

Public School Climate Resilience

PIVOT Think Tank

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Environmental Policy

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Issue Overview

Although Modesto City Schools (MCS) have taken significant steps toward sustainability, such as installing new solar panel canopies at every single campus to promote renewable energy, building Solar Outdoor Learning Environments (SOLEs), and converting a portion of the diesel bus fleet to electric, these measures do not fully address the district's vulnerability to climate hazards. The Central Valley experiences some of the highest rates of asthma largely due to the poor air quality and wildfire smoke. These conditions, combined with increasingly frequent extreme heat days and heavy rainfall, are disrupting student learning, increasing absences, and putting additional strain on school facilities.

The distribution of climate-resilient infrastructure is uneven across MCS's 34 campuses.² While some schools benefit from renewable energy and shaded outdoor spaces, others lack adequate indoor air filtration, stormwater management systems, and shaded areas for outdoor activities.³ Older facilities in particular are more susceptible to overheating and poor air quality during wildfire season. The lack of a districtwide climate adaptation standard means that these disparities persist, leaving certain student populations more exposed to environmental risks.

These gaps come at a time when Modesto's urban heat island effect is intensifying, disproportionately impacting neighborhoods with fewer trees and more pavement.⁴ Flood-prone schools face additional challenges, as outdated runoff systems can lead to localized flooding and campus closures during heavy storms. Although the June 2025 MCS Sustainability Plan outlines ambitious emissions reduction goals, it places less emphasis on adaptation measures that would protect students and staff from immediate climate threats.⁵ Without a comprehensive and equity-focused resilience strategy, the district remains vulnerable to increasingly severe and frequent climate impacts.

Modesto faces significant climate-related challenges, including rising temperatures, air quality degradation, and water scarcity. This city's large amount of emission stems from transportation, agriculture, and energy use, contributing to local and regional environmental stress. Vulnerable populations - particularly low-income residents, the elderly, and individuals with respiratory conditions - are disproportionately affected by these climate impacts, facing heightened health risks and economic burdens.

A clear understanding of stakeholders highlights both the sources of the problem and those working toward solutions:

- **Most Affected:** Residents of Modesto, especially vulnerable communities, who experience the direct health and economic consequences of climate change.
- **Contributors to the Problem:** Local industries, including agriculture and manufacturing, as well as transportation emissions and energy consumption patterns.

- **Active Solvers:** Policymakers and city planners can implement regulations, incentives, and urban planning strategies. Environmental groups and local nonprofits contribute through advocacy, education, and community-based programs.

By mapping these stakeholders, we can identify leverage points for effective climate policy and prioritize interventions that reduce harm while engaging those capable of driving meaningful change.

Current Policy Landscape

District commitments (in place):

- *MCS 2025–26 Sustainability Plan* emphasizes sustainability education, culture, and emissions reductions, but places less emphasis on climate adaptation measures like heat, smoke, and flood resilience.
- Renewable energy projects include solar carports at high schools which offset 70–85% of electricity load and Solar Outdoor Learning Environments (SOLEs), which also provide shaded outdoor space.
- Fleet electrification is underway: as of October 2023, 30 electric school buses are in service, funded through state and federal incentive programs.

State regulatory framework & guidance:

- **California Title 24 / Energy Code** requires ventilation and filtration standards, supporting indoor air quality improvements during wildfire smoke and heat waves.
- **Collaborative for High Performance Schools (CHPS)** standards encourage resilient, low-emission school design.
- **Extreme Heat guidance** from the California Department of Public Health recommends cool roofs, shade trees, and campus retrofits.

State funding & technical assistance:

- **CalSHAPE (AB 841)** provides grants for HVAC upgrades and air-quality improvements.
- **Urban & Community Forestry grants (CAL FIRE)** support shade tree planting, especially in disadvantaged neighborhoods.
- **Cal OES / FEMA Hazard Mitigation Assistance** programs help districts pursue stormwater, microgrid, and heat resilience projects.

Federal programs:

- The **Environmental Protection Agency (EPA) Clean School Bus Program** is funding school districts statewide, aligned with California’s mandate for all new school buses to be zero-emission by 2035.

- **FEMA Building Resilient Infrastructure and Communities (BRIC)** and **Flood Mitigation Assistance (FMA)** programs remain key avenues for flood and hazard adaptation, though BRIC funding has faced litigation-related uncertainty.

Local planning context:

- The *Modesto 2050 Climate Vulnerability Assessment* identifies extreme heat, wildfire smoke, and flood exposure as key risks.
- The *Modesto General Plan update (to 2050)* provides opportunities to align school resilience upgrades with citywide stormwater, tree canopy, and transportation investments.

