

Sonoma County Multijurisdictional Hazard Mitigation Plan Update 2021

PART 1—PLANNING PROCESS AND COMMUNITY PROFILE

1. INTRODUCTION TO HAZARD MITIGATION PLANNING

1.1 WHY PREPARE THIS PLAN?

1.1.1 The Big Picture

Hazard mitigation is defined as any action taken to reduce or alleviate the loss of life, personal injury, and property damage that can result from a disaster. It involves long- and short-term actions implemented before, during and after disasters. Hazard mitigation activities include planning efforts, policy changes, programs, studies, improvement projects, and other steps to reduce the impacts of hazards.

The federal Disaster Mitigation Act (DMA) of 2000 emphasizes planning for disasters before they occur. The DMA requires state and local governments to develop hazard mitigation plans as a condition for federal disaster grant assistance. Regulations developed to fulfill the DMA's requirements are included in Title 44 of the Code of Federal Regulations (44 CFR).

The responsibility for hazard mitigation lies with many, including private property owners, commercial interests, and local, state and federal governments. The DMA encourages cooperation among state and local authorities in pre-disaster planning. The enhanced planning network called for by the DMA helps local governments to articulate accurate needs for mitigation, resulting in faster allocation of funding and more cost-effective risk-reduction projects.

The DMA also promotes sustainability in hazard mitigation. To be sustainable, hazard mitigation needs to incorporate sound management of natural resources and address hazards and mitigation in the largest possible social and economic context.

1.1.2 Purposes for Planning

Sonoma County prepared a hazard mitigation plan in compliance with the DMA in 2006 and has updated the plan every five years since then, most recently in 2016. This *Sonoma County Multijurisdictional Hazard Mitigation Plan Update 2021* fulfills the ongoing update requirement.

In preparing this update, Sonoma County has partnered with local cities and special-purpose districts. One of the benefits of such multi-jurisdictional planning is the ability to pool resources and eliminate redundant activities within a planning area that has uniform risk exposure and vulnerabilities. The Federal Emergency Management Agency (FEMA) encourages multi-jurisdictional planning under its guidance for the DMA. The recommendations of this update were selected because they best meet the needs of all the planning partners and their citizens.

The 2021 Update will help guide and coordinate mitigation activities throughout the planning area. It was developed to meet the following objectives:

- Meet or exceed requirements of the DMA.
- Enable all planning partners to continue using federal grant funding to reduce risk through mitigation.
- Meet the needs of each planning partner as well as state and federal requirements.
- Create a risk assessment of local hazards of concern.
- Meet the planning requirements of FEMA’s Community Rating System (CRS), allowing eligible planning partners to consider participation in the CRS program.
- Coordinate existing plans and programs so that high-priority projects to mitigate possible disaster impacts are funded and implemented.

1.2 WHO WILL BENEFIT FROM THIS PLAN?

All citizens and businesses of Sonoma County are the ultimate beneficiaries of this hazard mitigation plan. The plan reduces risk for those who live in, work in, and visit the planning area. It provides a viable planning framework for all foreseeable natural hazards. Participation in development of the plan by key stakeholders helped ensure that outcomes will be mutually beneficial. The resources and background information in the plan are applicable across the planning area, and the plan’s goals and recommendations can lay groundwork for the development and implementation of local mitigation activities and partnerships.

1.3 CONTENTS OF THIS PLAN

This plan has been set up in two volumes so that elements that are jurisdiction-specific can easily be distinguished from those that apply to the whole planning area:

- Volume 1—Volume 1 includes all federally required elements of a disaster mitigation plan that apply to the entire planning area. This includes the description of the planning process, public involvement strategy, goals and objectives, planning area hazard risk assessment, planning area mitigation actions, and a plan maintenance strategy.
- Volume 2—Volume 2 includes all federally required jurisdiction-specific elements, in annexes for each participating jurisdiction. It includes a description of the participation requirements established by the Steering Committee, as well as instructions and templates that the partners used to complete their annexes. Volume 2 also includes “linkage” procedures for eligible jurisdictions that did not participate in development of this plan but wish to adopt it in the future.

Both volumes include elements required under federal guidelines. Where sections of this plan address specific DMA requirements, the CFR section number in which the requirement is found is cited..

The following appendices provided at the end of Volume 1 include information or explanations to support the main content of the plan:

- Appendix A—Public involvement information used in preparation of this update
- Appendix B—A summary of federal and state programs and regulations relevant to hazard mitigation
- Appendix C—A description of data sources and methods used for mapping hazard areas in the county

- Appendix D—Quantitative results from risk assessment modeling for individual cities and Sonoma County supervisorial districts
- Appendix E—Peak stream flow levels used for Sonoma County Flood Insurance Study
- Appendix F—Plan adoption resolutions from planning partners
- Appendix G—Progress report template

All planning partners will adopt Volume 1 in its entirety and at least the following parts of Volume 2: Part 1; each partner’s jurisdiction-specific annex; and the appendices.

