

## ACKNOWLEDGMENTS

### Santa Ynez Band of Chumash Indians

- Teresa Romero, Santa Ynez Band of Chumash Indians Environmental Office
- Willie Wyatt, Santa Ynez Band of Chumash Indians Tribal Administrator
- Sam Cohen, Santa Ynez Band of Chumash Indians Legal Advisor
- Lisa Figueroa, Santa Ynez Band of Chumash Indians Executive Assistant
- Paul Swift, Santa Ynez Band of Chumash Indians Administrative Assistant
- Krista Armenta-Belen, Santa Ynez Tribal Health Clinic
- **Ron** • ~~Rob~~ Sisson, Santa Ynez Tribal Health Clinic
- JB Zavalla, Chumash Fire Department

### Consultants

- Rob Flaner, CFM, Tetra Tech, Inc., Project Manager
- Carol Bauman, GISP, Tetra Tech, Inc., Risk Assessment Lead
- Denise Davis, CEM, Tetra Tech, Inc., Planner
- Stephen Veith, MUP, Tetra Tech, Inc., GIS/Hazus Analyst
- Dan Portman, Tetra Tech, Inc., Technical Editor

### Stakeholders

- Bill Christensen, Chumash Casino Resort
- **Daune** • ~~Duane~~ Dowell, Chumash Casino Resort
- David Lackie, Santa Barbara County Long Range Planning
- Tom Fayram, Santa Barbara County Flood Control District
- Jim Hodge, City of Santa Ynez Community Services
- Chris Dahlstrom, Santa Ynez Water Conservation

### Special Acknowledgments

The development of this plan would not have been possible without the dedication and commitment to this process by the Hazard Mitigation Plan Steering Committee. The dedication of this volunteer committee to allocate their time to this process is greatly appreciated. Also, the members of the Santa Ynez Band of Chumash Indians are commended for their participation in the outreach strategy identified by the Steering Committee. This outreach success will set the course to the successful implementation of this plan during its next performance period.

### 3. TRIBAL PROFILE

#### 3.1 GEOGRAPHIC OVERVIEW

The Santa Ynez Reservation is located in the Santa Ynez Valley, in the middle of Santa Barbara County, separated from the coast by coastal mountains (see Figure 3-1). The reservation is on Villa Juana Road, east of the City of Solvang, south and east of the unincorporated urban area of Santa Ynez and about 25 miles northwest of the City of Santa Barbara. The planning area is primarily rural, with vegetable and flower fields, cattle and horse ranches, vineyards and wineries. Access to the reservation is provided by State Route (SR) 246, which connects on the west to Highway 101 and on the east to Highway 154. The original reservation covered 126 acres. There are about 249 residents living on the reservation and 97 homes located within its boundaries. A narrow strip of private land separates one portion of reservation from another, into what are commonly referred to by residents as the Upper Reservation (west) and Lower Reservation (east).

*township or  
leave out?*

*Via*

*99 acres  
creek  
bed*

In 2010, the tribe purchased 1,427 acres of land known as the Camp 4 property from the Fess Parker estate and began the administrative process of placing the land into federal trust. Placing the land into trust adds it to the reservation and takes it out of county jurisdiction for the purposes of taxes and land-use oversight. The land is not adjacent to the reservation, lying about 2 miles to the northeast. The Camp 4 development plan includes 143 homes on 1-acre lots and approximately 12,000 square feet of tribal facilities, which include a meeting hall, tribal offices, and other areas as outlined in the final environmental assessment.

The tribe filed a federal trust application with the Bureau of Indian Affairs (BIA) and legislative documents to officially add the Camp 4 property to the reservation. On July 2016, the House Committee on Natural Resources voted 29-1 to pass HR 1157, affirming the decision. This brought the size of the reservation to 1,516 acres. Kenneth Kahn, tribal chairman of the Santa Ynez Band of Chumash Indians stated, "Camp 4 is officially part of our reservation, so we can begin the process of building homes on the property for tribal members and their families and revitalizing our tribal community" (Santa Ynez Valley Star, June 23, 2017).

*\* update  
with new  
BIA info*

The Santa Ynez Band of Chumash Indians owns and operates the Chumash Casino Resort, located on the tribe's reservation on Highway 246 in Santa Ynez. The tribe also owns two hotels—the Hotel Corque on SR 246 and the Hadsten House in Solvang—and two gas stations in Santa Ynez.

The tribe's trust lands, fee lands, and fee lands pending transfer to trust lands—which together make up the planning area for this hazard mitigation plan are all shown on Figure 3-2.



Source: (California Coastal Watershed Planning and Assessment Program, 2018)

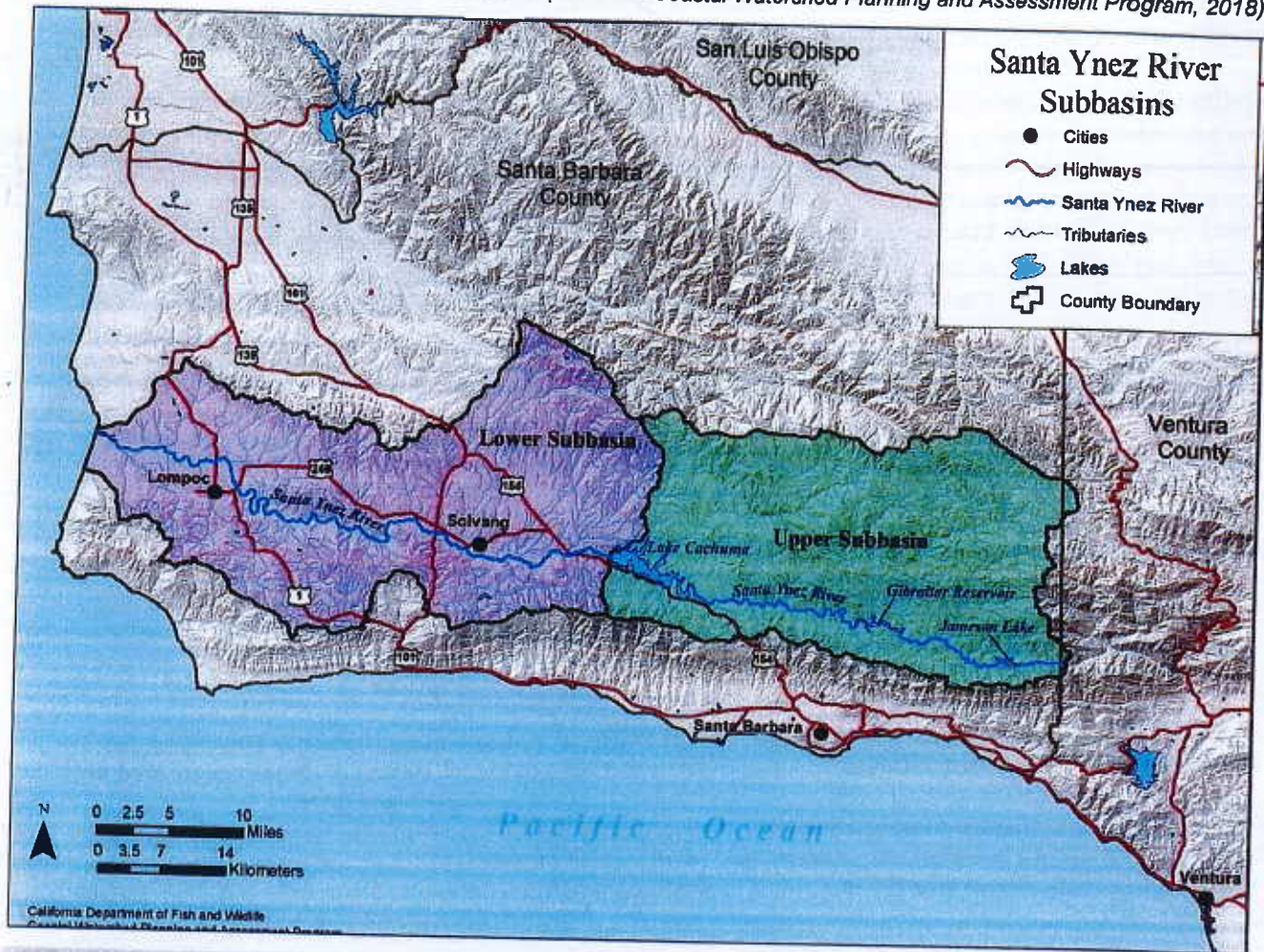


Figure 3-3. Santa Ynez River Watershed

The USGS designates the Santa Ynez River as a fourth-order river (medium sized) with 2,077 miles of total tributary stream length: 1,663 intermittent miles, 350 perennial miles, and 63 miles of man-made channels. Drainages exiting the hills and draining to the Santa Ynez River cross the valley northeast to southwest. Stream flows within this watershed fluctuate during precipitation events. Many streams have high flows during wetter winter months and low to no flows during drier summer months.