Bottom line:

MCS is making progress on mitigation (renewables, fleet electrification), but adaptation gaps remain. The near-term opportunity is to establish a districtwide climate resilience standard such as covering IAQ, heat management, stormwater, and campus shade while leveraging state (CalSHAPE, CAL FIRE), federal (EPA CSB, FEMA), and local funding streams to reduce inequities between campuses.

Problem Analysis

While Modesto City Schools have made significant progress in sustainability, existing initiatives fall short in addressing climate resilience. Current policies primarily target emissions reductions but do not adequately protect students and facilities from the immediate impacts of extreme heat, wildfire smoke, and flooding. This gap leaves vulnerable students particularly those in older, underfunded campuses which are disproportionately exposed to health risks and learning disruptions.

A broader issue is the gradual approach across state and federal programs. Funding and technical assistance exist, but they are fragmented across energy, transportation, forestry, and hazard mitigation programs. For example, California's CalSHAPE program supports HVAC upgrades but does not cover long-term resilience measures like cool roofs or shaded outdoor spaces. Similarly, EPA's Clean School Bus Program funds electrification but does not address the concurrent need for clean indoor air during wildfire events. This compartmentalized approach makes it difficult for districts to develop comprehensive, districtwide resilience standards.

Regional disparities further complicate the issue. Districts in the Bay Area and coastal regions benefit from stronger local regulations and higher property tax bases, enabling them to pursue advanced climate-adaptation projects. In contrast, Central Valley districts like MCS, with higher concentrations of disadvantaged communities, face greater exposure to climate hazards but fewer local resources to adapt. Without state or federal mandates requiring climate resilience in

schools, the burden falls unevenly on local districts to piece together funding from multiple, competitive programs.

In short, while California has ambitious climate legislation, including Title 24 energy codes, statewide emissions targets, and transportation electrification mandates, there is no statewide standard for K–12 climate adaptation. This leaves school districts like MCS navigating a patchwork of programs that do not fully address the interconnected risks of heat, smoke, and flooding; these are problems expected to worsen in the Central Valley over the coming decades.

Policy Recommendations

1. Adopt a Districtwide Climate Resilience Standard

Establish uniform adaptation requirements across all MCS campuses to address disparities in infrastructure and exposure.

Key components should include:

- Heat resilience measures: cool roofs, reflective surfaces, and shaded outdoor areas. Modesto can model OUSD’s *Living Schoolyards Initiative*, which converts asphalt-covered spaces into green, shaded outdoor classrooms to reduce heat exposure while improving learning environments.
- Stormwater management: green infrastructure such as bioswales and permeable pavement to prevent localized flooding, similar to approaches used in OUSD and other Bay Area districts.
- Indoor air quality standards: improved HVAC systems with high-efficiency filtration and regular air-quality monitoring, aligned with OUSD’s MERV-13 filter standards and clean-air practices during wildfire events.

This standard would serve as the foundation for future facility upgrades, ensuring that all schools meet minimum resilience thresholds aligned with state and federal best practices.

2. Expand Indoor Air Quality and Health Protections

Prioritize student and staff health through targeted air-quality interventions, particularly in older facilities.

Actions should include:

- Retrofitting HVAC systems to meet or exceed MERV-13 filtration standards, drawing on OUSD’s healthy school indoor air policies.

- Establishing “clean air rooms” on every campus for use during wildfire smoke events, inspired by SUSD’s operational protocols for extreme heat and poor air quality.
- Integrating air-quality monitoring into maintenance protocols to track and respond to pollution spikes.

These improvements would align MCS facilities with California Title 24 standards while directly mitigating asthma and respiratory risks among students.

3. Integrate Climate Resilience and Sustainability into Curriculum

Leverage MCS’s strong sustainability foundation to embed climate literacy and adaptation awareness across grade levels.

Curriculum enhancements could include:

- Hands-on projects using the district’s Solar Outdoor Learning Environments (SOLEs) to teach about renewable energy and heat mitigation.
- Partnerships with local universities, environmental nonprofits, or regional green initiatives (e.g., urban forestry or clean-air programs inspired by OUSD and SUSD) for student research and community engagement.
- Development of service-learning opportunities focused on tree planting, waste reduction, and climate monitoring, following OUSD’s student-led green infrastructure programs.

This approach would empower students as active participants in resilience-building, connecting classroom learning with real-world sustainability challenges.

4. Establish a Centralized Climate Funding and Coordination Office

Create a dedicated MCS Climate Resilience and Funding Office to coordinate projects and secure external funding from federal, state, and local programs.