2. PLAN UPDATE—WHAT HAS CHANGED

2.1 THE PREVIOUS PLAN

The 2016 update of the Sonoma County Hazard Mitigation Plan, like the 2011 plan before it, focused on earthquake, flood, wildland fire, and landslide hazards as these were considered to be the greatest risk to the county based on past disaster events, future probabilities, and degree of vulnerability. The 2016 Plan also addressed secondary and tertiary hazards such as winter storms, coastal erosion and bluff failure, tsunamis, and post-fire erosion. The 2016 update discussed the implications that climate change may have on hazard trends in Sonoma County and included an expanded discussion of sea level rise and drought. Based on its assessment of these hazards, the 2016 plan recommended 60 mitigation actions that address the following hazards of concern:

- Flood
- Earthquake
- Wildland fire
- Landslide
- Sea level rise

The Sonoma County Board of Supervisors adopted the plan (Resolution No. 17-0168) on April 25, 2017. FEMA issued approval of the plan on May 4, 2017.

2.2 WHY UPDATE?

2.2.1 Federal Eligibility

Under 44 CFR, hazard mitigation plans must present a schedule for monitoring, evaluating, and updating the plan. This provides an opportunity to reevaluate recommendations, monitor the impacts of actions that have been accomplished, and determine if there is a need to change the focus of mitigation strategies. A jurisdiction covered by a plan that has expired is not able to pursue elements of federal funding for which a current hazard mitigation plan is a prerequisite.

2.2.2 Changes in Development

Hazard mitigation plan updates must be revised to reflect changes in development within the planning area during the previous performance period of the plan (44 CFR Section 201.6(d)(3)). The plan must describe changes in development in hazard-prone areas that increased or decreased vulnerability for each jurisdiction since the last plan was approved. If no changes in development impacted the jurisdiction's overall vulnerability, plan updates

may validate the information in the previously approved plan. The intent of this requirement is to ensure that the mitigation strategy continues to address the risk and vulnerability of existing and potential development and takes into consideration possible future conditions that could impact vulnerability.

The planning area experienced a 1.55-percent increase in population between 2010 and 2020, an average growth rate of 1.05 percent per year. Sonoma County and its incorporated cities have general plans that govern land-use decisions and policymaking, as well as building codes and specialty ordinances based on state and federal mandates. This plan update assumes that some new development triggered by increased population occurred in hazard areas. Because all such new development would have been regulated pursuant to local programs and codes, it is assumed that vulnerability did not increase even if exposure did. More detailed information on the types and location of new construction over the last five years is available in the city and County annexes in Volume 2 of this plan.

Since the scope and scale of this plan update was significantly different than that of the 2016 plan (multi-jurisdictional vs. single-jurisdictional) and different data and methodologies were applied to community profiling and risk assessment, it was not possible to compare growth demographic data between the two plans. Therefore, this plan update will be treated as the baseline for growth trend comparative analyses for future plan updates that will include the following metrics:

- Change in population over the performance period
- Change in general building stock within the planning area over the performance period
- Change in the value of the general building stock over the performance period
- Change in land-use over the performance period

2.2.3 Multi-Jurisdictional Planning

Unlike the current update, the original Sonoma County hazard mitigation plan and previous updates were prepared for the County only. No municipalities or special purpose districts participated in those earlier versions. This was driven by the fact that most of the eligible local governments within the planning area had developed their own plans or did not see a need for one.

During the performance period of the 2016 plan, extensive outreach within the operational area was performed by Permit Sonoma as well as Sonoma County Emergency Management on the net benefits of working together as a multi-jurisdictional partnership through a collaborative effort. This was spurred by response efforts to the numerous catastrophic wildfires that impacted the operational area during the performance period. Thus, a multi-jurisdictional partnership was formed. While this 2021 plan update does not include all eligible local governments within the Sonoma County Operational Area, it does represent an enhanced effort in collaboration and coordination with these entities.

2.3 THE UPDATED PLAN—WHAT IS DIFFERENT?

The updated plan differs from the initial plan in a variety of ways. Table 2-1 indicates the major changes between the two plans as they relate to 44 CFR planning requirements.

