



# Mono County

Multi-Jurisdictional Hazard Mitigation Plan (HMP)

Community Wildfire Protection Plan (CWPP)

Collaborative Planning Team Meeting— Jan 25, 2018

# Agenda

- Requirement, purpose, and process
- Present draft hazard profiles
- Present risk assessment and vulnerabilities



# What is Hazard Mitigation?

## What is Hazard Mitigation?

- Sustained actions taken to reduce or eliminate long-term risk to life and property from hazards.

## What is an HMP?

- An all-hazards look at community risk and vulnerability.
- A process to develop mitigation strategies and actions.
- A document that informs the State and FEMA about local risk and priorities for mitigation.

## What is a CWPP?

- A process involving local, state, and federal stakeholders.
- A process to develop prioritized recommendations for fuel treatment projects on federal and non-federal lands in the WUI.
- A document that influences federal agencies' fuel reduction projects under the Healthy Forests Restoration Act.

# Who is preparing the HMP?

- Joint effort between Mono County and the Town of Mammoth Lakes, led by County staff
- Funded through FEMA/ Cal OES grant
- Supported by the Hazard Mitigation Planning Team
  - Comprised of representatives from Mono County, the Town of Mammoth Lakes, state agencies, federal agencies, and interested community partners.



# Project Goals



Influence over where/ how federal agencies implement projects



Incorporate risk/ mitigation into other local plans



Inform and gain input/ support from stakeholders/ communities



Evaluate changing risks from development and climate change

# Mitigation Measures

- **Mitigation under FEMA**
  - Some measures must be 'mitigation' for FEMA to approve
  - “Action taken to reduce or eliminate long-term risk to hazards”



\*A blue box with white text indicates measure qualifies as mitigation

# What hazards are in the HMP?



Avalanche



Dam failure



Diseases  
and pests



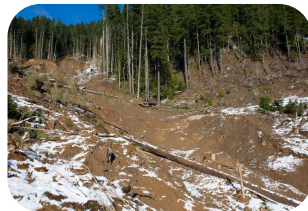
Drought



Flooding



Landslides



Volcanos



Hazardous  
materials



Severe  
winter  
weather &  
snow



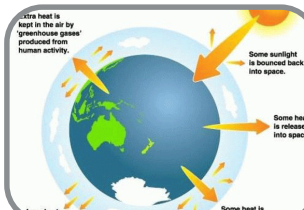
Seismic  
hazards



Wildfires



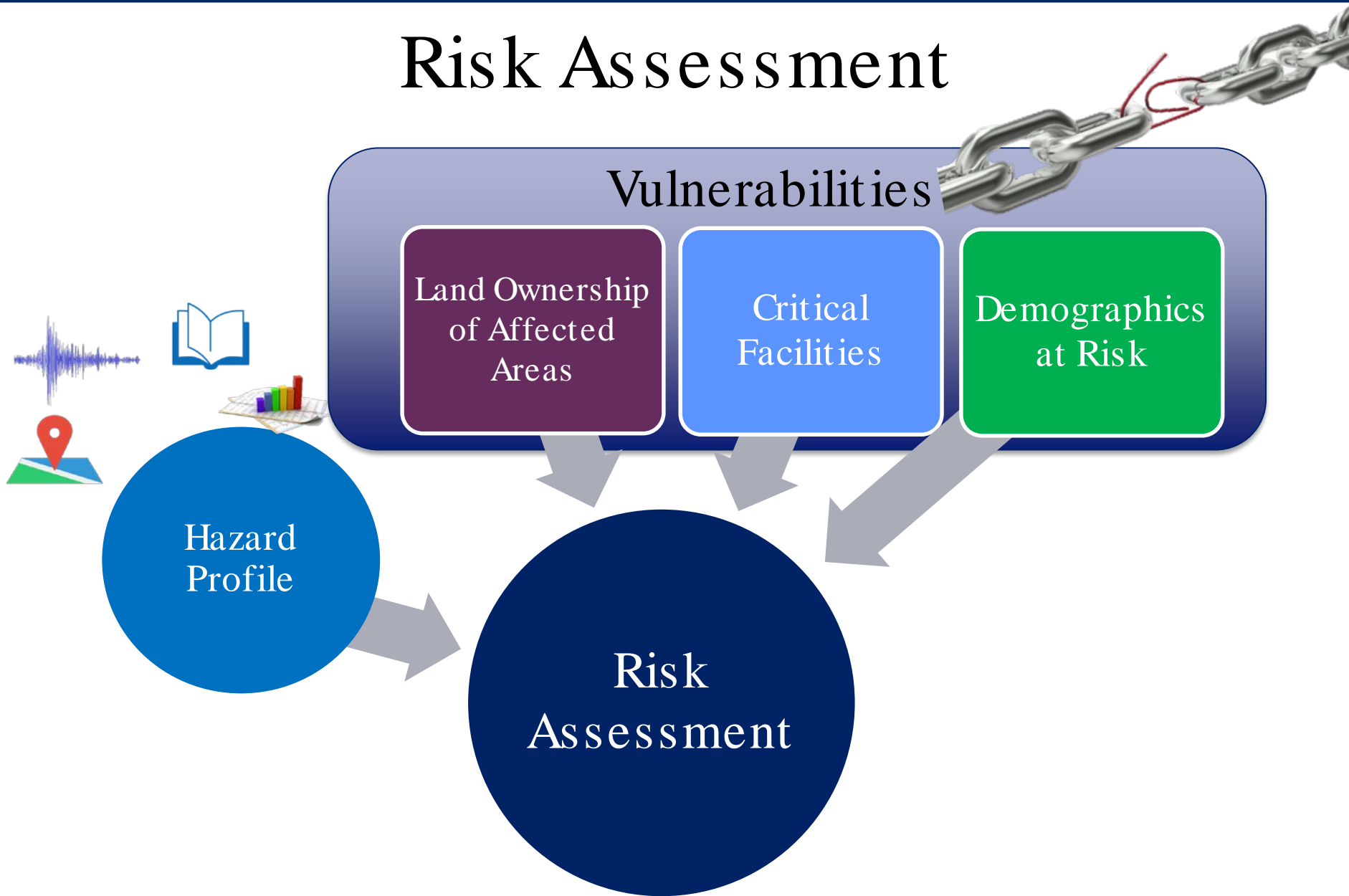
Wind



Climate  
Change\*

Images: FEMA (Michael Rieger, Patsy Lynch, Adam DuBrowa, Win Henderson, Andrea Booher), Benjamin Staudinger

