviroScreen, neighborhood-level canopy analysis	Limited or no public health–oriented mapping	Evidence-Based Policymaking
Public Health Integration	Trees linked to asthma reduction, heat illness prevention, walkability	Public health rarely mentioned in tree-related documents	Cross-Sector Integration
Funding Approach	Actively pursues grants (CAL FIRE, Transformative Climate Communities, Urban Greening)	Limited pursuit of urban forestry grants; relies on general fund and development fees	Policy Capacity & Resource Mobilization
Community Engagement	Partnerships with nonprofits, neighborhood groups, environmental justice coalitions	Engagement mostly through park planning processes	Participatory Governance
Long-Term Vision	Urban forest as climate adaptation infrastructure	Trees as amenities maintained for aesthetics	Institutional Visioning

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