Table 2-1. Plan Changes Crosswalk

44 CFR Requirement	Previous Plan	Updated Plan
<p>§201.6(b): <i>In order to develop a more comprehensive approach to reducing the effects of natural disasters, the planning process shall include:</i></p> <p>(1) <i>An opportunity for the public to comment on the plan during the drafting stage and prior to plan approval;</i></p> <p>(2) <i>An opportunity for neighboring communities, local and regional agencies involved in hazard mitigation activities, and agencies that have the authority to regulate development, as well as businesses, academia and other private and non-profit interests to be involved in the planning process; and</i></p> <p>(3) <i>Review and incorporation, if appropriate, of existing plans, studies, reports, and technical information.</i></p>	<p>The planning process for the 2016 plan is summarized in the introduction section of the plan. The plan update was facilitated through an Oversight Committee made up predominately of County staff. The Oversight Committee developed a public outreach strategy in accordance with FEMA guidelines. This strategy includes coordinated messaging through a variety of mediums to ensure the whole community is informed of the Plan and initiatives. Risks were re-evaluated using updated data. The Mitigations strategies were reviewed and updated as needed. The actions were prioritized according to the same methodology as was used on the 2011 plan.</p>	<p>The scope and scale of the plan was changed from a single jurisdiction scope to a multi-jurisdictional scope. This plan update process built upon the successes of the 2016 planning effort using an approach tied more closely to maximizing credit potential under FEMA’s Community Rating System (CRS) program. This included:</p> <ul style="list-style-type: none"> • Plan update was facilitated through a stakeholder Steering Committee made up of planning partners and other key stakeholders • A two-phase public outreach strategy deployed to gauge the public’s perception of risk early in the process, and an opportunity to comment on the draft plan late in the process. • A strategy for agency coordination and inclusion in the plan update process • A comprehensive core capability assessment process designed to identify existing core capabilities that can support or enhance the outcomes of this plan. • All of this is documented in Volume 1, Chapter 3 of the plan update
<p>§201.6(c)(2): The plan shall include a risk assessment that provides the factual basis for activities proposed in the strategy to reduce losses from identified hazards. Local risk assessments must provide sufficient information to enable the jurisdiction to identify and prioritize appropriate mitigation actions to reduce losses from identified hazards.</p>	<p>The Plan includes a detailed risk assessment of 4 identified hazards of concern (Seismic, Flood, Wildfire and Landslide). Each hazard of concern was profiled to provide the following information:</p> <ul style="list-style-type: none"> • General description of the hazard including type, location, and extent of all hazards that impact each jurisdiction within the planning area. • Discussion of destructive characteristics from a national and local perspective • Information on historical occurrences of hazard events • The probability of future hazard occurrence 	<p>Volume 1 Part 2 presents a risk assessment of 9 hazards of concern. These identified hazards were expanded from the 2016 plan to include Dam Failure, Drought, Severe Weather, Sea-level Rise, and Tsunami as stand-alone hazard profiles. The hazards are profiled as they impact the Sonoma County planning area. Hazard profiles are standardized for each hazard of concern, so that there is uniformity in the discussion of each hazard and the information provided can support rating of risk for each jurisdiction. Other hazards of interest were qualitatively assessed to develop a more complete picture of the hazards facing the planning area. The planning area for this update was expanded from that utilized in the 2016 plan to include the entire Sonoma County operational area.</p>

44 CFR Requirement	Previous Plan	Updated Plan
<p>§201.6(c)(2)(i): <i>[The risk assessment shall include a] description of the ... location and extent of all natural hazards that can affect the jurisdiction. The plan shall include information on previous occurrences of hazard events and on the probability of future hazard events.</i></p>	<p>Each hazard of concern was profiled to include:</p> <ul style="list-style-type: none"> • Hazard Description <ul style="list-style-type: none"> • Hazard History • Future Potential • Exposure and Vulnerability • Impact and Loss Estimates <ul style="list-style-type: none"> • Plans • Codes and Regulations • Mitigation Programs and Activities <ul style="list-style-type: none"> • Financial Resources <p>Note that the scope of these profiles was for the unincorporated areas of the county only.</p>	<p>Volume 1 Part 2 presents a risk assessment of each hazard of concern. Each chapter includes the following components:</p> <ul style="list-style-type: none"> • Hazard profile, including maps of extent and location, historical occurrences, frequency, severity, and warning time. <ul style="list-style-type: none"> • Secondary hazards • Exposure of people, property, critical facilities and environment. • Vulnerability of people, property, critical facilities and environment. • Future trends in development <ul style="list-style-type: none"> • Scenarios • Issues
<p>§201.6(c)(2)(ii): <i>[The risk assessment shall include a] description of the jurisdiction’s vulnerability to the hazards described in paragraph (c)(2)(i). This description shall include an overall summary of each hazard and its impact on the community</i></p>	<p>Each hazard profile included a vulnerability component. For the Seismic hazard, Hazus was utilized following the level I protocol. For the other hazards, the loss estimation (vulnerability) was more qualitative with and emphasis on exposure.</p>	<p>Vulnerability was assessed for all hazards of concern. The Hazus risk assessment platform (V 4.2) was used for the dam failure, earthquake, flood, sea level rise and tsunami hazards. These were Level 2 (user defined) analyses using city and County data. Site-specific data on County-identified critical facilities were entered into the Hazus model. Hazus outputs were generated for other hazards by applying an estimated damage function to an asset inventory extracted from Hazus. The risk assessment methodology for this plan update is described in Part 2, Chapter 6 of this volume</p>
<p>§201.6(c)(2)(ii): <i>[The risk assessment] must also address National Flood Insurance Program insured structures that have been repetitively damaged floods</i></p>	<p>The Flood Hazard chapter of the plan included a profile on repetitive loss properties within the unincorporated areas of the county.</p>	<p>Volume 1, Part 2, Chapter 10, Section 10.5.2 of the plan includes a comprehensive analysis of repetitive loss areas that includes an inventory of the number and types of structures in the repetitive loss area. Repetitive loss areas are delineated, causes of repetitive flooding are cited, and these areas are reflected on maps. This analysis includes all repetitive loss properties within the county.</p>
<p>§201.6©(2)(ii)(A): <i>The plan should describe vulnerability in terms of the types and numbers of existing and future buildings, infrastructure, and critical facilities located in the identified hazard area.</i></p>	<p>The 2016 plan does include building exposure counts for each hazard assessed, but it emphasizes County-owned structures and does not include details on the General Building stock. Focus of this analysis is on the unincorporated areas of the county.</p>	<p>The current update used Hazus to model impacts from dam failure, earthquake, flood, sea-level rise and tsunami. A complete inventory of the numbers and types of buildings exposed was generated for each hazard of concern. Critical facilities were defined for the planning area, and these facilities were inventoried by exposure. Each hazard chapter provides a discussion on future development trends.</p>