# Risk Assessment





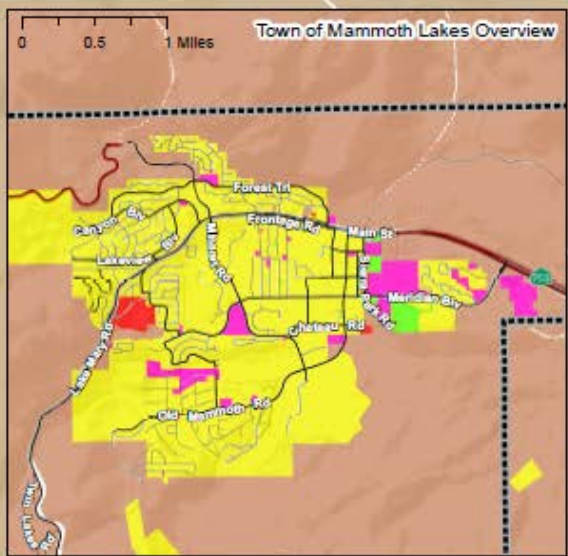
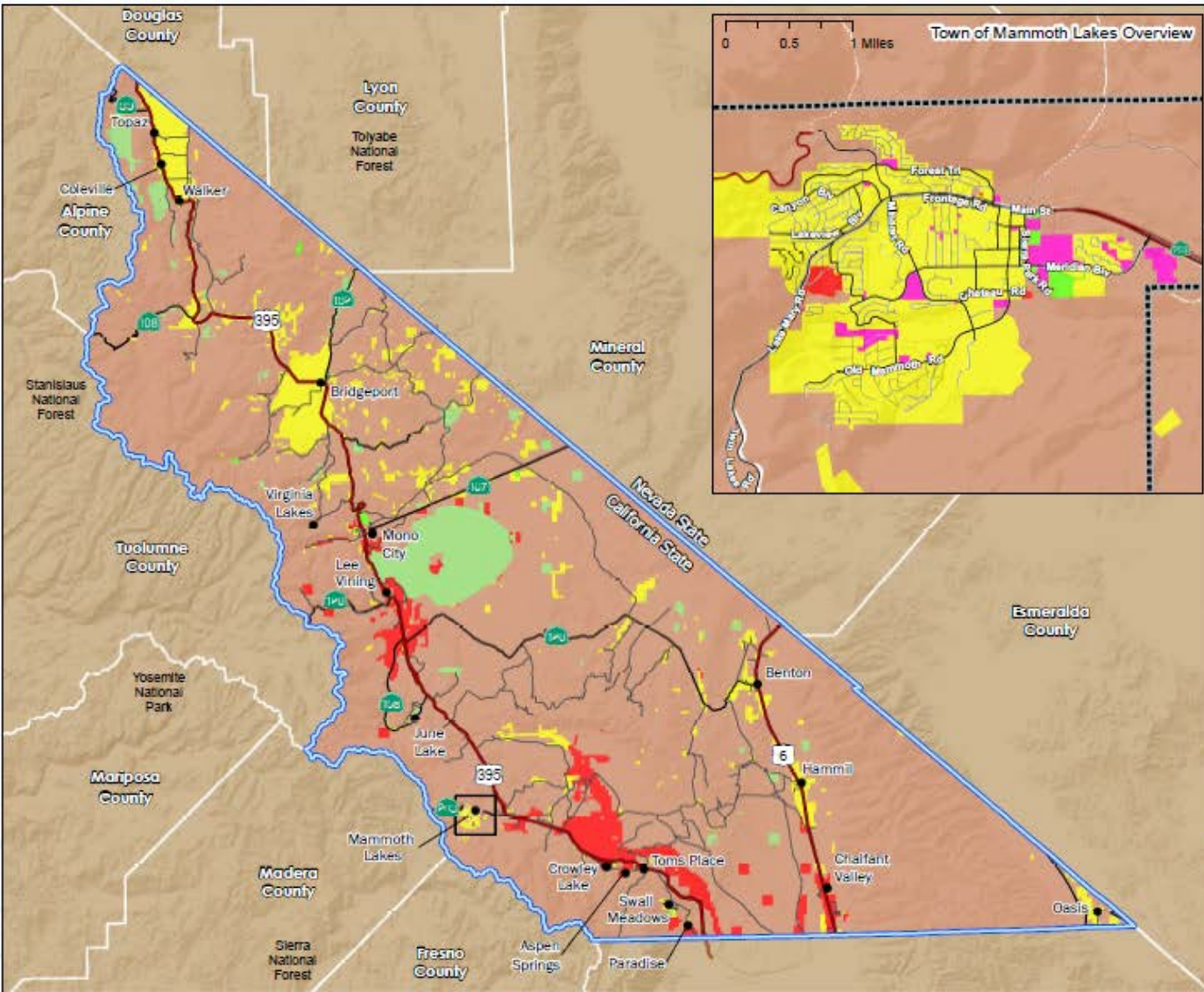
# Land Ownership

Facility Type		
	Acres	%
Federal	1,720,510	86%
<b>Private</b>	128,377	6%
State	83,946	4%
Utilities	67,081	3%
Right-of-Way	9,089	1%
County	2,265	1%
Tribal	452	<1%
Town of Mammoth Lakes	215	1%

Source: Mono County GIS



# Land Ownership

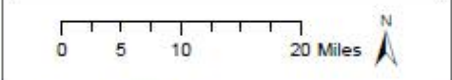


**Mono County and Town of Mammoth Lakes: Hazard Mitigation Plan**

**Ownership Blocks**

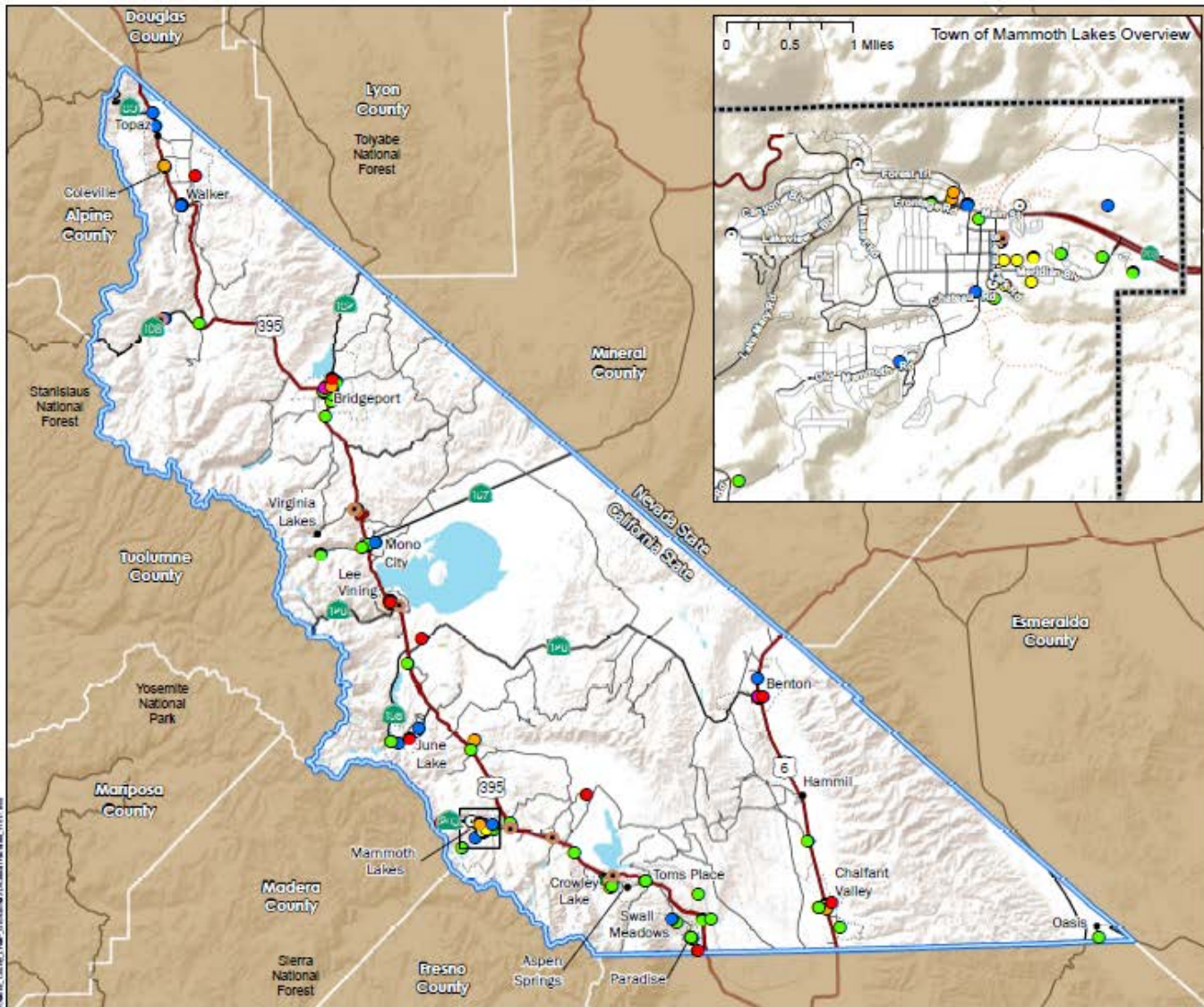
- Federal
- State
- Private
- Utilities
- County
- Local
- Communities
- US Highway
- State Highway
- County Road
- Mono County Boundary
- Surrounding Counties

