

## **Santa Barbara Post-Disaster Recovery Mapping: Fire to Flood to Maps in 6 Months**

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The Thomas Fire burned more than 281,000 acres in Santa Barbara and Ventura Counties from early December 2017 into January 2018. Winter storms that followed caused debris flows that resulted in tragic loss of life and significant damage to infrastructure and changes to ground conditions. New hazard mapping was needed for post-disaster recovery and rebuilding in debris flow areas. Atkins and its partners supported FEMA in the development of recovery maps to inform rebuilding in the affected watersheds.

The Santa Barbara County recovery maps are hazard maps and involve the development of post-fire hydrology in HEC-HMS using burn severity data to determine increased peak flows. Hydraulic modeling was conducted using the two-dimensional capabilities of HEC-RAS with an underlying terrain reflecting the new ground conditions in which many channels are choked and structures blocked. Hydraulic model results were then used to create a variety of mapping products including the high hazard boundary, depth and water surface elevation grids, plus a dynamic online swipe map to allow stakeholders to accurately assess existing conditions hazards.

An urgent, three-month project timeline was essential to support local recovery and rebuilding. The coordination between Santa Barbara County, State and FEMA team members allowed for a successful project that encouraged mitigation actions. The challenge of explaining recovery maps in comparison with already available evacuation boundaries, debris flow risk areas and flood insurance zones was encountered. In the end the local use of the Santa Barbara County recovery maps is ensuring development is rebuilt stronger, safer, and less vulnerable in the future.