44 CFR Requirement	Previous Plan	Updated Plan
<p>§201.6(c)(2)(ii)(B): <i>[The plan should describe vulnerability in terms of an] estimate of the potential dollar losses to vulnerable structures identified in paragraph (c)(2)(i)(A) and a description of the methodology used to prepare the estimate.</i></p>	<p>With the exception for the Earthquake hazard, the 2016 plan does not estimate losses. The focus for this component of the plan is on exposure. The earthquake hazard does include Hazus modeling that includes loss estimation.</p>	<p>Dollar loss estimates were generated for all hazards of concern. These estimates were generated by Hazus for the dam failure, earthquake, flood and Tsunami. For the other hazards, loss estimates were generated by applying a regionally relevant damage function to the exposed inventory. In all cases, a damage function was applied to an asset inventory. The asset inventory was the same for all hazards and was generated in Hazus.</p>
<p>§201.6(c)(2)(ii)(C): <i>[The plan should describe vulnerability in terms of] providing a general description of land uses and development trends within the community so that mitigation options can be considered in future land use decisions.</i></p>	<p>The hazard profiles do address land uses within the unincorporated areas of the county. This was done by looking at the County land-use designations in each hazard area.</p>	<p>There is a discussion of the overall land use within the planning area, and a spatial analysis of land use was performed for hazards with a clearly defined extent and location. There is a discussion on future development trends as they pertain to each hazard of concern. This discussion looks predominantly at the existing land use and the current regulatory environment that dictates this land use.</p>
<p>§201.6(c)(3): <i>The plan shall include a mitigation strategy that provides the jurisdiction's blueprint for reducing the potential losses identified in the risk assessment, based on existing authorities, policies, programs and resources, and its ability to expand on and improve these existing tools.</i></p>	<p>The 2016 plan includes mitigation actions developed to minimize the county's vulnerabilities to natural hazards. It sets forth the measures the County will pursue as part of 2016 – 2021 performance period. This strategy Was derived from:</p> <ul style="list-style-type: none"> • The in-depth consideration of the county's existing hazard vulnerabilities and • The state and County goals and objectives to protect public health and safety, reducing injury, damage, and disruption from disaster events. 	<p>The plan contains a mission statement, goals, objectives and actions. The actions are jurisdiction specific and strive to meet multiple objectives. The objectives of this plan are broad but measurable. All objectives meet multiple goals and stand alone as components of the plan. Each planning partner was asked to complete a capability assessment that looks at its regulatory, technical, and financial capabilities.</p>
<p>§201.6(c)(3)(i): <i>[The hazard mitigation strategy shall include a] description of mitigation goals to reduce or avoid long-term vulnerabilities to the identified hazards.</i></p>	<p>The 2016 plan identified 4 goals and 6 objectives for the plan. These goals and objectives were consistent with goals and objectives within the County General Plan.</p>	<p>A mission statement, eight goals, and 12 objectives are described in Part 3 of this volume. Goals were adapted from those in the 2016 plan. Objectives were identified that meet multiple goals and were used to help establish priorities for the action items identified in the plan. The objectives are measurable components of the plan and are the basis for identifying and prioritizing multi-objective actions.</p>