**Sources:**  
 Ownership - County of Mono  
 Communities - County of Mono  
 County Boundaries - County of Mono  
 Town of Mammoth Lakes Boundary - County of Mono  
 Roads - County of Mono





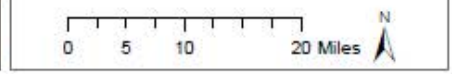
# Critical Facilities



## Mono County and Town of Mammoth Lakes: Hazard Mitigation Plan

- Critical Facilities**
- Emergency Operations Center
  - Lifeline Utility Systems
  - ⊕ Medical Services
  - Emergency Services
  - Transportation Systems
  - Communications Facilities
  - Hazardous Materials
  - Schools
  - Vulnerable Populations
  - Communities
- Mono County Boundary  
 Surrounding Counties  
 US Highway  
 State Highway  
 County Road  
 Lakes  
 Town of Mammoth Lakes  
 Census Designated Place

Sources:  
 Critical Facilities - County of Mono  
 Communities - County of Mono  
 County Boundaries - County of Mono  
 Town of Mammoth Lakes Boundary - County of Mono  
 Roads - County of Mono





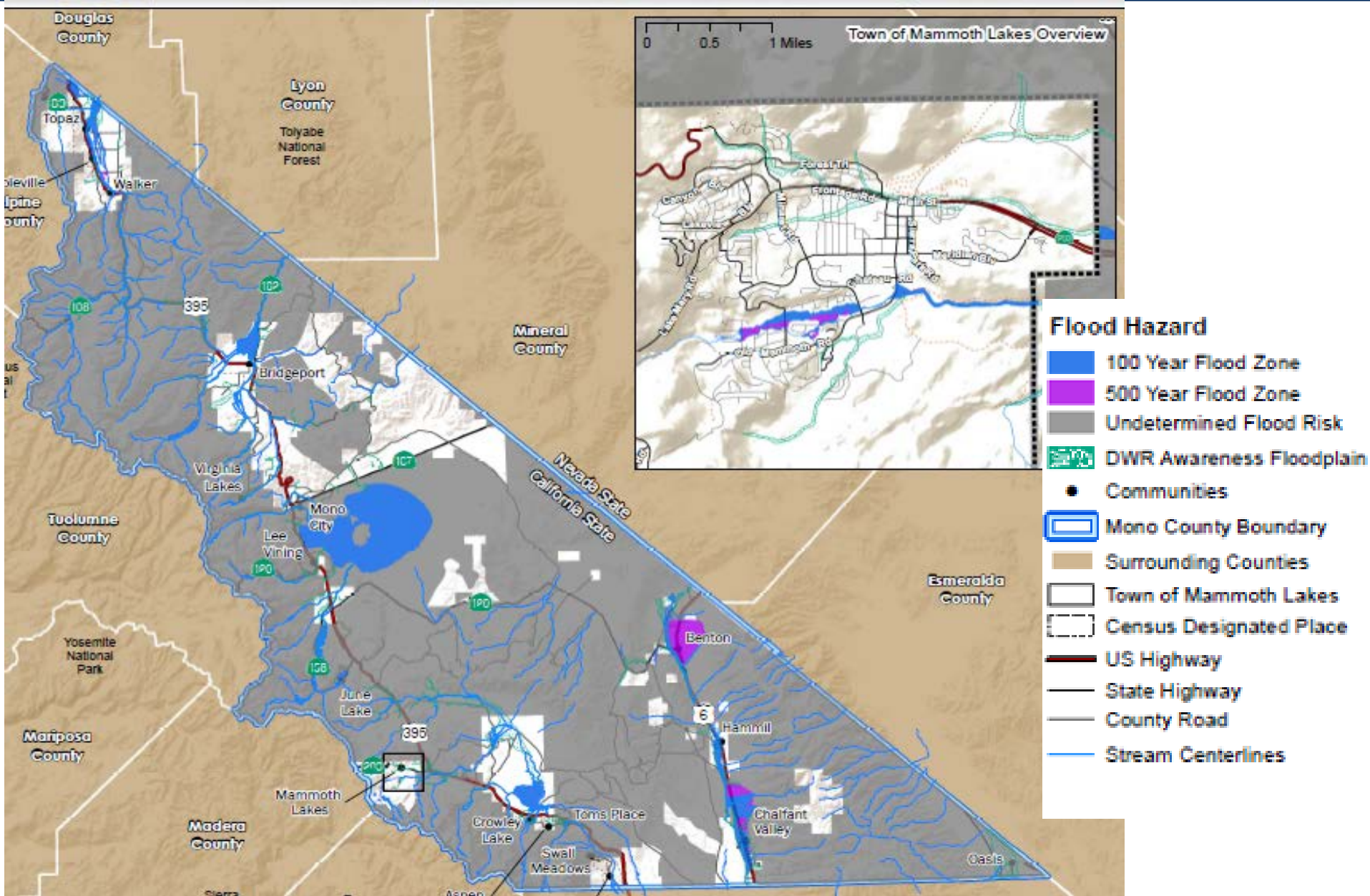
# Risk Assessment Results



# Defined Hazard Area Summary

Hazard	Unincorporated County			Mammoth Lakes		
	Affected Acres	%	# Critical Facilities	Affected Acres	%	# Critical Facilities
Dam failure	7,024	0.35%	2	0	0	0
Flood (100-year)	74,901	3.73%	0	427	2.70%	0
Flood (500-year)	10,841	0.54%	8	447	2.80%	2
Fault rupture	56,509	2.81%	9	338	2.10%	3
Wildfire (very high risk)	151,513	7.55%	4	476	3.00%	1
Wildfire (high risk)	26,364	1.31%	32	5,402	33.71%	18

- General location and assets at risk from hazards with no defined hazard area also included, such as for Drought and Man-made hazards.



