

1. PURPOSE

Following the devastating wildfires of October 2017, community interest in and support for hazard evacuation planning remains significant. This project will identify up to 24 target communities, engage residents and public safety stakeholders, develop customized resident evacuation guides and socialize evacuation procedures via full-scale drills. The project will be led by the County Department of Emergency Management.

Through this project, residents, neighborhoods, and communities will be asked to come together to help plan and validate evacuation guidance. It is hoped that this networking effort and the energy it creates will long continue into other forms of disaster preparedness and play a role in supporting the community during the response to an actual incident.

2. BACKGROUND

Many communities in unincorporated areas of Sonoma County are at risk from no-notice natural and man-made hazards that could threaten lives and property. These hazards include wildfire, tsunami, and dam failure. These communities may be challenged in conducting evacuations due to factors such as a limited number of access/egress routes, varying conditions/capacities of roads, density of population and compounding secondary hazards (ex. vegetation along roads during a wildfire).

Note, for many communities – especially those threatened by extreme wildfire – there may be no each answer for addressing challenges such as only one road in/out or unknown fire start location or direction of spread, or poor road conditions. In these areas, there may be some alternate routes or areas of safe refuge but it will be incumbent on local residents to identify when and how they should evacuate. While local government and public safety agencies will do their best to alert and warn residents, the very nature of many of these communities places a clear responsibility on residents to maintain their own situational awareness.

A key challenge will also be to ensure these efforts address the needs of individuals with access and functional needs. Many residents may be challenged by not having a vehicle in which to evacuate, having medical conditions which could limit their mobility or

3. OBJECTIVES

- A. Develop a method for identifying and organizing communities/neighborhoods for evacuation planning purposes. Utilizing GIS, create a set of standardized evacuation zones for first responders and emergency managers for use in evacuation planning and response.
- B. Develop an objective, quantitative process for identifying and classifying the risk of hazards for each evacuation zone to assist in prioritizing evacuation planning efforts.
- C. Develop a simple, standardized evacuation guide for residents that can be adopted countywide and customized for each community/neighborhood. Support the adoption of evacuation guidance by partner jurisdictions and public safety agencies.
- D. Utilize and reinforce the evacuation terminology developed by the Sonoma County Police Chiefs Association and Fire Chiefs Association.
- E. Communicate and work with target communities, residents, and associated law enforcement and fire agencies to develop, refine, and validate evacuation guidance.

- F. Coordinate with adjacent/surrounding jurisdictions and agencies for potential secondary effects of large evacuations including traffic management, evacuation assembly areas and mass care and shelter services, if needed.

4. PROJECT APPROACH

- A. Develop “evacuation zones” for communities in unincorporated areas. As possible, use objective criteria including:
 - 1) Size
 - 2) Road network
 - 3) Utilize waterways/streams as community delineators
- B. Create a unique numeric identifier for each evacuation zone.
- C. Make evacuation zone maps available to partner jurisdictions and agencies for the purposes of initial evacuation planning efforts. Consider the potential for wider and broader access following development of initial community evacuation guides.
- D. Develop an objective set of criteria to evaluate the natural and man-made hazards that could impact the ability of residents in each zone to conduct a safe and timely evacuation.
- E. Rank order each evacuation zone for challenges in evacuation.
- F. Targeting communities with high evacuation challenges, identify up to 24 communities with existing social, or other organizational structures that could be engaged to develop, refine and validate evacuation planning efforts.
- G. Conduct outreach to communities, develop initial draft evacuation guide (including maps), meet with community members to obtain feedback, refine the guide, publish/distribute, and validate with a full-scale evacuation drill.

5. EVACUATION ZONES DEVELOPMENT

6. EVACUATION ZONES RANKING

The following criteria were used in developing a cumulative evacuation challenge ranking for each evacuation zone:

A. Ladder Fuels Rank

The Ladder Fuels data layer was created by Tukman Geospatial and Pepperwood Preserve. Ladder fuels were calculated using 2013 LiDAR data and represent the density of living and dead vegetation between 1 and 4 meters above the ground. This data was downloaded from <http://sonomavegmap.org/data-downloads/>. The Ladder Fuel data was joined to the evacuation zones. Using Natural breaks (Jenk's) each zone was given a 1-5 ranking based upon the average percent of returns.

B. Estimated Population Density Rank

Using Quantile each zone was given a 0-4 ranking based upon the population density, where 0 is no estimated population. Population density was calculated by averaging the 2010 US Census Block population to each address point within the block. Then a sum of each address within an emergency zone was divided by the area of the zone.

C. Road Network Rank

Using Natural Breaks (Jenk's) each zone was given a 0-4 ranking, where 0 is no road network was within the zone. Using street length and estimated speed limits to determine flow rate. A fastest flow rate received a rank of 1 and the slowest flow rates were given a rank of 4. The slow flow rate received a higher priority due to potentially slower evacuation times.

D. Historical Wildfire Hazard

Communities that had seen wildfire in previous years were assigned a value from 1 to 3.

Cumulative Evacuation Zone Challenge Rankings were the calculated by summing the Ladder Fuels Rank, the Estimated Population Density Rank, the Road Network Rank and the Historical Wildfire Hazard Value. For each zone, a values from 1 to 13 was assigned with a higher score indicating a higher set of evacuation challenges.

7. ROLES AND RESPONSIBILITIES

Sonoma County Emergency Management

- Lead the evacuation planning project.
- Coordinate participation by all stakeholder agencies/jurisdictions.
- Serve as prime contact for community members/representatives.
- Coordinate the project scope, approach, and tools with law enforcement and fire agency chiefs.
- Develop and coordinate community engagement and evacuation drills.
- Support public information messaging related to the project.

Sheriff / Law Enforcement

- Provide input/feedback relative to target communities, evacuation planning approach, evacuation guides, community engagement, and evacuation drills.
- Participate in community engagement and evacuation drills.

Fire Agencies

- Provide input/feedback relative to target communities, evacuation planning approach, evacuation guides, community engagement, and evacuation drills.
- Participate in community engagement and evacuation drills.

County Information Systems Department (ISD)

- Support development of GIS analysis and products that support:
 - Identification/delineation of evacuation zones
 - Assessment of hazards/challenges in each zone
 - Develop cumulative assessment of evacuation challenges for each zone.
 - Develop and maintain GIS maps for evacuation zones, hazard assessments, cumulative assessment, and community-specific evacuation maps.

Transportation & Public Works

- Provide input/feedback relative to target communities, evacuation planning approach, evacuation guides, community engagement, and evacuation drills.
- Participate in community engagement and evacuation drills.

County Supervisor District Staff

- Provide input/feedback relative to target communities, evacuation planning approach, evacuation guides, community engagement, and evacuation drills.
- Assist in establishing contacts for target communities.
- Participate in community engagement and evacuation drills, as needed.

10. REFERENCES

- Sonoma County Operational Area Emergency Operations Plan. March 2014.
- CalFire *Ready, Set, Go* Public Education Program
- Sample Resident Evacuation Guide