44 CFR Requirement	Previous Plan	Updated Plan
<p>§201.6(c)(3)(ii): <i>[The mitigation strategy shall include a] section that identifies and analyzes a comprehensive range of specific mitigation actions and projects being considered to reduce the effects of each hazard, with particular emphasis on new and existing buildings and infrastructure.</i></p>	<p>The 2016 plan identifies a range of mitigation actions under each of the 6 identified objectives for the plan. Actions are identified for each hazard of concern as well as “multi-hazard actions. Actions identified could be applied to both new or existing structures, or both.</p>	<p>Volume 1, Part 3 includes a catalog of mitigation best management practices that was developed through a facilitated process. This catalog identifies actions that manipulate the hazard, reduce exposure to the hazard, reduce vulnerability, or increase mitigation capability. The catalog segregates actions by scale of implementation. A table in each planning partner’s action plan analyzes each action by mitigation type to illustrate the range of actions selected.</p>
<p>§201.6(c)(3)(ii): <i>[The mitigation strategy] must also address the jurisdiction’s participation in the National Flood Insurance Program, and continued compliance with the program’s requirements, as appropriate.</i></p>	<p>The 2016 Plan addresses the NFIP in the context of the mapping available within the planning area. The Plan does address the NFIP as a financial resource available to mitigate the impacts of the flood hazard that does profile the Unincorporated County’s participation in the NFIP. The Plan did include a mitigation action for the County to initiate an application to the CRS program.</p>	<p>The plan addresses the National Flood Insurance Program and the participation status of all cities within the county. Each municipal planning partner has profiled their NFIP status in their annex in volume 2 of the plan All municipal planning partners that participate in the NFIP identified an action stating their commitment to maintain compliance and good standing under the program.</p>
<p>§201.6(c)(3)(iii): <i>[The mitigation strategy shall describe] how the actions identified in Section (c)(3)(ii) will be prioritized, implemented, and administered by the local jurisdiction. Prioritization shall include a special emphasis on the extent to which benefits are maximized according to a cost benefit review of the proposed projects and their associated costs.</i></p>	<p>Multiple factors were considered to determine the mitigation priorities for the implementation period. Criteria considered included:</p> <ul style="list-style-type: none"> • Greatest potential for protecting life and property in areas of highest risk or vulnerability, • The amount of vulnerability and the frequency of potential hazard occurrence, • Greatest potential to help assure critical County infrastructure, structures and government services remain functional following a disaster, • Cost/benefit assessments or considerations where available, • Compatibility with goals and objectives in the County General Plan Public Safety Element and Hazard Mitigation Plan, • Degree to which mitigation strategies help reduce repetitive flood loss properties and or help assure continued compliance with the NFIP, • Compatibility with goals, and funding priorities of the State Hazard Mitigation Plan, the California Earthquake Loss Reduction Plan and the State Flood Hazard Mitigation Plan • Achievability of social acceptance, technical feasibility, administrative, political, legal, economic and environmental considerations. 	<p>Each recommended action was prioritized using a qualitative methodology that looked at the objectives the project will meet, the timeline for completion, how the project will be funded, the impact of the project, the benefits of the project and the costs of the project. This prioritization scheme is detailed in the introduction to Volume 2 of this plan.</p>

44 CFR Requirement	Previous Plan	Updated Plan
<p>§201.6(c)(4)(i): <i>[The plan maintenance process shall include a] section describing the method and schedule of monitoring, evaluating, and updating the mitigation plan within a five-year cycle.</i></p>	<p>The 2016 plan includes a chapter on plan maintenance that calls for:</p> <ul style="list-style-type: none"> • Ensure the mitigation strategy is implemented according to the plan. • Provide the foundation for ongoing mitigation programs. • Standardize long-term monitoring of hazard-related activities. • Integrate mitigation principles into day-to-day operations throughout the county. <ul style="list-style-type: none"> • Maintain momentum through continued engagement and accountability. 	<p>Volume 1, Part 3 details a plan maintenance strategy for monitoring, evaluating, and updating the mitigation plan within a five-year cycle, that includes annual progress reporting.</p>
<p>§201.6(c)(4)(ii): <i>[The plan shall include a] process by which local governments incorporate the requirements of the mitigation plan into other planning mechanisms such as comprehensive or capital improvement plans, when appropriate.</i></p>	<p>The plan maintenance strategy for the 2016 plan includes a goal to; “Integrate mitigation principles into day-to-day operations throughout the county”.</p>	<p>Volume 1, Part 3 details recommendations for incorporating the plan into other planning mechanisms, such as:</p> <ul style="list-style-type: none"> • Comprehensive plan • Emergency response plan • Capital improvement programs <ul style="list-style-type: none"> • Municipal code <p>Specific current and future plan and program integration activities are detailed in each participating jurisdiction’s annex in Volume 2.</p>
<p>§201.6(c)(4)(iii): <i>[The plan maintenance process shall include a] discussion on how the community will continue public participation in the plan maintenance process.</i></p>	<p>The plan maintenance strategy for the 2016 does not directly define a process for continued public participation.</p>	<p>Volume 1, Part 3 details a comprehensive strategy for continuing public involvement.</p>
<p>§201.6(c)(5): <i>[The local hazard mitigation plan shall include] documentation that the plan has been formally adopted by the governing body of the jurisdiction requesting approval of the plan (e.g., City Council, County Commission, Tribal Council).</i></p>	<p>Adoption documentation and the FEMA approval letter were provided in the plan as appendix.</p>	<p>Volume 1, Appendix E includes all supporting documentation for adoption of the plan by all planning partners</p>

3. PLAN UPDATE APPROACH

3.1 FUNDING

This planning effort was supplemented by a FEMA Hazard Mitigation Assistance grant (DR-4344-0054-P). Permit Sonoma, Sonoma County’s land use planning and permitting agency, was the applicant agent for the grant. The grant covered 75 percent of the cost of developing the plan; planning partners covered the balance through in-kind matching.