# Flood Vulnerability

Land Ownership Category	Acres in Hazard Zone	% in Category
Federal	7,683	0.4%
State	45,725	54.5%
County	105	4.6%
Town	7	3.1%
Utility	7,129	10.6%
Right of way	509	4.9%
Private	14,169	11.0%
Total	75,328	3.7%

- More than 50% of state land and 11% of privately owned land
- Historic events show greatest damage in Chalfant Valley, Walker River Canyon, and Antelope Valley
- Mammoth Lakes experiences flood damage along Mammoth Creek

- No Critical Facilities in 100-year flood zone
- 8 Critical Facilities in 500-year flood zones including 3 senior living facilities, 2 schools



# Avalanche/ Debris Flow

- Pursuing new studies that can accurately map hazard areas

Historical data identifies communities and roadways commonly at risk:

Planning Area	General Location
Bridgeport	Twin Lakes Area
Crowly	Crowley Lake, east of McGee Mountain base
	Crowley Lake, Ojai Ridge
	Rock Creek Road Narrows
June Lake	Eastern side of community, SR 158
Mono Basin	North of Lee Vining
Wheeler Crest	Swall Meadows
	Lower Rock Creek Road Narrows
Outside planning area	Virginia Lakes, north side
	Lundy Lake, west side
Mammoth Lakes	Lake Mary, Old Mammoth/The Bluffs

*Sources: Local news, Eastern Sierra Avalanche Center NOAA Storm Events database, Mono County Public Works Department, Mono County General Plan Maps*



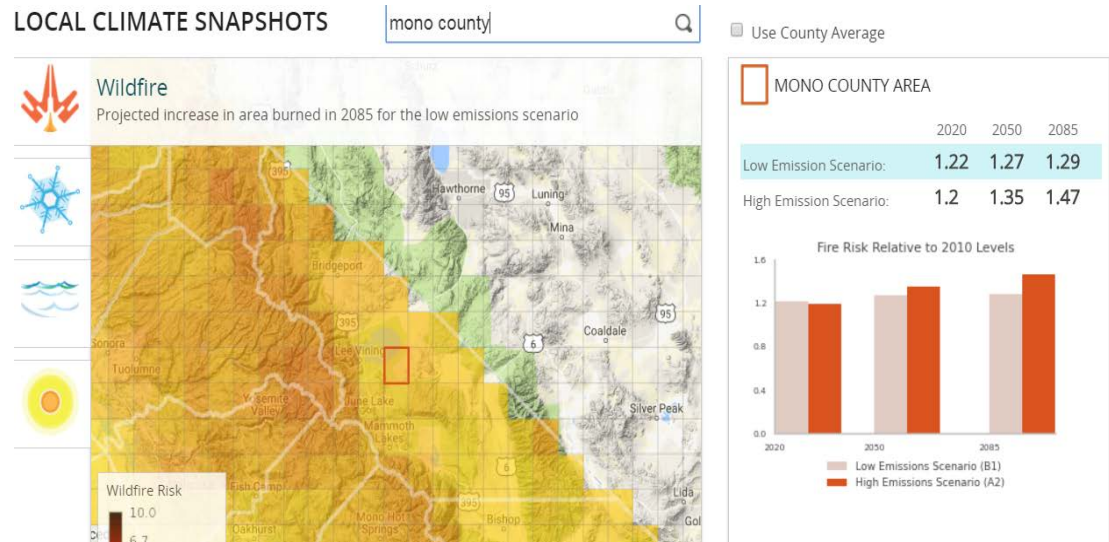
# Climate Change

## Hazards profiles likely to change:

- Wildfire (heat, eco-system changes, lower precipitation)
- Drought (lower precipitation)
- Flood (stronger storms)
- Severe winter storms (stronger storms)
- Disease (eco-system changes)

## Data Sources:

- Cal-Adapt
- NOAA Climate Resilience Toolkit
- California Hazard Mitigation Plan





# Community Wildfire Protection Plan (CWPP)

# CWPP Analysis

- Included as an easily removable chapter of the LHMP
- Focused on wildfire risk and fuel reduction in the WUI
- Supplements Risk Assessment with additional analysis and community-level risk and vulnerability
- Includes additional action measures, less focus on mitigation only



# Next Steps: Goals, Action Measures, and Implementation



# Priority Measures

## Measures

- Planning team is in the process of identifying actions County and Town should take to reduce risk and improve preparedness and response

## *Priority* Measures

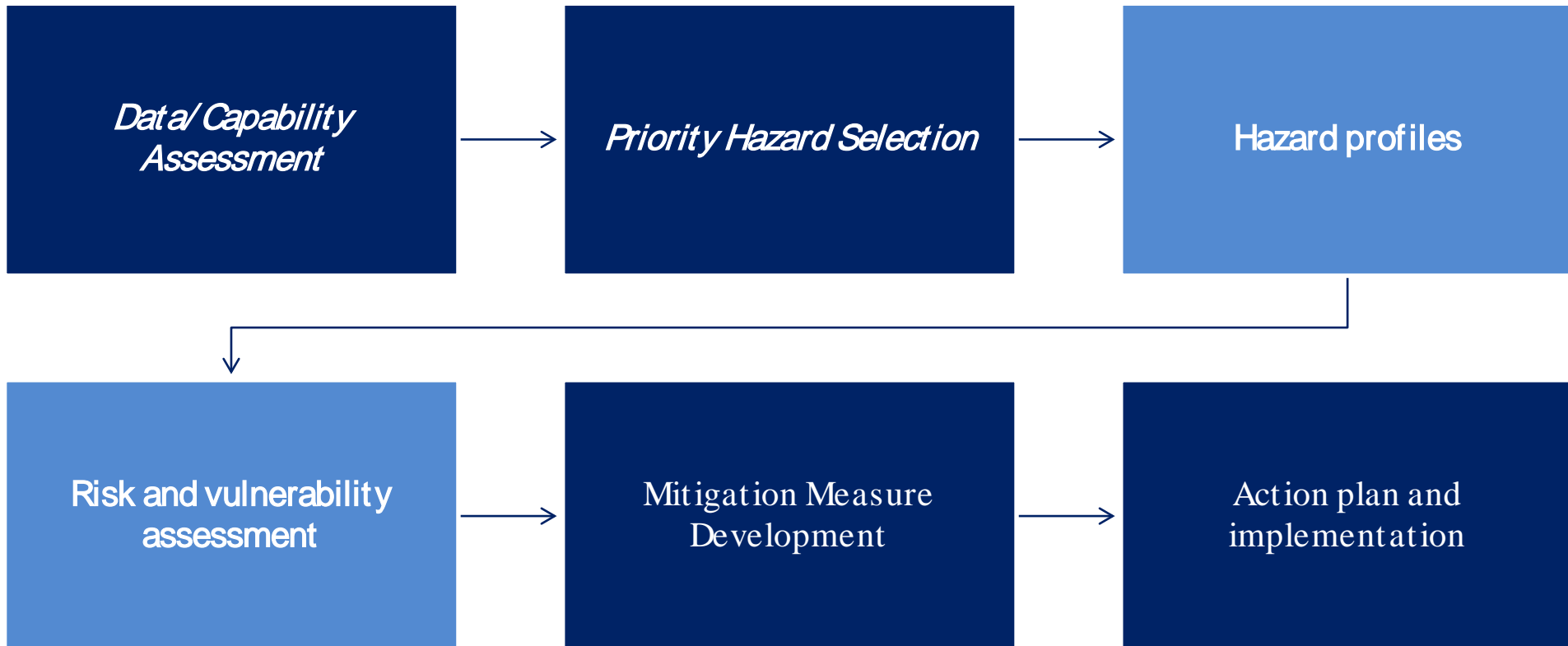
- High urgency
- Limited number (~20 or less)
- 5-year timeline
- Support funding pursuits





