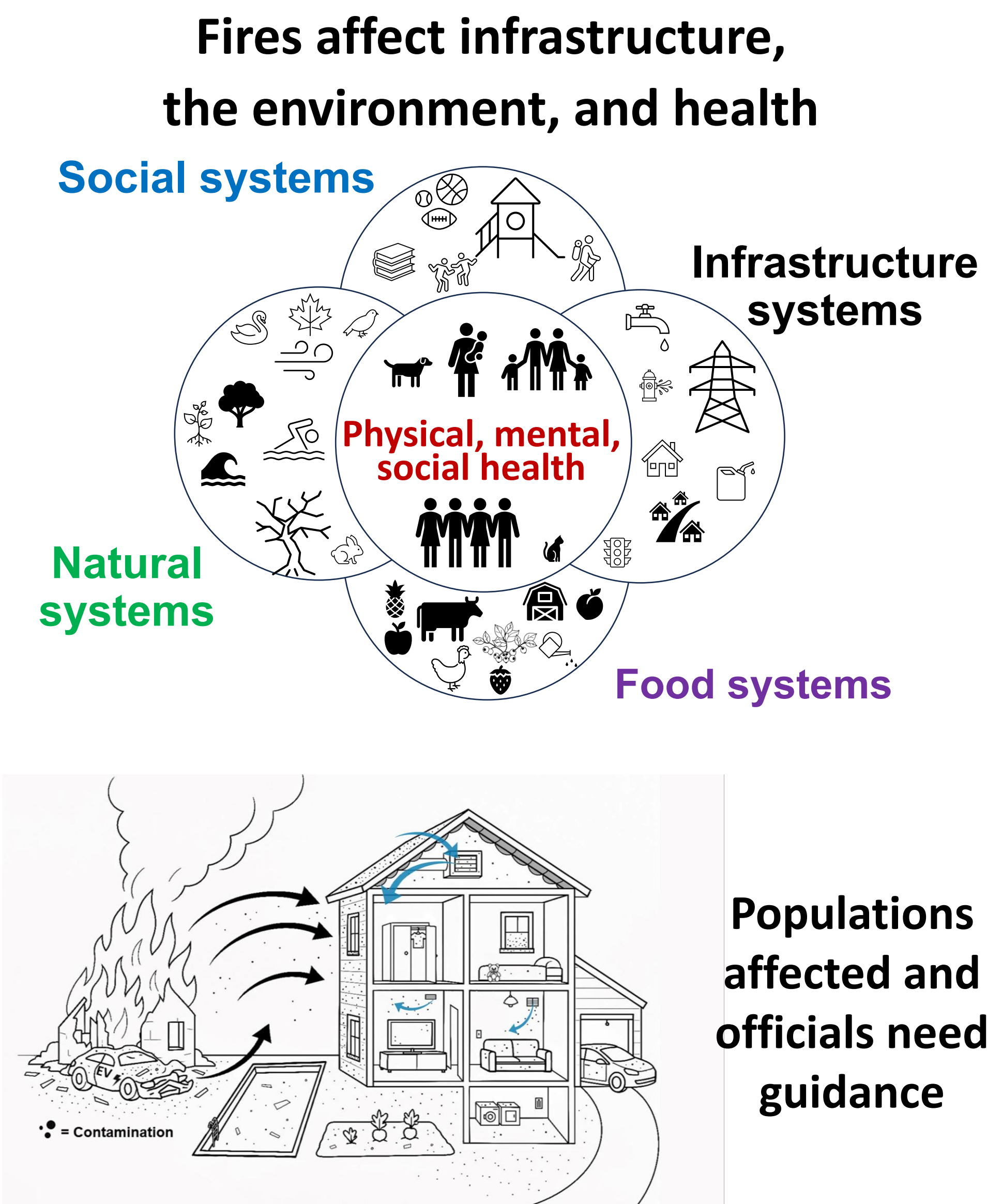


Fire Recovery Decisions: Evidence-Based Strategies for Property Restoration and More to Support Family and Business Resilience



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Background & Justification



Whelton, A.J., Bollens, E., Ferrarezzi, C. **After a Wildfire: Considerations for Building Environmental Testing.** September 2025. West Lafayette, Indiana USA. <https://doi.org/10.5703/1288284317911>

Ongoing Research

HEART

Health-based Environmental Assess. & Re-Occupancy Testing

Evidence-based practices for safely restoring homes after a fire.