3.2 DEFINING STAKEHOLDERS

At the beginning of the planning process, the planning team identified stakeholders to engage during the update of the hazard mitigation plan. For this process, “stakeholder” was defined as any person or public or private entity that owns or operates facilities that would benefit from the mitigation actions of this plan, and/or has an authority or capability to support mitigation actions identified by this plan. Stakeholders were separated into two categories:

- **Participatory Stakeholders**—Stakeholders that actively participated in the planning process as planning partners or members of the Steering Committee.
- **Coordinating Stakeholders**—Stakeholders that were not able to commit to actively participating in the process as a participatory stakeholder but were kept apprised of plan development milestones or were able to provide data that was used in the plan development.

3.3 FORMATION OF THE CORE PLANNING TEAM

Permit Sonoma contracted with Tetra Tech, Inc. to assist with development, update, and implementation of the plan. The Tetra Tech project manager managed the overall plan development; Tetra Tech’s lead planner was tasked with interacting with the Permit Sonoma grant manager. A core planning team was formed to lead the planning effort, made up of the following members:

- Lisa Hulette, Permit Sonoma, Grants Manager
- Domenica Giovannini, Permit Sonoma, Policy Manager
- Shelly Bianchi-Williamson, Permit Sonoma, GIS Supervisor
- Rob Flaner, Tetra Tech, Project Manager
- Bart Spencer, Tetra Tech, Project Lead Planner
- Carol Baumann, Tetra Tech, Risk Assessment Lead
- Des Alexander, Tetra Tech, Hazard Profiling Lead

3.4 ESTABLISHMENT OF THE PLANNING PARTNERSHIP

Sonoma County opened this planning effort to all eligible local governments within the planning area. The planning team made a presentation at a stakeholder kickoff meeting on June 2, 2020, to introduce the mitigation planning process and solicit planning partners. Key meeting objectives were as follows:

- Provide an overview of the Disaster Mitigation Act
- Describe the reasons for a plan
- Outline the hazard mitigation plan update- work plan
- Outline planning partner expectations
- Seek commitment to the planning partnership
- Seek volunteers for the Steering Committee

Each jurisdiction wishing to join the planning partnership was asked to provide a *letter of intent to participate* that designated a point of contact for the jurisdiction and confirmed the jurisdiction’s commitment to the process and understanding of expectations. Linkage procedures have been established (see Volume 2 of this plan) for any jurisdiction wishing to link to this hazard mitigation plan in the future. The planning partners covered under this plan are shown in Table 3-1.

Table 3-1. Hazard Mitigation Planning Partners

Jurisdiction	Point of Contact	Title
County of Sonoma	Lisa Hulette	Department Program Manager
City of Cotati	Damien O’Bid	City Manager
City of Santa Rosa	Shari Meads	City Planner
City of Sonoma	Wayne Wirick	Development Services Director
Town of Windsor	Kim Jordan	Planner III
Cloverdale Fire Protection District	Jason Jenkins	Chief
North Sonoma Coast Fire Protection District	Bonnie Plakos	Chief
Northern Sonoma County Fire Protection District	Marshall Turbeville	Chief
Rancho Adobe Fire Protection District	Andy Taylor	Chief
Sonoma Valley Fire District	Trevor Smith	Fire Marshal
Timber Cove Fire Protection District	Erich Lynn	Chief
Gold Ridge Resource Conservation District	Brittany Heck	Executive Director
Sonoma Resource Conservation District	Valerie Minton	Executive Director
Sonoma County Agricultural Preservation & Open Space District	Sheri Emerson	Stewardship Manager

3.5 DEFINING THE PLANNING AREA

The planning area was defined to consist of the unincorporated county, incorporated cities, and special purpose districts within the geographical boundary of Sonoma County. All partners to this plan have jurisdictional authority within this planning area. A map showing the geographic boundary of the defined planning area for this plan update is provided in Chapter 4, along with a description of planning area characteristics.

3.6 THE STEERING COMMITTEE

Hazard mitigation planning enhances collaboration among diverse parties who can be affected by hazard losses. A key element of the public engagement strategy for this plan update was the formation of a stakeholder steering committee to oversee all phases of the update. The members of this committee included planning partner 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. The planning partners confirmed a committee at the kickoff meeting. Table 3-2 lists the Steering Committee members and their designated alternates.

Leadership roles and ground rules were established during the Steering Committee's first meeting. The Steering Committee then met about every other month as needed throughout the course of the plan's development. The planning team facilitated each Steering Committee meeting, which addressed a set of objectives based on an established work plan. The Steering Committee met nine times from June 2020 through June 2021. Meeting summaries and attendance logs are provided in Appendix A to this volume. All Steering Committee 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.