# Schedule and Timeline

# Plan Development Process



Event	Topics	Time Frame
<i>Project Kickoff</i>	<i>Initial Meeting with County/ Town Staff</i>	<i>June 2017</i>
<i>Stakeholder Meetings</i>	<i>Information Gathering &amp; Awareness</i>	<i>Sep 29-29, 2017</i>
<i>Planning Team Meeting &amp; RPAC Meetings &amp; Town PC</i>	<i>Hazard Profiles &amp; Risk Assessment</i>	<i>Dec 12- 13, 2017</i>
<i>Planning Team Meeting &amp; RPAC Workshop</i>	<i>Mitigation Actions</i>	<i>Jan 24-25, 2018</i>
<i>Planning Team Review</i>	Draft MJHMP/ CWPP Presentation	Feb 16- Mar 02, 2018
Present Public Review MJHMP/ CWPP (followed by review period)	Public Review of Document	March 2018
Planning Commission Meetings	Public Review of Document & Revisions to Safety Element	Mid-April, 2018
Submit to Cal OES/ FEMA	Cal OES/ FEMA Review of Document	April 2018
Final MJHMP	Public Hearing & Adoption	June/ July 2018



# Questions/ Comments?

Project Website:

<https://www.monocounty.ca.gov/planning/page/local-hazard-mitigation-plan-2017-update>

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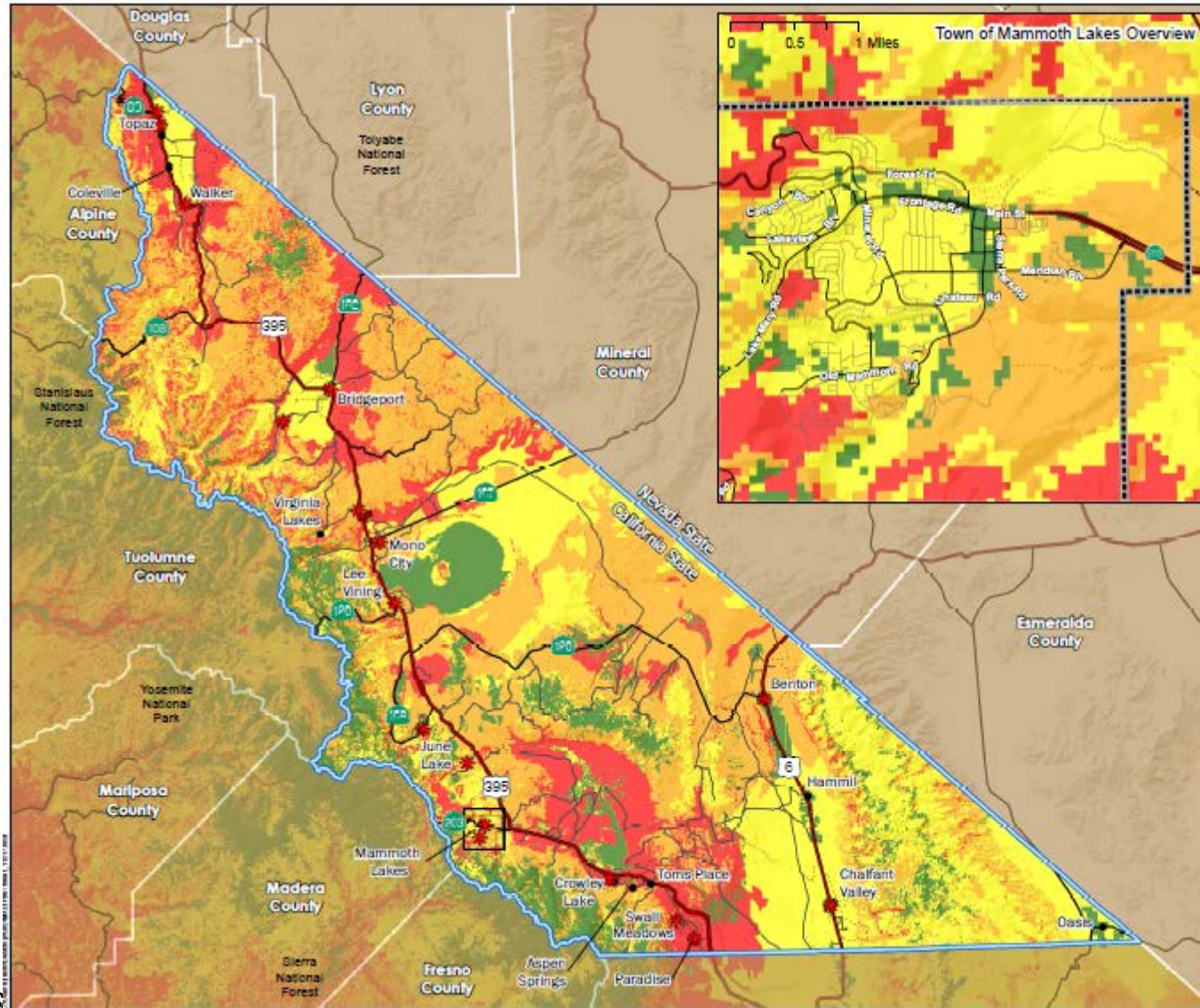
760-924-1814

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# Fire Threat



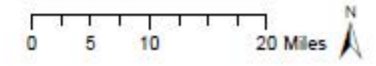
**Mono County and Town of Mammoth Lakes:  
Hazard Mitigation Plan**



**Fire Threat**

- Little or No Threat
- Moderate
- High
- Very High
- Fire Department
- Communities
- Mono County Boundary
- Surrounding Counties
- Town of Mammoth Lakes
- Census Designated Place
- US Highway
- State Highway
- County Road