The most significant surface water in the planning area is the Zanja de Cota Creek. The Water Quality Portal (a cooperative service sponsored by the USGS, the EPA, and the National Water Quality Monitoring Council) describes this stream as having two forks: the west fork is a perennial stream and the east fork is intermittent. The Zanja de Cota Creek's stream forks bisect the reservation in a north-south direction.

### 3.4.3 Climate

The reservation enjoys a coastal climate with mild to hot, dry summers and cool winters. Average temperatures in Santa Ynez, adjacent to the reservation, vary only 16 °F from summer to winter. The annual average temperature in Santa Ynez is 61.7 °F. The annual high temperature is 78.3 °F and the annual low temperature is 45.1 °F. Table 3-4 presents temperature averages for Santa Ynez, taken at the Lake Cachuma weather station.

*\* average*



### 3.7.3 Development Trends

*Worked*

Development trends for Santa Ynez Band of Chumash Indians are anticipated to be high, consisting of residential, commercial, and cultural development. The 1,400-acre Camp 4 property will be used to build homes for tribal members and a tribal center with a parking lot. The tribe also owns 6.9 acres directly across Highway 246 from the Chumash Casino Resort. Tribal leaders plan to develop a cultural center, a museum, a park, a gift shop and administrative support offices. ~~The tribe has attempted to put this land into trust and has faced opposition for 12 years.~~ The Interior Board of Indian Appeals ruled in favor of the tribe to place the 6.9 acres of vacant land into federal trust for the tribe. ~~The tribe also owns an additional 5.8 acres in the casino area along Highway 246 that the tribe would like to place into trust to build on; however, this has also been met with opposition.~~ Table 3-7 summarizes recent development trends and expected future development trends.

*retail spaces.*

*This sounds like the museum land was secured*

Table 3-7. Recent and Expected Future Development Trends

Criterion	Response
Has the tribe recently annexed any land? • If yes, give the estimated area annexed and estimated number of parcels or structures.	Yes 1,400 acres Future parcels to be developed
Is the tribe expected to annex any areas during the performance period of this plan? • If yes, please describe land areas and dominant uses. • If yes, who currently has permitting authority over these areas?	No N/A N/A
Are any areas targeted for development or major redevelopment in the next five years? • If yes, please briefly describe, including whether any of the areas are in known hazard risk areas	Yes Camp 4 land will be used to develop housing for tribal members and a tribal center with a parking lot. The area is within earthquake, flood, and wildfire hazard zones.
Please describe the level of buildout in the jurisdiction, based on your jurisdiction's buildable lands inventory. If no such inventory exists, provide a qualitative description.	Approximately 190,000 square feet was added to the Chumash Casino Resort, including a 120-room hotel on top of a new gaming building, a snack bar, three to four restaurants, administrative offices, a 1,000-seat auditorium and a three-story parking structure.

*Also museum*

*This is recent but does not indicate buildout. Could work if reworded on letter*

This hazard mitigation plan will support wise land use in the future by providing information on the risk associated with natural hazards in the planning area. The tribe will ensure that future development is established with the benefits of the information on risk and vulnerability to natural hazards identified in this plan.

### 3.7.4 Regulatory Oversight of Development

With tribal membership approval, newly acquired land ~~can~~ be placed into trust. The process of placing land into trust is a strict, lengthy, well-regulated legal process that requires an in-depth application from a petitioning tribe, a National Environmental Policy Act (NEPA) environmental review process, public comments from the local communities, and consultations with state and local officials, and agencies where the land is located.

*begin the legal process to*

All Santa Ynez Chumash tribal development projects must first acquire approval by majority vote from the entire tribal membership. Although applicable regulations are not those of the local or state government, development on tribal land is as sound with regard to environmental impact, life safety, and building integrity as development on non-tribal land. The absence of local or state jurisdiction does not translate into lack of inspection and quality. Table 3-8 compares tribal and non-tribal rules and regulations for development.

*it must comply with federal regulations and*



	Tribal Authority	Other Jurisdiction Authority	Effect on Risk Reduction	Integration Opportunity?
<b>Emergency Management</b> <i>Comment: The tribe has a NIMS-compliant emergency operations plan, dated 2015</i>	Yes	Yes	Supports	Yes
<b>Climate Change Adaptation</b> <i>Comment: The Strategic Energy Management Plan identifies past, present and future strategies for efforts to reduce greenhouse gas emissions.</i>	Yes	Yes	Supports	Yes
<b>Planning Documents</b>				
<b>General Plan</b> <i>Comment:</i>	No	No	No current effect	No
<b>Capital Improvement Plan</b> <i>Comment:</i>	No	No	No current effect	No
<b>Floodplain or Watershed Plan</b> <i>Comment:</i>	No	No	No current effect	No
<b>Stormwater Plan</b> <i>Comment: Water Sampling &amp; Analysis Plan/Quality Assurance Project Plan—Approved by EPA.</i>	No	Yes	No current effect	No
<b>Habitat Conservation Plan</b> <i>Comment:</i>	No	No	N/A	Yes
<b>Economic Self-Sufficiency Plan</b> <i>Comment: Community Economic Development Study, 10/2018</i>	Yes	No	Supports	Yes
<b>Community Wildfire Protection Plan</b> <i>Comment: The reservation does not reside in an area identified as a 'State Responsibility Area' by CAL FIRE, and therefore does not have a Community Wildfire Protection Plan pursuant to CAL FIRE program requirements.</i>	No	No	No current effect	No
<b>Climate Action Plan</b> <i>Comment: The Strategic Energy Management Plan identifies strategies for reducing greenhouse gas emissions.</i>	Yes	Yes	Supports	Yes
<b>Comprehensive Emergency Management Plan</b> <i>Comment: The tribe has a NIMS-compliant emergency operations plan</i>	Yes	Yes	Supports	Yes
<b>Threat &amp; Hazard Identification &amp; Risk Assessment</b> <i>Comment: Developed in 2014</i>	Yes	Yes	Supports	Yes
<b>Post-Disaster Recovery Plan</b> <i>Comment:</i>	No	No	No current effect	No
<b>Continuity of Operations Plan</b> <i>Comment:</i>	No	No	No current effect	No
<b>Public Health Plan</b> <i>Comment: Memorandum of understanding with Santa Barbara County</i>	Yes	Yes	Supports	Yes

### 4.3.2 Development and Permitting Capability

Jurisdictions regulate land use through the adoption and enforcement of zoning, subdivision and land development ordinances, building codes, building permit ordinances, floodplain, and stormwater management ordinances. When effectively prepared and administered, these regulations can lead to hazard mitigation.

The tribe does not issue development permits or have a formal buildable-lands inventory. The tribe has determined that all future development on the reservation will be directed to the Camp 4 parcel that is now considered to be trust land.

*still in process per new bill*



page numbering  
off from here to  
end of section 2

## 8. EARTHQUAKE

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### 8.1 GENERAL BACKGROUND

An earthquake is the vibration of the earth's surface following a release of energy in the earth's crust. This energy can be generated by a sudden dislocation of the crust or by a volcanic eruption. Most destructive quakes are caused by dislocations of the crust. The crust may first bend and then, when the stress exceeds the strength of the rocks, break and snap to a new position. In the process of breaking, vibrations called "seismic waves" are generated. These waves travel outward from the source of the earthquake at varying speeds.

Geologists have found that earthquakes tend to reoccur along faults, which are zones of weakness in the earth's crust. Even if a fault zone has recently experienced an earthquake, there is no guarantee that all the stress has been relieved. Another earthquake could still occur. In fact, relieving stress along one part of a fault may increase it in another part.