3.7 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 201.6(b)(2)). Agency coordination for this plan was accomplished as follows:

- **Steering Committee Involvement**—Agency representatives 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:
 - American Red Cross-Northern California Coastal Region
 - California Department of Water Resources, California State National Flood Insurance Program Coordinator
 - California Office of Emergency Services, Emergency Services Coordinator
 - FEMA Region IX, Lead Community Planner
 - U.S. Geological Survey, Science Advisor
 - California Department of Transportation, Director-District 1
 - Bureau of Land Management, Tribal Relations
 - California Department of Forestry and Fire Protection, Resource Management Division
 - Cloverdale Rancheria
 - Dry Creek Rancheria
 - Federated Indians of Graton Rancheria
 - Kashia Pomo Stewarts Point Rancheria
 - Lytton Rancheria
 - Middletown Rancheria
 - Mishewal Wappo Tribe
 - Torres Martinez Desert Cahuila Indians

Table 3-2. Steering Committee Members

Name	Title	Jurisdiction/Agency
PRIMARY MEMBERS		
Lisa Hulette (committee chair)	Project Manager	County of Sonoma, Permit Sonoma
Gary Helfrich	Planner	County of Sonoma, Permit Sonoma
Shelley Bianchi-Williamson	GIS Supervisor	County of Sonoma, Permit Sonoma
Richard Diaz	Deputy Emergency Coordinator	County of Sonoma, Emergency Management
Hunter McLaughlin	Engineer	County of Sonoma, Public Works
Domenica Giovannini	PIO	County of Sonoma, Permit Sonoma
Kimberly Jordan	Planner	Town of Windsor
Shari Meads	City Planner	City of Santa Rosa
Katherine Duran	Administrative Analyst	City of Cotati
Karen Gaffney	Program Manager	Sonoma County Agricultural Preservation & Open Space District
Mollie Asay	Grants & Funded Projects	Sonoma Water
Marshall Turbeville	District Fire Chief	Northern Sonoma County Fire District
Scott Westrope	Deputy Fire Chief	Santa Rosa City Fire
Ben Nicholls	Division Chief	CAL Fire
Sarah Newkirk	Senior Project Director	The Nature Conservancy
Lisa Micheli	President & CEO	Pepperwood Preserve
Kirsten Larsen	Environmental Compliance Manager	Community Development Commission
Robert Cantu	President/Chair, Construction Coalition Steering Committee	Western Builders
Karissa Kruse	Executive Director	Sonoma County Winegrowers
DESIGNATED ALTERNATES		
John Mack	Natural Resource Manager	County of Sonoma, Permit Sonoma
Cecily Condon	Supervising Planner	County of Sonoma, Permit Sonoma
Caerleon Safford	Fire Inspector	County of Sonoma, Fire Prevention
Lisa Figueroa	Deputy Emergency Services Coordinator	County of Sonoma, Emergency Management
Adrienne Garayalde	Department Analyst	County of Sonoma, Public Works
Mickie Tagle	Senior Management Analyst	Town of Windsor
Amy Lyle	Supervising Planner	City of Santa Rosa
Damian O'Bid	City Manager	City of Cotati
Sheri Emerson	Stewardship Program Manager	Sonoma County Agricultural Preservation & Open Space District
Steve Hancock	Emergency Preparedness & Response Manager	Sonoma Water
Shane Vargas	Fire Captain	CalFire
Chase Beckman	Fire Captain	CalFire
Shane Galvez	Fire Captain	CalFire
Elizabeth Forsburg	Associate Director	The Nature Conservancy
Mark Chandler	Housing Rehabilitation Specialist	Community Development Commission
Kate Piontek	VP of Operations & Sustainability	Sonoma County Winegrowers

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 3.9). All were sent an e-mail message informing them that draft portions of the plan were available for review. Upon completion of a public comment period, a complete draft plan was sent to the California Office of Emergency Services for a pre-adoption review to ensure program compliance.

3.8 REVIEW OF EXISTING PROGRAMS

Hazard mitigation planning must include review and incorporation, if appropriate, of existing plans, studies, reports and technical information (44 CFR, Section 201.6(b)(3)). Chapter 5 of this plan provides a review of laws and ordinances in effect within the planning area that can affect hazard mitigation actions. In addition, the following programs can affect mitigation within the planning area:

- California Fire Code
- California Fire Alliance
- 2019 California Building Code
- California State Hazard Mitigation Forum
- Local capital improvement programs
- Local emergency operations plans
- Local general plans
- Local tribal hazard mitigation plans
- Housing elements of general plans
- Safety elements of general plans
- Local zoning ordinances
- Local coastal program policies.
- Sonoma County Operational Area Emergency Operations Plan (2014)—This is an emergency support function-based plan that directs emergency response actions in the planning area
- Sonoma County General Plan 2020 (adopted by resolution, September 2008; amended by resolution, August 2016)—This plan directs land use policy in Sonoma County
- Sonoma County Local Coastal Plan, Bodega Bay Focused Vulnerability Assessment and Adaptation Strategies (September 2019)
- Sonoma County Five-Year Strategic Plan (March 2021)—This plan includes the goals that will shape the County’s priorities over the next five years. It includes *Climate Action and Resiliency* and *Resilient Infrastructure*.
- Regional Climate Protection Authority, Regional Climate Action Plan (2016)
- Sonoma County Community Wildfire Protection Plan (2016)

Assessments of all planning partners’ regulatory, technical, and financial capabilities to implement hazard mitigation actions are presented in the individual jurisdiction-specific annexes in Volume 2. Many of these relevant plans, studies and regulations are cited in the capability assessments.