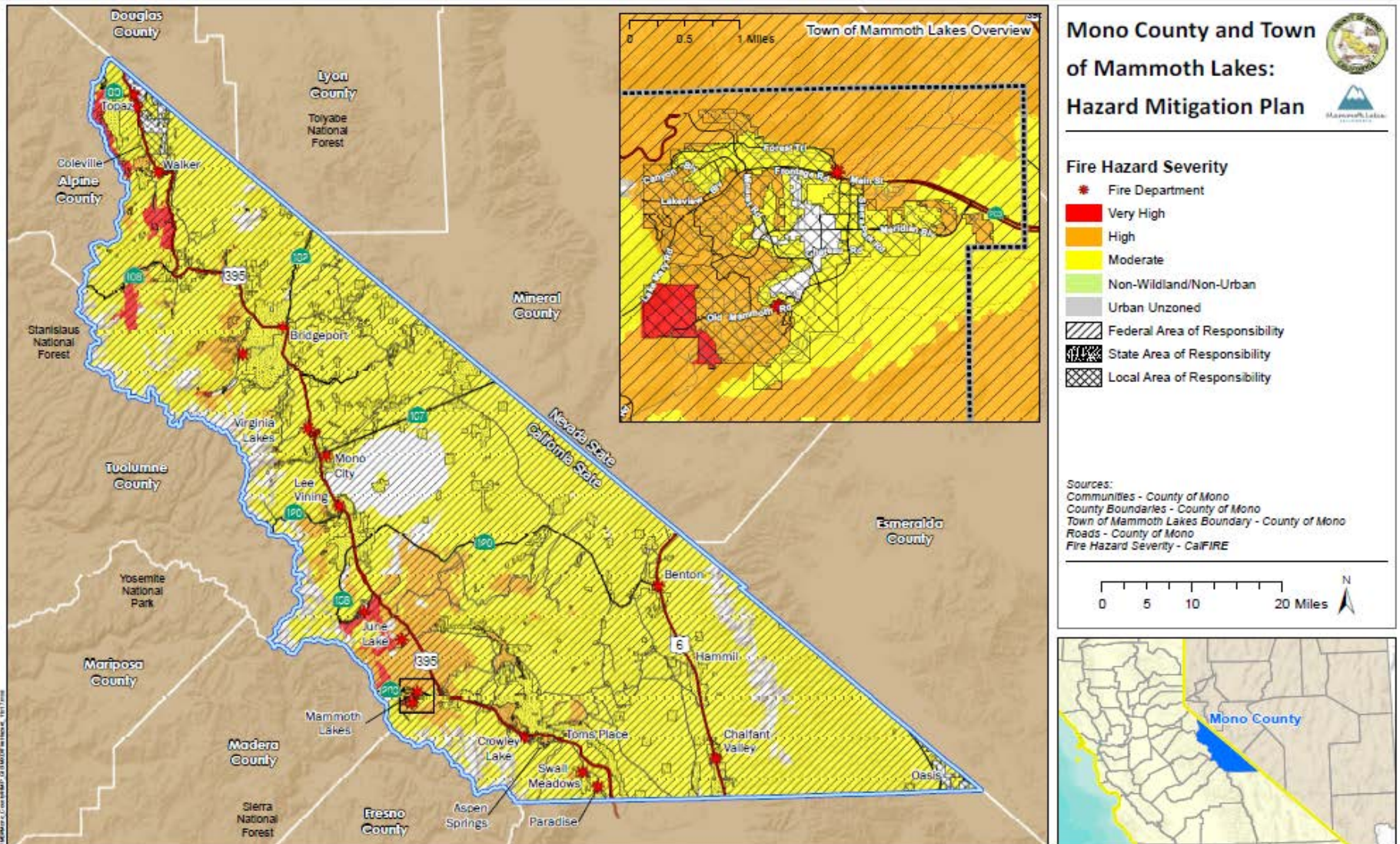
Sources:  
Communities - County of Mono  
County Boundaries - County of Mono  
Town of Mammoth Lakes Boundary - County of Mono  
Roads - County of Mono  
Fire Threat - CalFIRE



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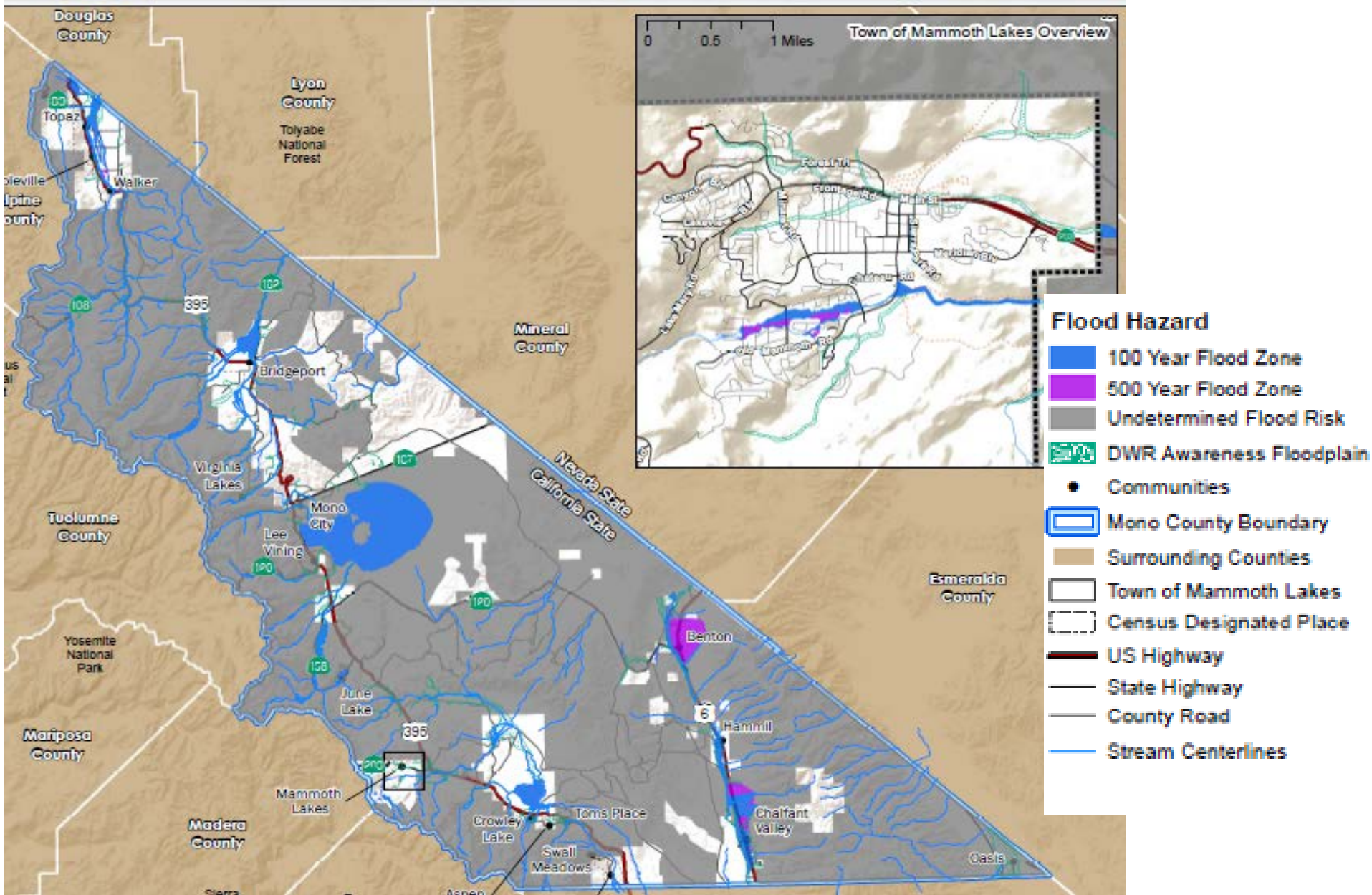