100s of homes participating

REBUILD

Recovery Efforts by Uniting Individuals, Listening, & Discovery

Household experiences with evac., housing, testing, chemical exposures, insurance, & rebuilding.

1,229 households participating

ASHES

Fire Ash & Soil History Evaluation

Evidence-based practices for safely returning property soil to pre-fire condition.

Ash and 100,000+ soil sampling results across multiple states

CRIBS

Chemical Risk In Baby Product Sorption

Evidence-based guidance on handling baby products exposed to contaminated drinking water.

Designed with input from affected families

L.A. Pools

Swimming Pool Fire Recovery

Evidence-based practices for restoring fire-impacted swimming pools.

20+ households participating

MITIGATE

Mitigation of Impacts Through Innovative Guidance, Adaptation, & Technology

Evidence-based practices and technologies to reduce impacts and expedite recovery.

10+ water utilities participating

Discoveries & Impacts

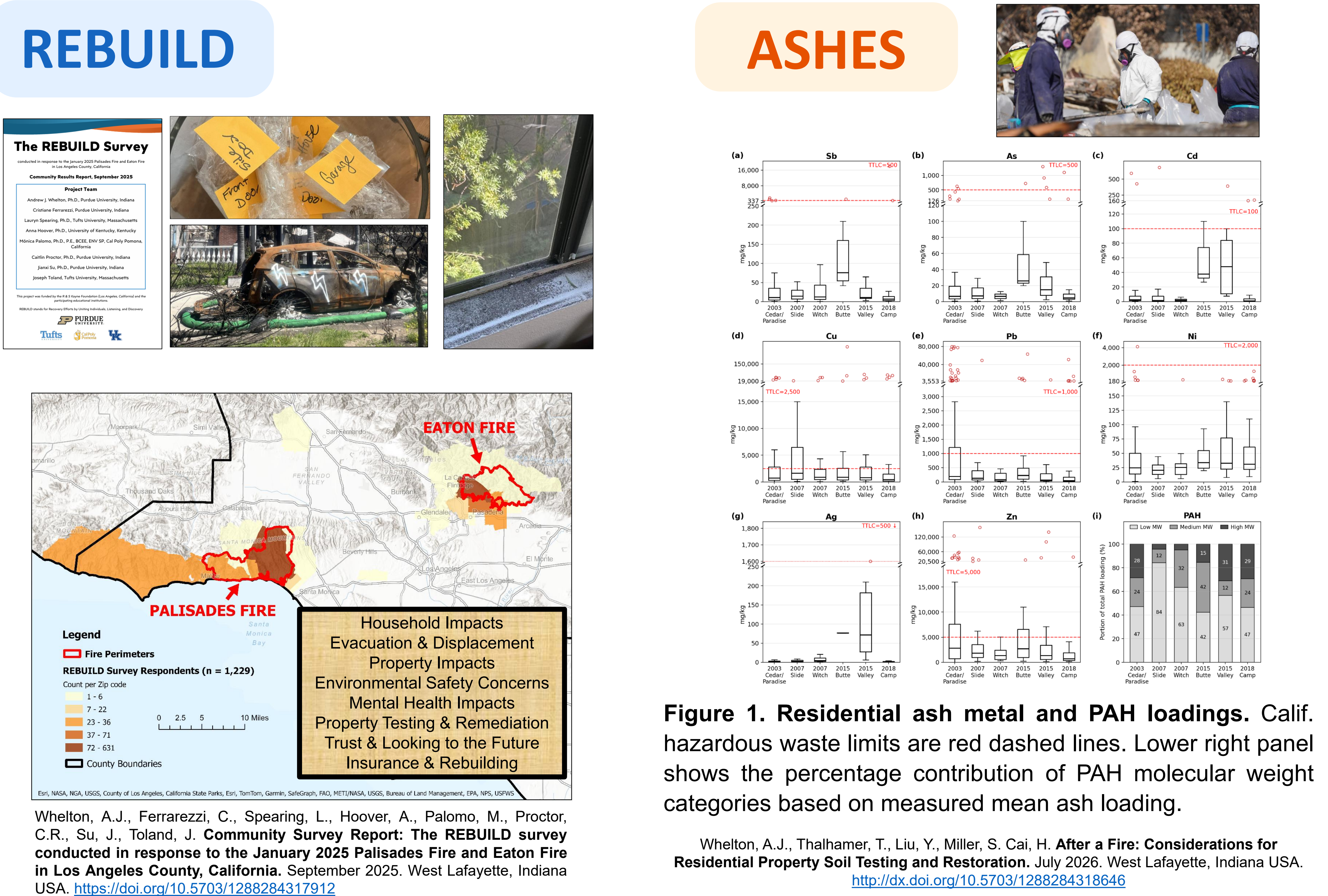


Figure 1. Residential ash metal and PAH loadings. Calif. hazardous waste limits are red dashed lines. Lower right panel shows the percentage contribution of PAH molecular weight categories based on measured mean ash loading.

Whelton, A.J., Thalhamer, T., Liu, Y., Miller, S. Cai, H. **After a Fire: Considerations for Residential Property Soil Testing and Restoration.** July 2026. West Lafayette, Indiana USA. <http://dx.doi.org/10.5703/1288284318646>

HEART

Table 1. Preliminary in-home lead, asbestos, soot, char, and ash results from the 2025 Calif. Fires

Contaminant and Statistic	Palisades Fire	Eaton Fire
Lead, µg/sqft		
Mean ± Std. Dev. / Median	3,677 ± 38,036 / 28	1,161 ± 9,215 / 38.95
Min. – Max.	1.04 to 334,450.8	0.593 to 100,000
Asbestos, structures/cm²		
Mean ± Std. Dev. / Median	81,552 ± 214,241 / 2,310	36,893 ± 100,717 / 4,767
Min. – Max.	0 to 765,000	943 to 354,000