California is seismically active because of movement of the North American Plate, east of the San Andreas Fault, and the Pacific Plate to the west, which includes the state's coastal communities. Movement of the tectonic plates against one another creates stresses that build as the rocks are gradually deformed. The rock deformation, or strain, is stored in the rocks as elastic strain energy. When the strength of the rock is exceeded, rupture occurs along a fault. The rocks on opposite sides of the fault slide past each other as they spring back into a relaxed position. The strain energy is released partly as heat and partly as elastic waves called seismic waves. The passage of these seismic waves produces the ground shaking in earthquakes.

Faults are more likely to have future earthquakes on them if they have more rapid rates of movement, have had recent earthquakes along them, experience greater total displacements, and are aligned so that movement can relieve the accumulating tectonic stresses. Geologists classify faults by their relative hazards. "Active" faults, which represent the highest hazard, are those that have ruptured to the ground surface during the Holocene period (about the last 11,000 years). "Potentially active" faults are those that displaced layers of rock from the Quaternary period (the last 1,800,000 years) (California Department of Conservation, 2003).

Determining if a fault is "active" or "potentially active" depends on geologic evidence, which may not be available for every fault. Nearly all the movement between the two plates, and therefore the majority of the seismic hazards, are on the well-known active faults. However, inactive faults, where no displacements have been recorded, also have the potential to reactivate or experience displacement along a branch sometime in the future. An example of a fault zone that has been reactivated is the Foothills Fault Zone. The zone was considered inactive until evidence of an earthquake (approximately 1.6 million years ago) was found near Spenceville, California. Then, in 1975, an earthquake occurred on another branch of the zone near Oroville, California (now known as the Cleveland Hills Fault). The State Division of Mines and Geology indicates that increased earthquake activity throughout California may cause tectonic movement along currently inactive fault systems.



**Straight-Line Winds**

Windstorms can be a frequent problem in the planning area and have been known to cause damage to utilities. The predicted wind speed given in wind warnings issued by the National Weather Service is for a one-minute average; gusts may be 25 to 30 percent higher. Windstorms are generally short-duration events involving straight-line winds or gusts of over 50 mph, strong enough to cause property damage. Windstorms are especially dangerous in areas with significant tree stands and areas with poorly constructed buildings, mobile homes, major infrastructure, and above-ground utility lines. A windstorm can topple trees and power lines, cause damage to residential, commercial and critical facilities, and leave tons of debris in its wake. Power lines may be downed due to high winds, and services such as water or phone may not be able to operate without power.

Damaging winds are classified as those exceeding 60 mph. Damage from such winds accounts for half of all severe weather reports in the lower 48 states and is more common than damage from tornadoes. The Beaufort Wind Chart (Table 11-2) provides terminology and a description of potential impacts at different levels. Figure 11-2 indicates how the frequency and strength of windstorms impacts the United States and the general location of the most wind activity. The planning area is located in FEMA's Wind Zone I, where wind speeds can reach up to 130 mph.

**Table 11-2. Beaufort Wind Chart**

Beaufort Number	Range (mph)	Terminology	Description
0	0	Calm	Calm. Smoke rises vertically.
1	1-3	Light air	Wind motion visible in smoke.
2	4-7	Light breeze	Wind felt on exposed skin. Leaves rustle.
3	8-12	Gentle breeze	Leaves and smaller twigs in constant motion.
4	13-18	Moderate breeze	Dust and loose paper is raised. Small branches begin to move.
5	19-24	Fresh breeze	Smaller trees sway
6	25-31	Strong breeze	Large branches in motion. Whistling heard in overhead wires. Umbrella use is difficult.
7	32-38	Near gale	Whole trees in motion. Some difficulty when walking into the wind.
8	39-46	Gale	Twigs broken from trees. Cars veer on road.
9	47-54	Sever gale	Light structure damage.
10	55-63	Storm	Trees uprooted. Considerable structural damage.
11	64-73	Violent storm	Widespread structural damage.
12	74-95	Hurricane	Considerable and widespread damage to structures.

*Severe*

Source: Lewis, 2018

## 12.3 SECONDARY HAZARDS

Wildfires can generate a range of secondary effects, which in some cases may cause more widespread and prolonged damage than the fire itself. Fires can cause direct economic losses in the reduction of harvestable timber and indirect economic losses in reduced tourism. Wildfires cause the contamination of reservoirs, destroy transmission lines and contribute to flooding. They strip slopes of vegetation, exposing them to greater amounts of runoff. This in turn can weaken soils and cause failures on slopes. Major landslides can occur several years after a wildfire. Most wildfires burn hot and for long durations that can bake soils, especially those high in clay content, thus increasing the imperviousness of the ground. This increases the runoff generated by storm events, thus increasing the chance of flooding.

*\*or debris flows*

## 12.4 EXPOSURE

### 12.4.1 Population and Property

#### Overall Planning Area Exposure

A quantitative assessment of exposure to the wildfire hazard was conducted using the fire hazard severity mapping shown in Figure 12-1 and the asset inventory developed for this plan (See Section 5.4). Table 12-2 summarizes results for residential population and existing buildings in the mapped fire hazard areas. In addition to populations living in the fire hazard zones, those engaged in recreation activities in these zones, such as hiking or camping, may be exposed to the wildfire hazard.

**Table 12-2. Exposure in Mapped Fire Hazard Risk Areas**

	Trust Lands	Fee Lands	Total
<b>Residential Population</b>			
Number Exposed <sup>a</sup>	86	234	320
Exposed Population as % of Planning Area Total	35%	50%	45%
<b>Buildings</b>			
Number Exposed	49	3	52
Structure Value Exposed	\$20,073,432	\$12,494,547	\$32,567,979
Contents Value Exposed	\$16,265,096	\$6,292,187	\$22,557,283
<b>Total Value Exposed (Structure + Contents)</b>	<b>\$36,338,528</b>	<b>\$18,786,734</b>	<b>\$55,125,262</b>
Exposed Value as % of Planning Area Total Replacement Value	9.4%	22.5%	11.7%

a. Percent of residential buildings exposed multiplied by the estimated population.

#### Property Landslide Exposure by Land Use Category

Some land uses are more vulnerable to wildfire, such as single-family homes, while others are less vulnerable, such as agricultural land or parks. Figure 12-2 shows the existing land use of all buildings and parcels in the fire hazard risk areas.



Correct  
numbering  
resumes  
temporarily

**Hazard Mitigation Plan**

## **PART 3—MITIGATION STRATEGY**

**Table 16-1. Objectives for Natural Hazard Mitigation Plan Update**

Objective Number	Objective Statement	Goals for Which It Can Be Applied
O-1	Prevent (or discourage) new development in hazardous areas or ensure that, if building occurs in high-risk areas, it is done in such a way as to minimize risk	1, 2, 3, 4, 5
O-2	Use best available data, science and technologies to improve understanding of location and potential impacts of hazards, and to promote disaster-resilient communities that minimize risk.	1, 2, 3, 4, 5
O-3	Increase resilience and the continuity of operations of identified critical facilities within the tribal planning area.	2, 3, 4, 5
O-4	Establish a partnership among the tribal government and tribal business leaders with surrounding area government and business community to improve and implement methods to protect life, property, and the environment, while preserving the cultural integrity of the Santa Ynez Band of Chumash Indians.	1, 2, 3
O-5	Provide/improve fire protection activities through various means, including public education and outreach activities, defensible space, fire-resistant landscaping, spatial distribution of development, fuel treatment activities, and enhanced water supply systems where appropriate and feasible.	2, 4, 5
O-6	Develop reliable local emergency operations and facilities before during and after a disaster.	3, 4, 5
O-7	Pursue implementation of all feasible measures that reduce the risk exposure and promote the resilience of tribal property.	1, 2, 3, 4, 5
O-8	Seek mitigation projects that provide the highest degree of hazard protection in a cost-effective manner.	1, 2, 5
O-9	Inform the public about hazard risk exposure and ways to increase the public's capability and adaptive capacity to prepare for, respond to, recover from, and mitigate the impacts of natural-hazard events.	1, 4, 5



## 19. PLAN ADOPTION AND MAINTENANCE

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### 19.1 PLAN ADOPTION AND ASSURANCES

A hazard mitigation plan must document that it has been formally adopted by the governing body of the jurisdiction requesting federal approval of the plan (44 CFR Section 201.7(c)(5)). This plan will be submitted to FEMA Region IX for approval prior to adoption. Once pre-adoption approval has been provided, the tribe will formally adopt the plan. DMA compliance and its benefits cannot be achieved until the plan is adopted. The resolution adopting this plan can be found in Appendix C.