# Fire Hazard Severity Zones



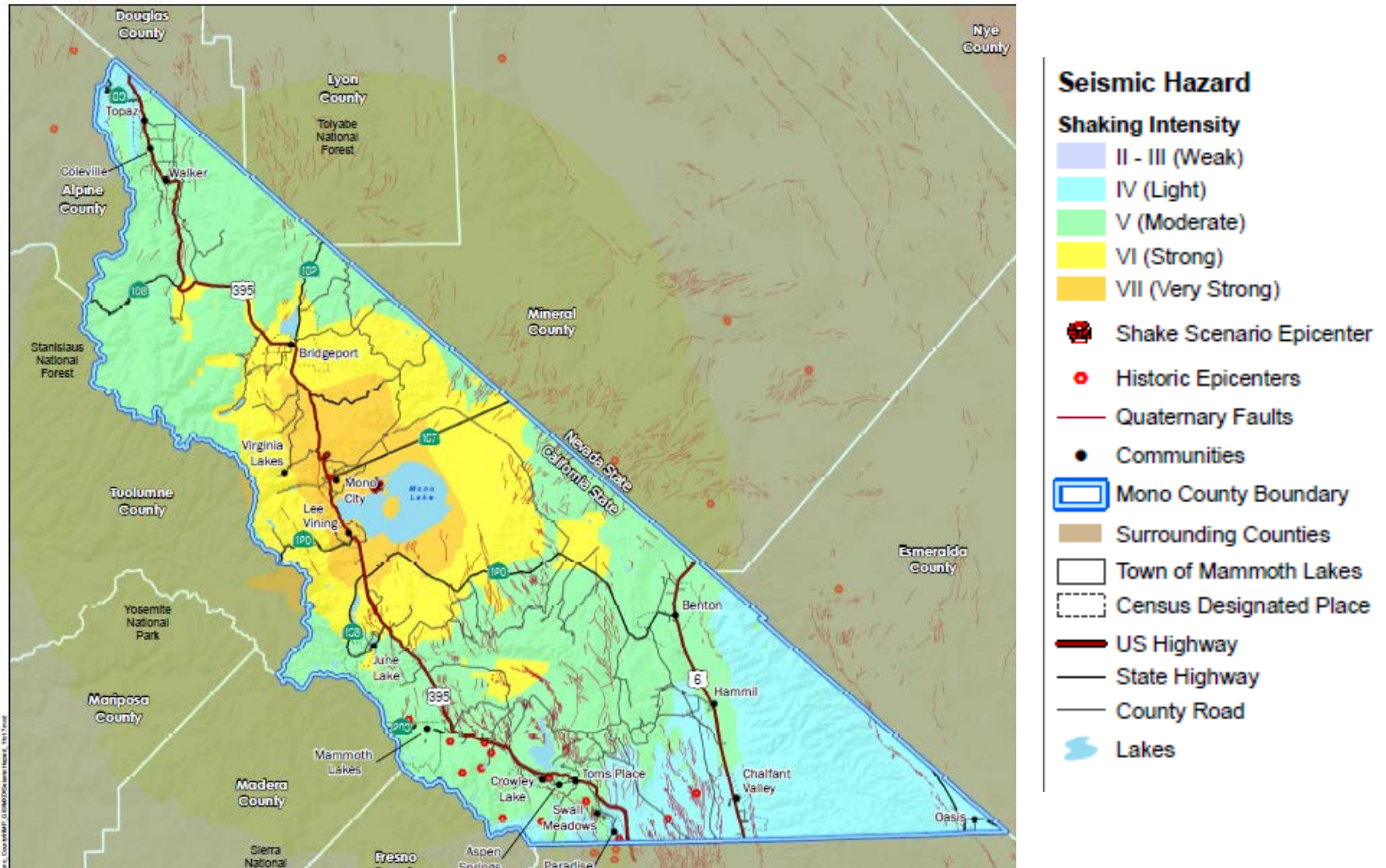
Sources: CALFIRE California Fire Hazard Severity Zone Mapping 2007





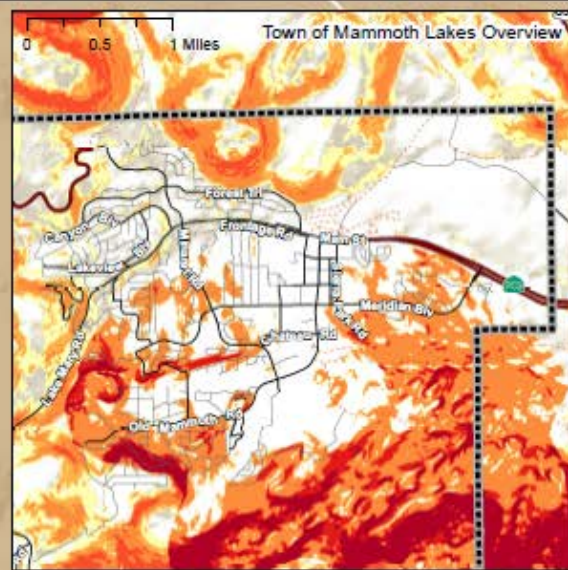
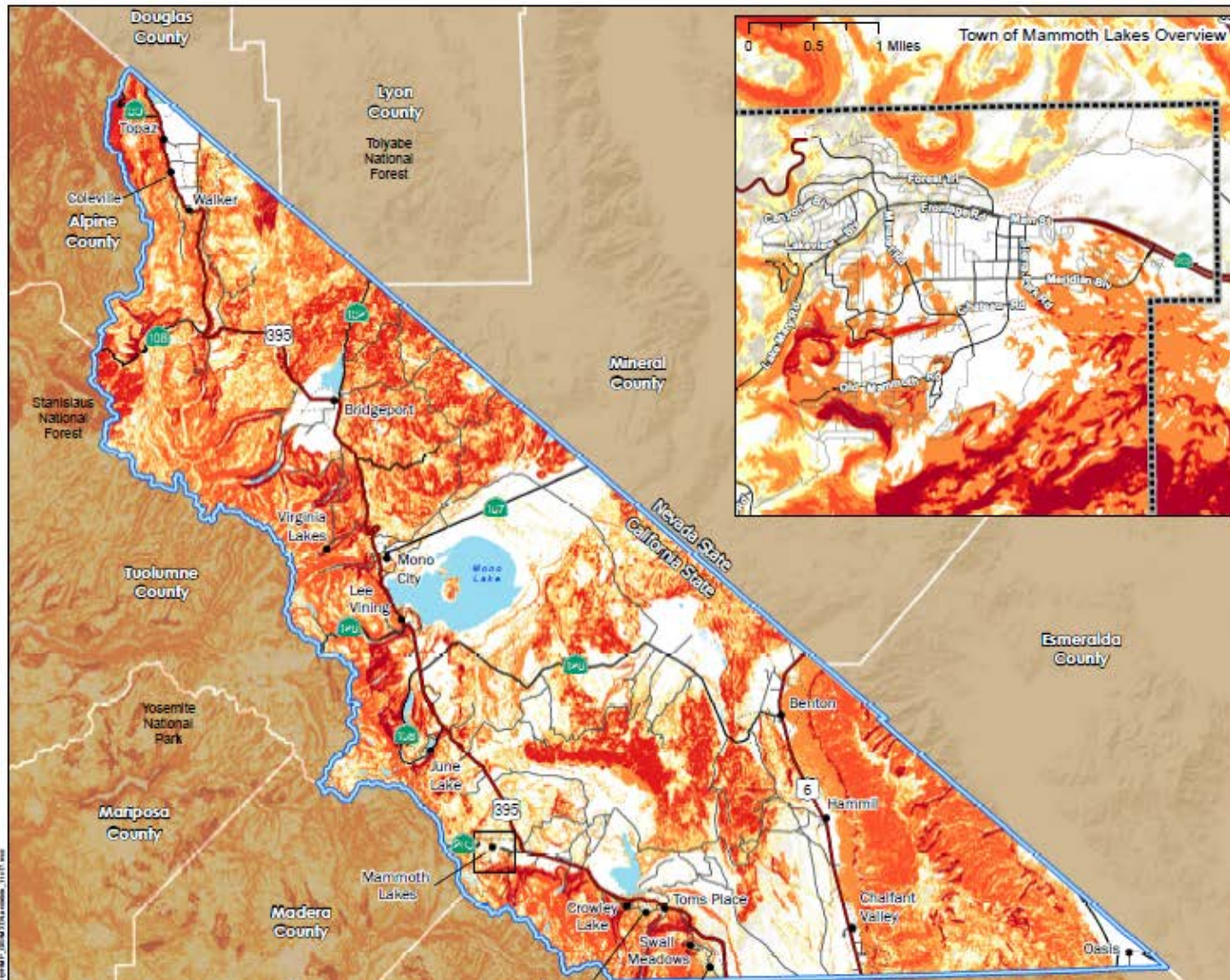


