

Redefining Disaster Response: How GIS Powered the Fastest Wildfire Cleanup in EPA History

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Background

On January 7, 2025, devastating wildfires swept through Los Angeles County, promoting a federal disaster declaration. Under mission assignment from FEMA, the US EPA was tasked with assessing, removing, and safely disposing of hazardous materials from all affected areas. This operation marked the first phase of the largest wildfire hazardous materials cleanup in EPA history.

Weston was tasked with supporting the assessment and removal of Household Hazardous Materials (HHM) from **over 14,000 properties** within both fire perimeters. In just **29 days**, the team successfully completed HHM removal on more than **9,300 properties** and documented the remaining sites for deferral to Phase 2 Operations.

This rapid and coordinated response was made possible through the deployment of an advanced enterprise GIS framework built on Esri technology. By embedding location intelligence into every phase of the operation, we enabled faster mobilization, smarter planning, and real-time visibility across all levels of command and response.

Residential Parcels in Universe

Metric	Value	Status
Phase 1 Complete	9,201	Complete
Parcels	13,612	Total
Recon Needed	0	0 Needed
Recon Revisit Required	0	0 Required
Phase 1 Assessment	0	0 Needed
Phase 1 Revisit	0	0 Required
Access Issue	0	0 Permission Denied
Phase 2	4,411	Deferred

EV/ESS
1,065 Removed

Complete LIB
0 Pending

Totals by Day
Phase 1 and 2 by Day

Commercial Recon
0 Needed

Access Issue
0 Need Resolving

Commercial Recon
0 Revisit Required

Commercial Properties
187 Complete
305 Commercial Properties

Interactive Operational Dashboard tracking multi-area wildfire response operations in real time.

Data

One of our primary challenges was managing the immense volume of data while coordinating efforts across numerous response partners. At the height of the operation, more than **1,650 personnel** were deployed, actively collecting data. This demanded meticulous tracking and organization within a highly complex operational environment.

To meet this challenge, we developed a dynamic, GIS-powered data model that facilitated informed decision-making from field teams to command leadership. Built entirely on Esri's ArcGIS Enterprise platform, the system enabled parcel-level cleanup by supporting real-time spatial data collection, validation, and reporting.

Each task group was equipped with a custom geospatial workflow:

Hazardous Tree Assessments



QuickCapture App used by Arborist Team

Using ArcGIS QuickCapture, arborists recorded hazards in real time through a streamlined interface—capturing photos and applying standardized labels such as Dangerous Tree or Caution Tree. This approach enabled rapid photo data collection for **6,726 Trees** with precise spatial accuracy.

EV/ESS Lithium-Ion Battery Reconnaissance



Interactive Dashboard for monitoring EV/ESS field activity



Burned EV identified during field reconnaissance

Field teams used smart forms in ArcGIS Field Maps to document battery conditions and removal status. This real-time data provided enhanced visibility for Incident Command, the High Hazard Team, and field crews—supporting the recovery of **645 EVs and 420 ESSs**.

Phase I HHM Assessments



Survey123 forms used for recon activities

Survey123 forms used for HHM field assessments

Guided by built-in Standard Operating Procedures, field crews used Survey123 to complete **14,801 recon** and **12,367 HHM removal assessments across 9,388 parcels, ensuring consistent data collection by over 100 teams**. Based on field input, the system automatically generated data driven status codes —such as Recon Needed, HHM Complete, or Phase 2 Deferred. For high-risk assessments, a dedicated High Hazard form enabled targeted documentation of materials or conditions beyond the standard HHM protocols.

LiDAR Survey



Using UAS and LiDAR to identify basement structures post-wildfire

LiDAR data were analyzed to identify potential basement structures on damaged parcels. This process highlighted the analytical power GIS brings to post-disaster operations.

Together, these four diverse operational data streams were seamlessly integrated into a unified GIS platform—eliminating uncertainty, improving accuracy, and delivering the operational transparency needed to support one of the fastest large-scale EPA wildfire cleanups on record.

Solution

The ArcGIS platform enabled a fully integrated reporting and decision-support system that connected field operations with command leadership in real time. Live data feeds powered the Operations Dashboards, providing EPA and partner agencies with full visibility into cleanup progress, emerging hazards, and resource allocation.

A GIS-driven SitRep table automated daily rollups for leadership briefings—including EPA Command and the White House—while a public-facing StoryMap ensured transparency for stakeholders and local communities.



Operations Dashboard for Eaton Branch

Metric	Value	Status
Phase 1 Complete	4,852	Complete
Parcels	6,631	Total
Recon Needed	0	0 Needed
Recon Revisit Required	0	0 Required
Phase 1 Assessment	0	0 Needed
Phase 1 Revisit	0	0 Required
Access Issue	0	0 Permission Denied
Phase 2	1,779	Deferred

EV/ESS
502 Removed

Complete LIB
0 Pending

Commercial Recon
0 Needed

Access Issue
0 Need Resolving

Commercial Recon
0 Revisit Required

Commercial Properties
110 Complete
176 Commercial Properties



Operations Dashboard for Palisades Branch

Metric	Value	Status
Phase 1 Complete	4,349	Complete
Parcels	6,981	Total
Recon Needed	0	0 Needed
Recon Revisit Required	0	0 Required
Phase 1 Assessment	0	0 Needed
Phase 1 Revisit	0	0 Required
Access Issue	0	0 Permission Denied
Phase 2	2,632	Deferred

EV/ESS
563 Removed

Complete LIB
0 Pending

Commercial Recon
0 Needed

Access Issue
0 Need Resolving

Commercial Recon
0 Revisit Required

Commercial Properties
77 Complete
129 Commercial Properties

2025 Southern California Wildfire Response StoryMap





StoryMap collection for response activities



StoryMap section showing response progress over time



Interactive map for the public to check parcel cleanup status



StoryMap section showing response project metrics

Metric	Value	Status
EPA & DTSC Residential Phase 1 Complete	9,202	Complete
EPA & DTSC Residential Deferred to Phase 2	4,410	Deferred
EPA & DTSC Commercial Phase 1 Complete	187	Complete
EPA & DTSC Commercial Deferred to Phase 2	118	Deferred

Project Success

This response set a new benchmark for wildfire hazardous materials cleanup. By integrating ArcGIS tools within a data-driven operational framework, **13,612 parcels in total** were assessed and cleared in **just 29 days—a pace four to six times faster** than previous wildfire cleanups of comparable scale.

Centralizing all operational data within the ArcGIS platform ensured a seamless transition to subsequent phases, including debris removal and site restoration. By aligning with state and local agencies already operating in ArcGIS, the project enabled efficient data sharing, collaborative planning, and coordinated GIS-driven response across all partners.

This effort not only showcased the power of location intelligence in disaster response—it redefined what's possible through a fully integrated geospatial ecosystem.

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