Hazard mitigation plans also require assurances of ongoing compliance with federal requirements (44 CFR Section 201.7(c)(6)). The tribal government will comply with all applicable federal statutes and regulations in effect with respect to the periods for which the tribe receives grant funding. This includes the administrative, cost and audit requirements established under 2 CFR Parts 200 and 3002. The Tribal Administration will amend the mitigation plan whenever necessary to reflect changes in tribal or federal laws and statutes.

### 19.2 PLAN MAINTENANCE STRATEGY

A hazard mitigation plan must present a plan maintenance process that includes the following (44 CFR Section 201.7(c)(4)):

- A section describing the method and schedule of monitoring, evaluating, and updating the mitigation plan
- A system for monitoring implementation of mitigation measures and project closeouts
- A process by which the tribal government incorporates the requirements of the mitigation plan into other planning mechanisms such as reservation master plans or capital improvement plans, when appropriate.
- A discussion on how the Indian tribal government will continue public participation in the plan maintenance process.

This section details the formal process that will ensure that the Hazard Mitigation Plan remains an active and relevant document and that the tribe maintains its eligibility for applicable funding sources. The plan maintenance process includes a schedule for monitoring and evaluating the plan annually and producing an updated plan every five years. This section also describes how public participation will be integrated throughout the plan maintenance and implementation process. It explains how the mitigation strategies outlined in this Plan will be incorporated into existing planning mechanisms and programs, such as comprehensive land-use planning processes, capital improvement planning, and building code enforcement and implementation. The Plan's format allows sections to be reviewed and updated when new data become available, resulting in a plan that will remain current and relevant.

#### 19.2.1 Plan Implementation

The effectiveness of the hazard mitigation plan depends on its implementation and incorporation of its action items into existing local plans, policies and programs. The action items provide a framework that the tribe can implement over the next 5 years. This plan presents goals and objectives and prioritizes mitigation actions that will be implemented through existing plans, policies, and programs.





## 2. PLANNING APPROACH

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The process followed to develop this hazard mitigation plan had the following primary objectives:

- Secure grant funding
- Form a planning team
- Define the planning area
- Establish a steering committee
- Establish a scope of work
- Coordinate with other agencies
- Review existing programs
- Engage the public.

### 2.1 GRANT FUNDING

This planning effort was supplemented by a 2016 Federal Emergency Management Agency (FEMA) Hazard Mitigation Assistance grant. The Santa Ynez Band of Chumash Indians was the applicant for the grant. It covered 75 percent of the cost for development of this plan; the tribe covered the balance through in-kind contributions.

### 2.2 PLANNING TEAM

The Santa Ynez Band of Chumash Indians hired Tetra Tech, Inc. to assist with development and implementation of the plan. The Tetra Tech project manager assumed the role of the lead planner, reporting directly to the tribe's project manager. A planning team was formed to lead the planning effort, made up of the following members:

- Teresa Romero, Santa Ynez Band of Chumash Indians Environmental Office
- Paul Swift, Santa Ynez Band of Chumash Indians Environmental Office
- Rob Flaner, CFM, Tetra Tech Project Manager/Lead Project Planner
- Carol Bauman, GISP, Tetra Tech Risk Assessment Lead
- Stephen Veith, CFM, Tetra Tech GIS Analyst
- Denise Davis, CEM, Tetra Tech Planner

The planning team members coordinated bi-weekly as needed throughout the planning process and were principally responsible for the facilitation of all phases of the plan's development.

### 2.3 PLANNING AREA

The planning area for this hazard mitigation plan includes the Santa Ynez Reservation, which consists of all the lands upon which the tribal government is authorized to govern, develop or regulate, as well as off-reservation fee lands that the tribe owns within the boundaries of other jurisdictions. Lands on the reservation are held in trust for the tribe by the U.S. federal government and are not subject to local jurisdiction. A map showing the geographic boundary of the defined planning area for this plan is provided in Chapter 3, along with a description of planning area characteristics.

## 2.4 STEERING COMMITTEE

Hazard mitigation planning enhances collaboration and support among diverse parties whose interests can be affected by hazard losses. A key element of the public engagement strategy for this plan was the formation of a steering committee to oversee all phases of the update. The members of this committee included tribe representatives, citizens, and other stakeholders from within the planning area. The planning team assembled a list of candidates representing interests within the planning area that could have recommendations for the plan or be impacted by its recommendations. Tribal leadership confirmed a committee of 16 members, as listed in Table 2-1.

**Table 2-1. Steering Committee Members**

Name	Title	Jurisdiction/Agency
Willie Wyatt <sup>a</sup>	Tribal Administrator	Santa Ynez Band of Chumash Indians
Teresa Romero <sup>b</sup>	Environmental Specialist	Santa Ynez Band of Chumash Indians
JP Zavalla	Fire Chief	Chumash Fire Department
Nakia Zavalla	Cultural Director	Santa Ynez Band of Chumash Indians
Kathy Marshall	Tribal Member	Santa Ynez Band of Chumash Indians
David Lackie	Supervising Planner	Santa Barbara County Long Range Planning
Tom Fayram	Deputy Director, Water Resources	Santa Barbara County Flood Control District
Bill Christen	Director of Security	Chumash Casino Resort
Daune Dowell	Risk Manager	Chumash Casino Resort
Jeff Hodge	General Manager	Santa Ynez Community Services
Chris Dahlstrom	General Manager	Santa Ynez Water Conservation
→ Ron Sisson	<del>Clinic Director</del> Executive Director	Santa Ynez Tribal Health Clinic
Paul Swift	Administrative Assistant	Santa Ynez Band of Chumash Indians
Lisa Figueroa	Executive Assistant	Santa Ynez Band of Chumash Indians
→ Sam Cohen	<del>Legal Advisor</del> Government and Legal Specialist	Santa Ynez Band of Chumash Indians
Krista Armenta-Belen	Behavioral Health Director	Santa Ynez Tribal Health Clinic

a = Chairperson, b = Vice-Chairperson

Leadership roles and ground rules were established during the Steering Committee’s initial meeting on March 8, 2018. The Steering Committee agreed to meet on the second Thursday of every month as needed throughout the course of the plan’s development. The planning team facilitated each Steering Committee meeting, which addressed a set of meeting-specific objectives. The Steering Committee met six times from March 2018 through September 2017. All meetings were open to the public and were advertised as such on the hazard mitigation plan website. Agendas were posted to the website prior to each scheduled Steering Committee meeting, and meeting summaries were posted to the hazard mitigation plan website following their approval by the Steering Committee. Meeting agendas, notes and attendance logs are provided in Appendix A of this plan.

## 2.5 SCOPE OF WORK

Tetra Tech developed a seven-phase scope of work for the planning process:

- **Phase 1, Organize and Review**—This phase included organization and facilitation of an oversight Steering Committee and its meetings, review of the initial planning work completed to date by the Santa Ynez Band of Chumash Indians, agency coordination, and review of existing plans, studies and programs related to hazard mitigation planning.



- **Phase 2, Risk Assessment**—This phase consisted of a risk assessment that complies with 44 CFR (Section 201.7 7(c)(2)(i)). The hazards assessed determined during Phase 1 by the Steering Committee. For each identified hazard, a vulnerability analysis was performed that included the following:
  - An inventory of the number and type of structures at risk
  - An assessment of the impact on life, safety, and health
  - An evaluation of the need and procedures for warning and evacuation
  - Identification of critical facilities (hospitals, for example) and an assessment of impact of them
  - A review of projected future development trends for each hazard area.
- **Phase 3, Public Involvement Strategy**—A public outreach strategy was developed and approved by the Steering Committee. This strategy focused on the tribe’s existing capabilities and public outreach efforts to keep the public apprised of the plan’s progress.
- **Phase 4, Goals, Objectives, Capabilities and Actions**—The planning team worked with the Steering Committee to identify a vision, goals and objectives for the plan. Alternatives for mitigating each hazard were identified and evaluated to identify recommended hazard mitigation actions.
- **Phase 5, Monitoring, Evaluating and Updating the Plan**—The Steering Committee reviewed and approved a plan maintenance strategy, including a protocol for preparing an annual progress report to monitor the implementation of actions identified in this plan.
- **Phase 6, Assemble the Plan**—The planning team assembled the hazard mitigation plan document in compliance with 44 CFR (Section 201.7).
- **Phase 7, Complete Plan Review and Adoption**—The planning team facilitated review and adoption of the plan. This included presentation of draft versions of the plan to the Steering Committee, preparation of a tribal public review draft, completion of a plan review crosswalk, support of the adoption process, and submittal of final plan package to FEMA for review and approval.