# Earthquake/ Seismic Hazards







# Landslides



Mono County and Town  
of Mammoth Lakes:  
Hazard Mitigation Plan

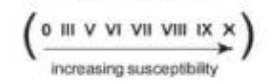
California Geological Survey  
ROCK STRENGTH

High ← → Low

	0	0	0
SLOPE CLASS	0	V	VII
	0	V	VII
	III	VIII	IX
	VI	IX	X
	VII	IX	X
	VIII	IX	X
	VIII	IX	X
	VIII	IX	X

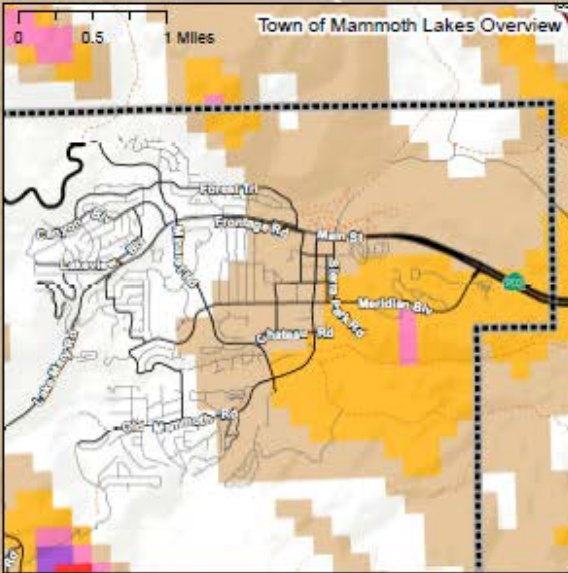
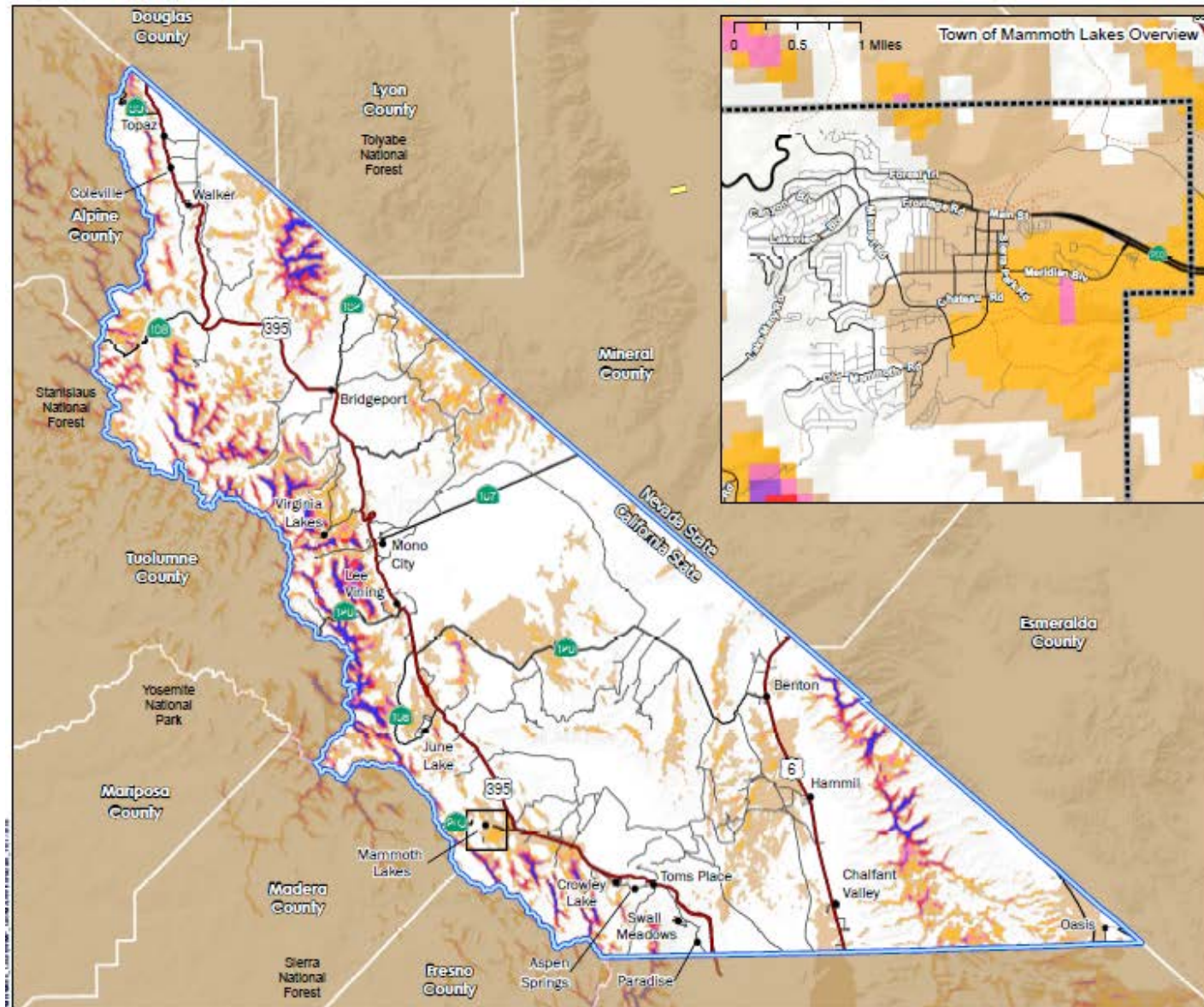
High ↑ ↓ Low

LANDSLIDE  
SUSCEPTIBILITY  
CLASSES



Sources:  
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Roads - County of Mono  
Landslide Susceptibility - California Geological Society





# Mono County and Town of Mammoth Lakes: Hazard Mitigation Plan



## Wind Hazard Severity

- Historic Tornado Path
- Wind Power at 50 meter height (Class: Power: Wind Speed)**
- 1: 0 - 200(W/m<sup>2</sup>); 0 - 5.6 (m/s)
- 2: 200 - 300(W/m<sup>2</sup>); 5.6 - 6.4(m/s)
- 3: 300 - 400(W/m<sup>2</sup>); 6.4 - 7.0(m/s)
- 4: 400 - 500(W/m<sup>2</sup>); 7.0 - 7.5(m/s)
- 5: 500 - 600(W/m<sup>2</sup>); 7.5 - 8.0(m/s)
- 6: 600 - 800(W/m<sup>2</sup>); 8.0 - 8.8(m/s)
- 7: > 800(W/m<sup>2</sup>); >8.8(m/s)

Sources:  
 Wind Power - National Renewable Energy Laboratory  
 Historic Tornado Paths - NOAA  
 Communities - County of Mono  
 County Boundaries - County of Mono  
 Town of Mammoth Lakes Boundary - County of Mono  
 Roads - County of Mono