Core functions should include:

- Aligning district needs with available programs such as EPA Clean School Bus, FEMA BRIC, CalSHAPE, and CAL FIRE Urban Forestry Grants, while leveraging SUSD’s model for clean-air and zero-emission transportation initiatives.
- Managing competitive grant applications and ensuring equitable distribution of funds across campuses.
- Tracking implementation progress and reporting outcomes to the school board and community.

This office would streamline access to fragmented funding streams, enabling the district to move from reactive project-based upgrades to proactive, systemwide climate planning while drawing on proven strategies from nearby districts.

Impact Assessment / Benefits

Implementing a districtwide climate resilience standard would yield measurable educational, health, and economic benefits. Improved air quality and heat mitigation would directly reduce student absence caused by asthma. Simultaneously protecting teachers and staff from wildfire smoke events. These changes enhance learning outcomes and student wellbeing by ensuring a safe, and consistent classroom environment year around. Infrastructure upgrades - such as shaded outdoor areas and stormwater management systems - would reduce maintenance costs over time by preventing heat and water damage.

Beyond facilities, integrating climate resilience into curriculum empowers students to become sustainability leaders and fosters community engagement, aligning with state goals for environmental literacy. By coordinating funding through a dedicated Climate Resilience Office, MCS could maximize state and federal grants while ensuring that benefits are distributed equitably across all campuses, particularly those in disadvantaged neighborhoods. Collectively, these measures strengthen educational continuity, community trust, and Modesto's capacity to adapt to long-term climate risks.

Conclusion

Modesto City Schools stand at a pivotal point in their sustainability journey. The district has made major strides in mitigation - through renewable energy and fleet electrification - but the next phase must focus on adaptation and resilience. Establishing a uniform climate resilience standard, strengthening indoor air quality protections, and embedding climate literacy in classrooms would not only safeguard student health and learning, but also prepare the district for decades of intensifying climate challenges.

By coordinating funding streams and aligning with state and federal programs, MCS can lead the Central Valley in building equitable, future-ready schools. Investing in resilience today ensures that Modesto's students inherit not only cleaner energy - but safer, healthier, and more sustainable learning environments.

References

1. American Lung Association. (2025). *State of the Air: Central Valley Air Quality Rankings*. Retrieved from <https://www.lung.org/research/sota>
2. California Air Resources Board. (2024). *Wildfire Smoke and Schools Guidance*. Retrieved from <https://ww2.arb.ca.gov>
3. California Department of Public Health. (2023). *Guidance for Schools on Extreme Heat*. Sacramento, CA.
4. California Energy Commission. (2022). *Title 24 Building Energy Efficiency Standards*. Sacramento, CA.
5. California Energy Commission. (2023). *CalSHAPE Program Overview*. Retrieved from <https://www.energy.ca.gov/programs-and-topics/programs/calshape>
6. California Office of Emergency Services. (2024). *Hazard Mitigation Assistance Programs*. Retrieved from <https://www.caloes.ca.gov>
7. California Office of Environmental Health Hazard Assessment. (2024). *CalEnviroScreen 4.0 Data*. Retrieved from <https://oehha.ca.gov/calenviroscreen>
8. CAL FIRE. (2024). *Urban and Community Forestry Grant Program*. Retrieved from <https://www.fire.ca.gov>
9. City of Modesto. (2024). *Climate Vulnerability Assessment for Modesto 2050 General Plan Update*. Modesto, CA.
10. Collaborative for High Performance Schools (CHPS). (2021). *CHPS Criteria for High-Performance Schools*. Sacramento, CA.
11. Federal Emergency Management Agency. (2024). *Building Resilient Infrastructure and Communities (BRIC) & Flood Mitigation Assistance (FMA)*. Washington, DC.
12. Modesto City Schools. (2025, June). *2025–2026 Sustainability Plan*. Retrieved from <https://www.mcs4kids.com>
13. Modesto City Schools. (2025, June 10). *Board Meeting Minutes*. Retrieved from <https://www.mcs4kids.com>
14. United States Environmental Protection Agency. (2024). *Clean School Bus Program*. Washington, DC.
15. Oakland Unified School District. (2025). *Sustainability and Healthy Schools Policy*.
16. Oaklandside. (2024, April 1). *Melrose Leadership Academy unveils new green schoolyard*.
17. Cool California. (2024). *Getting Stockton to Zero Emissions: Clean Air for Our Community*.
18. Stockton Unified School District. (2024). *Extreme Heat Operations Guidance*.