The principle object was to develop a FEMA-approved tribal hazard mitigation plan pursuant to the requirements specified in 44 CFR (Section 201.7). The tribe had prepared a prior hazard mitigation plan in 2014, but that plan was never formally adopted by the tribe or approved by FEMA. Therefore, the scope of work was set up as if this were the tribe’s first hazard mitigation planning effort.

## 2.6 COORDINATION WITH STAKEHOLDERS AND AGENCIES

Opportunities for involvement in the planning process must be provided to neighboring communities, local and regional agencies involved in hazard mitigation, agencies with authority to regulate development, businesses, academia, and other private and nonprofit interests (44 CFR, Section 201.7(c)(2)). Agency coordination was accomplished by the planning team as follows:

- **Steering Committee Involvement**—Agencies were invited to participate on the Steering Committee.
- **Agency Notification**—The following agencies were invited to participate in the plan development process from the beginning and were kept apprised of plan development milestones:
  - Santa Barbara County Long Range Planning
  - Santa Barbara County Flood Control District
  - The City of Santa Ynez, Community Services Department
  - Santa Ynez Water Conservation District
  - ~~The Chumash Casino Resort~~
  - Santa Ynez Tribal Health Clinic
  - California Office of Emergency Services
  - FEMA Region IX

- Department of Interior, Bureau of Indian Affairs, Aid to Tribal Government
- U.S. Environmental Protection Agency (EPA) Indian General Assistance Program
- California Tribal Nations Emergency Management Council

These agencies received meeting announcements, meeting agendas, and meeting minutes by e-mail throughout the plan development process and were provided the option to attend meetings. Some agencies supported the effort by attending meetings or providing feedback on issues.

- **Pre-Adoption Review**—All the agencies listed above were provided an opportunity to review and comment on this plan, primarily through the hazard mitigation plan website (see Section 2.8.2). All were sent an e-mail message informing them that draft portions of the plan were available for review.

## 2.7 REVIEW OF EXISTING PLANS, STUDIES AND REPORTS

Hazard mitigation planning must include review and incorporation, if appropriate, of existing plans, studies, reports and technical information (44 CFR, Section 201.7(c)(3)). Chapter 4 of this plan provides a thorough review of laws and ordinances that can affect hazard mitigation in the planning area, along with an assessment of the tribe's regulatory, technical and financial capabilities to implement hazard mitigation actions. In addition, the following programs can affect mitigation within the planning area:

- The Chumash Threat and Hazard Identification and Risk Assessment (April 25, 2014)
- Water Sampling and Analysis Plan/Quality Assurance Project Plan
- Tribal Emergency Operations Plan
- Casino Expansion Environmental Assessment
- Camp 4 Site Expansion Environmental Assessment
- U.S. EPA Building Blocks for Sustainable Communities technical assistance program
- The Strategic Energy Management Plan
- Santa Barbara County Comprehensive Plan
- 2017 Santa Barbara County Multi-Jurisdictional Hazard Mitigation Plan
- 2018 California State Hazard Mitigation Plan.

## 2.8 PUBLIC INVOLVEMENT

Broad public participation in the planning process helps ensure that diverse points of view about local needs are considered and addressed. The public must have opportunities to comment on disaster mitigation plans during the drafting stages and prior to plan approval (44 CFR, Section 201.7(c)(1)).

### 2.8.1 Defining the Public

44 CFR (Section 201.7(c)(1)) requires tribal hazard mitigation plans to include a description of how the Indian tribal government defined "public." FEMA guidance clarifies this requirement as follows:

*... "public" is sometimes defined as including only tribal membership, or tribal citizens. It might also be identified as those living on tribal land or in the tribal service area. Tribal members/citizens who do not live on the tribal lands may also want to provide input or comment on the plan.*

The Steering Committee reviewed its options for defining "public" for this planning effort at its March 8, 2018, meeting. Based on the discussion at that meeting, the committee chose to define the public as all registered tribal members, whether or not they live on the Santa Ynez Reservation, as well as known lineal descendants of the tribe who are not registered tribal members. People who work or recreate on the reservation but are not tribal members or descendants are considered "stakeholders" rather than members of the public.



into actions by the planning team and presented to the Steering Committee to be considered for inclusion in the action plan identified for this plan.

Notice of the public meeting and charrette was emailed and mailed to tribal members and emailed to tribal descendants.

### **Public Comment on the Plan**

A 14-day public comment period, from September 1 to September 15, 2017, gave the public an opportunity to comment on the draft plan prior to its submittal to Cal OES. The principle avenue for public comment on the draft plan was the website established for this plan. Additionally, public meetings were held on September 11, 2017 in Martinez and on September 12, 2017 in San Ramon to allow an opportunity to provide comment on the draft plan. These meetings were advertised via a county-wide press release distributed by the Contra Costa County Public Information Officer. At each public meeting, a 30-minute presentation was given, followed by a period for questions and answers by those in attendance. Meeting attendance is summarized in Table 2-2. Comments received on the draft plan are available upon request. All comments were reviewed by the planning team and incorporated into the draft plan as appropriate.

**Table 2-2. Summary of Public Meetings**

Date	Session	Number in Attendance	Number of Comments Received
8/14/2018	General Council Meeting	13	None
8/12/2017	Charrette	6	Many
TBD	Public Comment period	N/A	
<b>Total</b>		<b>36</b>	<b>18</b>

### **2.8.3 Public Involvement Results**

The public involvement strategy used for this plan introduced the concept of mitigation to the public and provided the Steering Committee with feedback to use in developing the plan. All citizens of the planning area were provided ample opportunities to provide comment during all phases of this plan process. Details of attendance and comments received from the public meetings are summarized in Table 2-2. Detailed analysis of the survey findings is presented in Appendix A; a summary is as follows:

- Number of hard copy surveys received—10
- Number of surveys completed via the internet— 67
- Total surveys analyzed— 77
- 28.57 percent of the surveys were completed by tribal members, and 66.23 percent were completed by tribal descendants.
- Over 80 percent of the respondents live off the reservation.
- Survey respondents ranked wildfire as the hazard of highest concern, followed by earthquake and drought.
- The majority of respondents expect to receive information on immediate threats caused by hazards from television and a public notification system.
- Over 55 percent of respondents stated that they are “somewhat” prepared to get along without electricity or natural gas for 1 to 5 days.
- Over 64 percent of the respondents stated that they have homeowner’s insurance.
- 40 percent of the respondents stated that they would support the restriction of land use by the tribe on the reservation.
- Over 56 percent of the respondents support the application of building codes and standards.

- Over 60 percent of respondents stated that they had considered the impact a natural disaster could have on their home before they moved into the home.
- 10 “write-in” comments received from the surveys were provided to the Steering Committee.

All survey results were provided to the Steering Committee for review in support of confirming the guiding principle, goals, objectives and the tribe’s action plan for this planning process.

### 2.8.4 Plan Development Chronology/Milestones

Table 2-3 summarizes important milestones in the plan process.