Asbestos, fibers/cm³		
Mean ± Std. Dev. / Median	0.010 ± 0.011 / 0.007	-*
Min. – Max.	0.001 to 0.043	-*
Soot, %		
Mean ± Std. Dev. / Median	3.0 ± 6.0 / 1.5	6.6 ± 9.7 / 3
Min. – Max.	0 to 66.1	0 to 43
Char, %		
Mean ± Std. Dev. / Median	10.3 ± 10.4 / 5.2	11.4 ± 12.8 / 7
Min. – Max.	0 to 60	0.6 to 60
Ash, %		
Mean ± Std. Dev. / Median	5.1 ± 6.2 / 3	4.6 ± 5.5 / 2
Min. – Max.	0 to 44	1.5 to 31

* Asterisk indicates sample size was too small for calculation.

MITIGATE

Zavadny, N., Whelton, A.J., 2026. **Water Utilities Damaged by Wildfire: Recovery lessons, mitigation and research recommendations.** *Utilities Policy.* <https://doi.org/10.1016/j.iup.2026.102245>

The CONOPS Plan

Support firefighting
Isolate damage
Maintain pressure
Water use warnings

Personnel surge
Restore control, pressure
Repeated sampling
Laboratories

Personnel surge
Repeated sampling
Laboratories
Decon, remove, replace

Whelton, A.J., Isaacson, K., Shah, A.D. 2024. **Concept of Operations (CONOPS) Plan for Water Distribution System Testing and Recovery.** *Water Research Foundation.* Denver, CO USA. Request [here](#).

Training & Education



Inside Buildings...

Private wells...

Inside Buildings...

Environmental health basics...

Agricultural water systems...

Public health basics...

Post-fire utility and health decisions...

In-home environmental testing...

Annual Study Abroad Course:
SA 105:
Water & Infrastructure Resilience: Public Health & Extreme Events



Annual Fall Semester Course
CCE 597: Disasters & Emergencies
Science, engineering, policy, law, insurance, emergency management, social science, communications, journalism

Focused on introducing and inspiring students about the engineering, science, and policy challenges and solutions associated with disasters and emergencies. Topics will span infrastructure, the environment, public safety, and public health.

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