Date	Event	Description	Attendance
<b>2016</b>			
9/15	Secure Funding	Tribe applies for a FEMA Pre-Disaster Mitigation (PDM) planning grant to develop a hazard mitigation plan	N/A
<b>2017</b>			
4/15	Secure Funding	Tribe's PDM grant application selected for further review by FEMA	N/A
9/17	Agency Coordination	Santa Ynez Band of Chumash Indians, PDMC-PL-09-CAIT007-2016-001, post-award kickoff meeting	5
12/15	Organize Resources	Tribe hires Tetra Tech to facilitate the planning process	N/A
<b>2018</b>			
3/8	Steering Committee Meeting #1	<ul style="list-style-type: none"> <li>• Project Overview</li> <li>• Steering Committee Ground Rules</li> <li>• Hazards of Concern</li> <li>• Define “Public,” Public Outreach strategy</li> <li>• Action Items and Next Steps</li> </ul>	14
4/19	Steering Committee Meeting #2	<ul style="list-style-type: none"> <li>• Risk Assessment Data Needs</li> <li>• Vision/Mission Statement for the Plan</li> <li>• Goals</li> <li>• Public Outreach Strategy (website)</li> <li>• Action Items and Next Steps</li> </ul>	12
4/30	Public Outreach Strategy	Webpage is established for information on the hazard mitigation plan on the Santa Ynez Band of Chumash Indians website. <a href="https://syceo.org/hazardmitigation/">https://syceo.org/hazardmitigation/</a>	N/A
5/10	Steering Committee Meeting #3	<ul style="list-style-type: none"> <li>• Risk Assessment Data Needs Follow-Up</li> <li>• Finalize the Goals</li> <li>• Define Critical Facilities/Infrastructure for the Tribe</li> <li>• Public Outreach Strategy (Survey)</li> <li>• Action Items and Next Steps</li> </ul>	6
6/4	Public Outreach Strategy	Hazard mitigation survey deployed to all tribal members.	N/A
6/5 - 6/8	Risks Assessment	Field team deployed to the reservation to create asset inventory of the general building stock and critical facilities and infrastructure on the reservation.	N/A
6/14	Steering Committee Meeting #4	<ul style="list-style-type: none"> <li>• Risk Assessment (presentation of inventory created from field survey work)</li> <li>• Finalize the Objectives for the Plan</li> <li>• Public Outreach Strategy (public meeting)</li> <li>• Core Capability Assessment Homework</li> <li>• Action Items and Next Steps</li> </ul>	9



emergency medical technicians also serve as mentors. Fire department staff have worked as instructors at the firefighting program at Allan Hancock Community College in Santa Maria. Through work with the Bureau of Indian Affairs, the department has gone to other reservations in California and the Southwest to teach and offer assistance, as well as temporarily trading employees to provide other types of training.

### 3.5.6 Education Department

Children in the Santa Ynez Band of Chumash Indians attend public and private schools off of the reservation. The Education Department is led by an education committee and an education director. The committee, composed of seven elected tribal members and the education director, works to guide strategic educational investments in the tribe's community members to support kindergarten readiness, educational attainment, and career transitions. It also advocates for tribal students and their families.

The Education Department administers a financial aid program to support tuition expenses for students in pre-school through college. The department also helps adults with GED and high school diploma completion, as well as college planning. Credentialed teachers are employed by the tribe to guide community members to support the educational attainment of students at any age. The teachers tutor students in key subject areas, and coach them so they may realize their full scholastic potential.

The Education Department offers adult workshops addressing parenting strategies, financial literacy, planning for small businesses, gardening and photography to stimulate lifelong learning. Family forums and educational field trips are designed for intergenerational learning in a variety of subjects—from substance abuse prevention to zoology. The Education Department offers academic intervention, summer programs and resources focusing on academic skill building in math, reading and science to tribal students K-12.

### 3.5.7 Environmental Office

The Environmental Office has a mission to prepare tribal lands for environmental adaptation, to protect and regenerate natural resources, and to cultivate the connection between culture, spirit, and community through collaboration and education. The Environmental Office has developed an energy management plan for the tribe to implement energy efficiency, energy security, conservation, education, and renewable energy projects. These projects align with the economic goals and cultural values of the community to improve the health and welfare of the tribe. The intended outcomes of implementing the energy plan include job creation, capacity building, and reduced energy costs for tribal community members and tribal operations. By encouraging energy independence and local power production, the plan will promote self-sufficiency.

Energy for the tribal government administrative offices, health clinic, fire station, education center, and Camp 4 property are all managed directly by the tribal government. The tribal government also provides energy management services to residents of the reservation. The energy for all other properties and facilities is managed by the Chumash Casino Resort Facilities Department. Energy use at the Chumash Casino Resort is controlled and monitored using sophisticated systems, and great effort has been put into greening operations.

The Environmental Office serves as the tribal resource agency and works with other tribal decision makers to create strategic plans for the overall, long-term management and development of the tribe's natural resources, including the *Strategic Energy Management Plan for the Santa Ynez Band of Chumash Indians*.

### 3.5.8 Tribal Health Clinic

The Santa Ynez Tribal Health Clinic is located on the reservation. The clinic is a stand-alone subsidiary that specializes in high-quality health care through modern medicine and cultural traditions. Until 2014, the clinic was a not-for-profit organization under the Federally Qualified Health Centers guidelines, receiving over 90 percent of

its funding through grants. These grants were primarily from the Indian Health Services, which is coordinated and managed at the federal level and requires all funding received to be used for patient care and services. Since 2014, the clinic has achieved Title V Compacting, which allows it to self-manage its grant funding sources. The Santa Ynez Tribal Health Clinic has achieved mature contractor status with the Indian Health Service and the Bureau of Indian Affairs. The clinic is a certified Federally Qualified Health Center Medi-Cal/Medicare facility.

The clinic provides approximately 17,000 patient visits annually providing medical, dental, and behavioral health services. It serves a local population of about 2,700 people, mainly Native Americans and low-income people of diverse ethnicity, including Hispanic/Latino agricultural workers. Patients range in age from newborn infants to older patients 65 and over. The clinic provides home visits to tribal residents needing services, from newborns to the elderly. Referrals to outside medical and non-medical services are also provided.

Comprehensive services are offered to the indigent, uninsured, and underinsured. All income levels are accepted, from self-pay and patients with insurance, to those covered by Medi-Cal or Medicare, and those eligible for a sliding fee scale, based on their income. An estimated 87 percent of patients live below the poverty level and are not able to pay for services, either due to lack of insurance or lack of sufficient insurance. As a result, many patients are registered with alternative resources to cover their service fees. The majority of the tribal population receives services at little or no cost. The clinic is the only health care facility offering medical, dental, and community health services to the low-income population of rural Santa Barbara County, and is constantly searching for funding or partnerships to maintain its array of programs.

### 3.5.9 Santa Barbara County Sheriff's Office

Under an agreement that went into effect on January 1, 2015, between the Santa Barbara County Sheriff's Office and the Santa Ynez Band of Chumash Indians, County sheriff's deputies are contracted to provide law enforcement services on the Santa Ynez reservation and in the surrounding Santa Ynez Valley. Sheriff's deputies work in the Chumash Station office located at the tribal administrative offices.

A community resource deputy is assigned to provide ongoing community policing services to the tribe and also serves as an ambassador to the surrounding Santa Ynez Valley community. The deputy acts as a liaison with tribal, business and community organizations. A mitigation deputy is assigned with a focus on crime prevention and other efforts to mitigate the potential for public safety problems, such as those related to alcohol consumption. This position also patrols the community.

### 3.6 CULTURAL RESOURCES *Programs*

The Santa Ynez Band of Chumash Indians website states "The culture of the Santa Ynez Band of Chumash Indians is deep within the souls of every tribal member and rests within our hearts." Over the years, various political and religious groups have tried to eliminate the Chumash culture by forbidding tribal members to speak the Chumash language, sending Chumash children to boarding schools, and forcing tribal members to vacate the traditional native religion. Many of the Chumash core beliefs were stripped away from the tribe's people. Despite all this, the tribe has maintained a connection to its ancestors and to a core identity of being Chumash. The tribe has survived because of its strength as a tribe and its spiritual connection to Chumash heritage.

Chumash culture is still alive through cultural enrichment programs funded by revenue from the Chumash Casino Resort. The tribe continues to implement programs to ensure that its culture remains strong within the tribe and is preserved for the Chumash children.

Cultural programs available for the Chumash tribal members and their children include basket weaving classes, and Samala language (a member of the Chumashan language family) classes. The following sections describe some of the programs the tribe has implemented to enrich and preserve the Chumash culture for its people.



- California Tribal Nations Emergency Management Council
  - Tribal members, including the Steering Committee's tribal liaison, are involved in the training and coordination efforts of the California Tribal Nations Emergency Management Council; have received training in developing Community Emergency Response Teams, as well as disaster preparedness and basic mitigation training.

An assessment of fiscal capabilities is presented in Table 4-4. For each resource, the table indicates whether the tribe may be able to access the resource and whether the funds available can be used for pre-disaster mitigation, post-disaster mitigation, or both.

**Table 4-4. Funding Capability**

Funding Resource	Accessible to Use?	Activities That Can Be Funded	
		Pre-Disaster	Post-Disaster
Community Development Block Grants	Yes	Yes	Yes
Income Generating Businesses	Yes	Yes	Yes
Capital Improvements Project Funding	Yes	Yes	Yes
Authority to Levy Taxes for Specific Purposes	Yes	Yes	Yes
User Fees for Water, Sewer, Gas or Electric Service	Yes	Yes	Yes
Incur Debt through General Obligation Bonds	Yes	Yes	Yes
Incur Debt through Special Tax Bonds	Yes	Yes	Yes
Incur Debt through Private Activity Bonds	Yes	Yes	Yes
Withhold Public Expenditures in Hazard-Prone Areas	No	--	--
State-Sponsored Grant Programs	Yes	Yes	Yes
Development Impact Fees for Homebuyers or Developers	No	--	--
Bureau of Indian Affairs Sponsored Grant Programs	Yes	Aid to Tribal Governments, Indian Employment Assistance, Cooperative Landscape Conservation, Strengthening Tribal Nations, Climate Change Adaptation Grants	
Indian Health Services Grant Programs	Yes	Health Education, Tribal Management, Indian Children's Program, Health Services	
U.S. Dept. of Agriculture, Rural Development Agency Grant Programs	No	--	--
U.S. Environmental Protection Agency Grant Programs	Yes	Indoor air quality, multi-purpose, general assistance program, environmental programs.	
U.S. Fire Administration Grant Programs	Yes	Yes	
Tribal Homeland Security Grants	Yes	Terrorism and other hazards prevention, response and recovery.	
U.S. Army Corps of Engineers	No	--	--
FEMA Stafford Act Grant Programs	Yes	Hazard mitigation assistance, pre-disaster mitigation, flood mitigation assistance, fire management assistance grants	Public assistance, hazard mitigation grant program, flood mitigation assistance, fire management assistance grants
Healthy Forest Restoration Action	No	--	--

### 4.3.4 Grant Administration

Grant funding received by the tribe is administered by the Tribal Administration. The tribe uses accounting systems that meet the minimum standards required by 2 CFR Part 200 which include the following:

- Disclosure of accurate, current and complete financial results of federally assisted activities
- Maintenance of effective internal controls and accountability for all assets, including accounting controls and management activities
- Preparation of a separate budget for each federally assisted program based on prescribed categories, and assurance that expenditures do not exceed the approved budgets
- Assurances that funds are expended in accordance with program requirements set forth in grant agreements
- Maintenance of source documents in both electronic and paper form and financial management procedures that provide an effective system of internal controls to safeguard cash and other assets
- The provision of timely, accurate and complete financial information for management to make informed decisions and review accuracy of financial information
- The provision of financial data needed to prepare the financial statements and various federal reports and permit a timely and effective audit.

These policies ensure that financial information is presented and reported in accordance with generally accepted accounting practices. The tribal financial management policies and procedures follow U.S. Office of Management and Budget requirements for recordkeeping, financial reporting, and audits.

During a grant project, the program director presents the project status at least monthly to the tribal administrator and the finance director. This includes the status of the implementation schedule and explanations of any deviations, the status of the budget relative to actual revenue and expenditures, and upcoming phases to complete the project. Quarterly reports consist of the required Federal Financial Report, Form 425, prepared by the tribal administrator and finance director, and project narratives prepared by the program director. Annually, all financial reports and project narratives are reviewed and approved by the Business Committee as part of the annual budget review of the Environmental Office. The program director prepares and submits final closeout reports, with the approval of the tribal administrator and finance director.

### 4.3.5 Administrative and Technical Capabilities

Legal, regulatory, and fiscal capabilities provide the backbone for successfully developing a mitigation strategy; however, without appropriate personnel, the strategy may not be implemented. Administrative and technical capabilities focus on the availability of personnel resources responsible for implementing all the facets of hazard mitigation. These resources include technical experts, such as engineers and scientists, as well as personnel with capabilities that may be found in multiple departments, such as grant writers. An assessment of administrative and technical capabilities is presented in Table 4-5.

Technical resources that can be used in overall mitigation efforts include several types of equipment, GIS and other software, and, most important, personnel. Many tribal program staff, casino resort staff and tribal members have been trained or certified in mitigation concepts, firefighting, hazardous materials response and containment, first aid, CPR and emergency management. In addition, reservation residents have always used their personal resources for the benefit of the tribe during times of disaster. Individual staff members have backgrounds in land development, land use planning, land management, environmental and risk management, security, facilities operations and grant writing. There is also a core group of certified ~~Native American~~ *Cultural* monitors who serve as onsite observers to ensure that any earth-disturbing efforts on the reservation do not impact cultural resources.



## 5. IDENTIFIED HAZARDS OF CONCERN AND RISK ASSESSMENT METHODOLOGY

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Risk assessment is the process of measuring the potential loss of life, personal injury, economic injury, and property damage resulting from identified hazards. It allows emergency management personnel to establish early response priorities by identifying potential hazards and vulnerable assets. The process focuses on the following elements:

- **Hazard identification**—Use all available information to determine what types of hazards may affect a jurisdiction, how often they can occur, and their potential severity.
- **Exposure identification**—Estimate the total number of people and properties in the jurisdiction that are likely to experience a hazard event if it occurs.
- **Vulnerability identification and loss estimation**—Assess the impact of hazard events on the people, property, environment, economy and lands of the region, including estimates of the cost of potential damage or cost that can be avoided by mitigation.

The risk assessment for this hazard mitigation plan evaluates the risk of natural hazards prevalent in the planning area and meets requirements of the Disaster Mitigation Act (44 CFR, Section 201.7(c)(2)).

To protect individual privacy and the security of critical facilities, information on properties assessed is presented in aggregate, without details about specific individual personal or public properties.

### 5.1 IDENTIFIED HAZARDS OF CONCERN

The Steering Committee considered the full range of natural hazards that could affect the planning area and then listed hazards that present the greatest concern. The process incorporated a review of state and local hazard planning documents as well as information on the frequency of, magnitude of, and costs associated with hazards that have struck the planning area or could do so. Anecdotal information regarding natural hazards and the perceived vulnerability of the planning area's assets to them was also used. Based on the review, this plan provides a risk assessment for the following hazards of concern (presented in alphabetical order; the order of listing does not indicate the hazards' relative severity):

- Dam failure
- Drought
- Earthquake
- Flood
- Landslide
- Severe weather
- Wildfire

In addition to the identified hazards of concern, other hazards were identified that are of interest to the tribe but that were not given a quantitative risk assessment because they are lesser hazards or because available information

on them is not adequate to carry out such a risk assessment. A qualitative investigation was conducted for each of these hazards of interest:

- Terrorism
- Cyber security threat
- ~~Aviation incident~~ ?
- Infectious disease
- Hazardous materials
- Active shooter incident.

## 5.2 RISK ASSESSMENT TOOLS

### 5.2.1 Mapping

National, state, and county databases were reviewed to locate available spatially based data relevant to this planning effort. Maps were produced using geographic information system (GIS) software to show the spatial extent and location of hazards when such datasets were available. These maps are included in the hazard profile chapters of this document.

### 5.2.2 Modeling

#### Overview

In 1997, FEMA developed the standardized Hazards U.S. (Hazus) model to estimate losses caused by earthquakes and identify areas that face the highest risk and potential for loss. Hazus was later expanded into a multi-hazard methodology with new models for estimating potential losses from hurricanes and floods.

Hazus is a GIS-based software program used to support risk assessments, mitigation planning, and emergency planning and response. It provides a wide range of inventory data, such as demographics, building stock, critical facility, transportation and utility lifeline, and multiple models to estimate potential losses from natural disasters. The program maps and displays hazard data and the results of damage and economic loss estimates for buildings and infrastructure. Its advantages include the following:

- Provides a consistent methodology for assessing risk across geographic and political entities.
- Provides a way to save data so that they can readily be updated as population, inventory, and other factors change and as mitigation planning efforts evolve.
- Facilitates review of mitigation plans because it helps to ensure that FEMA methodologies are incorporated.
- Supports grant applications by calculating benefits using FEMA definitions and terminology.
- Produces hazard data and loss estimates that can be used in communication with local stakeholders.
- Is administered by the local government and can be used to manage and update a hazard mitigation plan throughout its implementation.

#### Levels of Detail for Evaluation

Hazus provides default data for inventory, vulnerability, and hazards; these default data can be supplemented with local data to provide a more refined analysis. The model can carry out three levels of analysis, depending on the format and level of detail of information about the planning area:



## La Purisima

Mission Purisima Concepcion, near present-day Lompoc, causing that site to be abandoned and a new Mission Purisima built several miles north. At Mission Santa Inez, damage was considerable, but not as severe as at Santa Barbara or Mission Purisima. A seismic sea wave connected with this earthquake may have been responsible for damaging a Spanish ship at anchor 38 miles from Santa Barbara.

- **1883 Santa Barbara Channel Earthquake**—A magnitude-6.25 earthquake with an epicenter in the Santa Barbara Channel struck on September 5, 1883.
- **June 29, 1925, Santa Barbara Earthquake**—The 1925 Santa Barbara earthquake pointed out one of the problems associated with rapid growth in California: sub-standard construction leading to structures that give way easily in an earthquake. In the business district of Santa Barbara—an area of about 36 blocks—only a few structures were not substantially damaged, and many had to be completely demolished and rebuilt. Some \$8 million of damage occurred, and 13 deaths were reported. Had the quake occurred when the business district was more crowded, the death toll would likely have been greater.
- **June 30, 1941, Santa Barbara Earthquake**—The shaking from this quake, which was felt as far away as Mojave, Lake Arrowhead and San Diego, reached an intensity of VIII (on the Modified Mercalli intensity scale) in Carpinteria and Santa Barbara. Several water mains were broken. Some walls cracked and fell. The tops of streetlights snapped off, and goods were thrown down from store shelves. Damage was estimated at \$150,000.
- **August 13, 1978, Santa Barbara Earthquake**—The 1978 Santa Barbara earthquake was a damaging quake, with 65 injuries (mostly minor) and \$15 million in property damage. Near Goleta, a freight train was derailed, several buildings were damaged, and there was minor damage to a bridge. One roof collapsed in Santa Barbara, some walls were cracked, and other minor damage was reported. There is reason to suspect that this quake occurred on a shallow, north-dipping decollement underneath the Santa Barbara area. Its depth and focal mechanism are similar to those of the Whittier Narrows earthquake, for which a similar model has been suggested.

Figure 8-2 displays historical epicenters of earthquakes in Santa Barbara County since 1568. There have not been any significant earthquakes in Santa Barbara County since 2009.

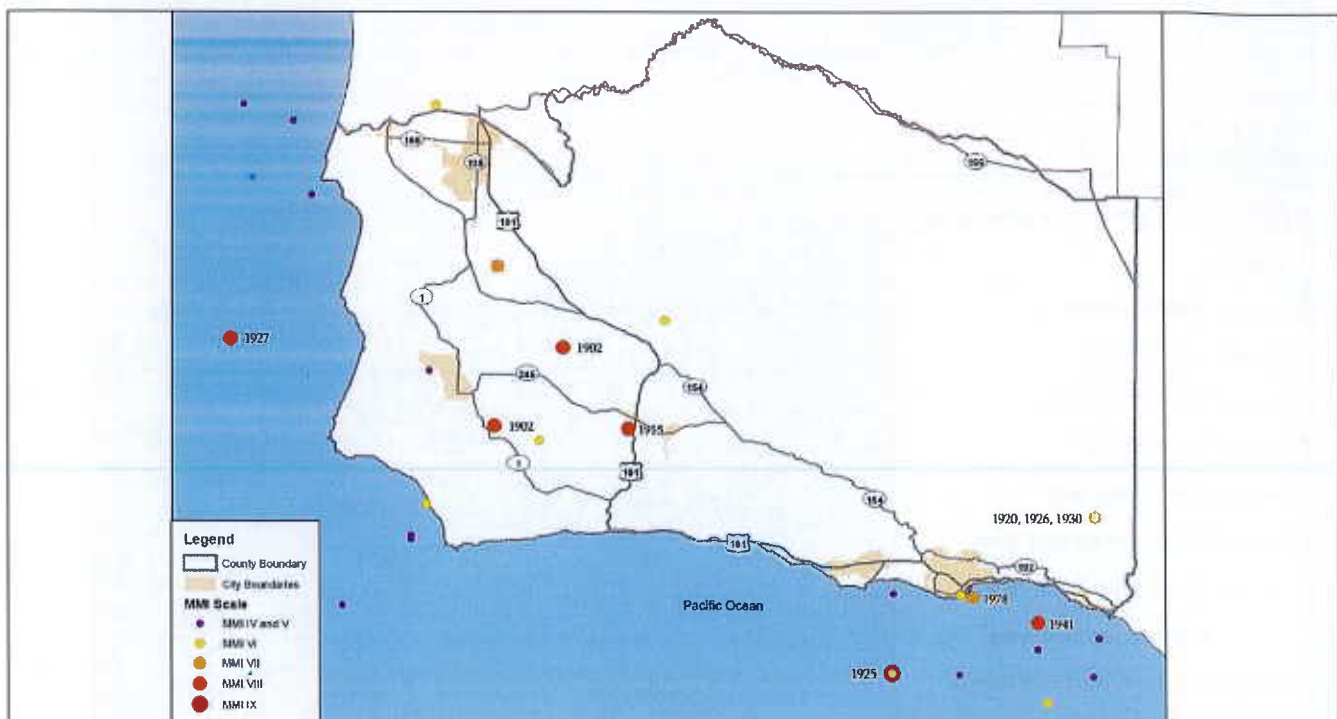


Figure 8-2. Historical Epicenters in Santa Barbara County, 1568 to 2009

### 8.2.2 Location

Santa Barbara County is located in a high seismic activity zone in the Transverse Range geologic province. Movement of the continental plates occurs primarily along the San Andreas Fault system, which is 7 miles northeast of Santa Barbara County. Active faults in Santa Barbara County include the Nacimiento, Ozena, Suey, and Little Pine faults. Other active faults in the region include the Big Pine, Mesa, Santa Ynez, Graveyard-Turkey Trap, More Ranch, Pacifico, Santa Ynez, and Santa Rose Island faults. Figure 8-3 shows the location of faults near the planning area.



Figure 8-3. Fault Locations Near the Planning Area



The following summary of major flood events that have had an impact on the reservation was developed from information provided by Santa Barbara County, state and federal disaster management and preparedness agencies, the Santa Barbara County American Red Cross, newspaper articles and similar historical documents, and information provided by members and other residents of the reservation:

- 1862—Great Flood
- 1907—Flood flows on the Santa Ynez River engulfed the entire Lompoc Valley
- 1969—California declared Santa Barbara County a disaster area on January 25; major flooding along the Zanja de Cota; Santa Ynez River experienced the highest flows in almost 3,000 years; 16 inches of rain fell at Juncal Dam in a 24-hour period; in the Upper Santa Ynez watershed, the flood was equivalent to a 100-year storm
- 1980—Major flooding along the Zanja de Cota; mudslides in some areas
- 1992 – 1993—Santa Ynez Valley received approximately 180 percent of normal rainfall
- 1995—Major flooding along the Zanja de Cota; part of widespread flooding throughout the County
- 1997 – 1998—Flooding along the Zanja de Cota; several record-breaking rainfalls with 50-year storm event intensities in February 1998.

This is not a summary of major events for all of Santa Barbara County, but only for tribal lands and adjacent or nearby communities such as Santa Ynez, Buellton and Solvang.

### 9.2.3 Location

No official flood hazard mapping has been performed on the Santa Ynez Reservation, with the exception of some site-specific mapping done for the environmental impact study prepared in conjunction with a recent expansion of the Chumash Casino Resort. The flood risk assessment for the reservation used flooding estimates developed from Hazus as described in Section 5.3.1. Figure 9-1 shows the floodplain boundaries developed from this process. For risk assessment of the fee lands outside the reservation, the Santa Barbara County DFIRM produced by FEMA (dated September 28, 2018) was used.

### 9.2.4 Probability of Future Events

Recent history has shown that the Santa Ynez Reservation can expect an average of one episode of minor river flooding each winter. Winter floods inundate most of Santa Barbara County's 100-year floodplain at intervals of 3 to 10 years. Large, damaging floods typically occur every 10 years. The frequency of flooding in smaller streams and basins can be expected to increase somewhat as a result of increased development in and around the reservation, increasing the number of impervious surfaces.

### 9.2.5 Severity

The principal factors affecting flood damage are flood depth and velocity. The deeper and faster flood flows become, the more damage they can cause. Shallow flooding with high velocities can cause as much damage as deep flooding with slow velocity. This is especially true when a channel migrates over a broad floodplain, redirecting high velocity flows and transporting debris and sediment.

Insert Flood Map

Figure 9-1. Risk Assessment Flood Boundaries

Outline  
or  
no - outline  
of lower Rez.