3.9 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 201.6(b)(1)). The Community Rating System expands on these requirements by making CRS credits available for optional public involvement activities. For this plan update, “public” has been defined as the general public within the Sonoma County planning area. This includes, but is not limited to:

- Residents
- Tribal members
- Tourists
- Employers within the planning area
- Employees within the planning area
- Students (primary and secondary education levels).

3.9.1 Strategy

The strategy for involving the public in this plan emphasized the following elements:

- Include members of the public on the Steering Committee.
- Use a survey to determine if the public’s perception of risk and support of hazard mitigation has changed since the initial planning process.
- Attempt to reach as many planning area citizens as possible using multiple media.
- Identify and involve planning area stakeholders.

Stakeholders and the Steering Committee

Stakeholders are the individuals, agencies and jurisdictions that have a vested interest in the recommendations of the hazard mitigation plan, including all planning partners. The effort to include stakeholders in this process included stakeholder participation on the Steering Committee. In addition to planning partners and those represented on the steering committee, the planning team invited all potential stakeholders listed in Section 3.7 to actively participate in the plan update process.

Internet

At the beginning of the planning process, a website was created to keep the public posted on plan development milestones and to solicit relevant input (see Figure 3-1). The site’s address was publicized in all press releases, mailings, surveys, and public meetings (<https://sonomacounty.ca.gov/PRMD/Long-Range-Plans/Hazard-Mitigation-Update/>).

COUNTY OF SONOMA

Residents: Discover, Engage & Thrive | Business: Trends, News & Resources | Visitors: Explore Sonoma County | Your Government: We Work for You

You are here: Home / Permit Sonoma / Long-Range Plans / Hazard Mitigation Plan / Hazard Mitigation Update

Hazard Mitigation Plan Update

Existing Plan | Maps | Resources | Upcoming Events | Past Events | Contact Us

Sonoma County Hazard StoryMap Play

Hazard Mitigation Plan Update

Get Involved!
We want to know what Sonoma County residents know about hazards such as wildfires, floods, and earthquakes. Help us plan for the future: [Take the short survey »](#)

¡Involúcrese!
Queremos saber lo que los residentes del Condado de Sonoma saben sobre peligros como incendios forestales, inundaciones, y terremotos. Para ayudarnos a planear para el futuro: [Tome la encuesta corta »](#)

Sonoma County Multijurisdictional Local Hazard Mitigation Plan Update

The planning process for updating the 2016 Local Hazard Mitigation Plan will this time utilize a Multi-Jurisdictional Hazard Mitigation Planning approach. This will involve collaboration with local jurisdictions and the community.

Contact Information

Hazard Mitigation Plan Comprehensive Planning Permit Sonoma County of Sonoma

Contact Us
Email: PRMD-HazardMitigation@sonoma-county.org

Contact Us by Phone
Lisa Hulette: (707) 565-3709
CA Relay Service: 711

Address
2550 Ventura Avenue
Santa Rosa, CA 95403

Follow Us
[Sign Up for Hazard Mitigation Plan Update Email Updates](#)

Figure 3-1. Sample Page from Hazard Mitigation Plan Web Site

Each planning partner established a link to this site on its own agency website. Information on the plan development process, the Steering Committee, a plan survey, and drafts of the plan was made available to the public on the site throughout the process. Sonoma County intends to keep a website active after the plan’s completion to keep the public informed about successful mitigation projects and future plan updates.

Story Map

A “Story Map” was created, using ESRI Story Map software, to communicate the variety and severity of hazard risks facing Sonoma County (see Figure 3-2). The applicability of the Story Map goes beyond the life of the hazard mitigation plan update, meaning that it will remain with the County (on its own ESRI account) and continue as a template to support visual and data-based communication about the range of hazards relevant in the planning area. New and revised data can be loaded into the platform in the future to compare hazard risk with any other spatial data set (i.e. soft story structure inventory, social vulnerability data, etc.).

During the update process, the Story Map was released to the public and promoted through social media and the project website. It included risk assessment results for all relevant hazards, an interactive hazard mapping tool, and a report function to produce comprehensive hazard exposure summaries for any given property, block, or defined area. The Story Map expanded opportunities for public outreach and the ways in which members of the public could interact with hazard data as the hazard mitigation plan update was underway.

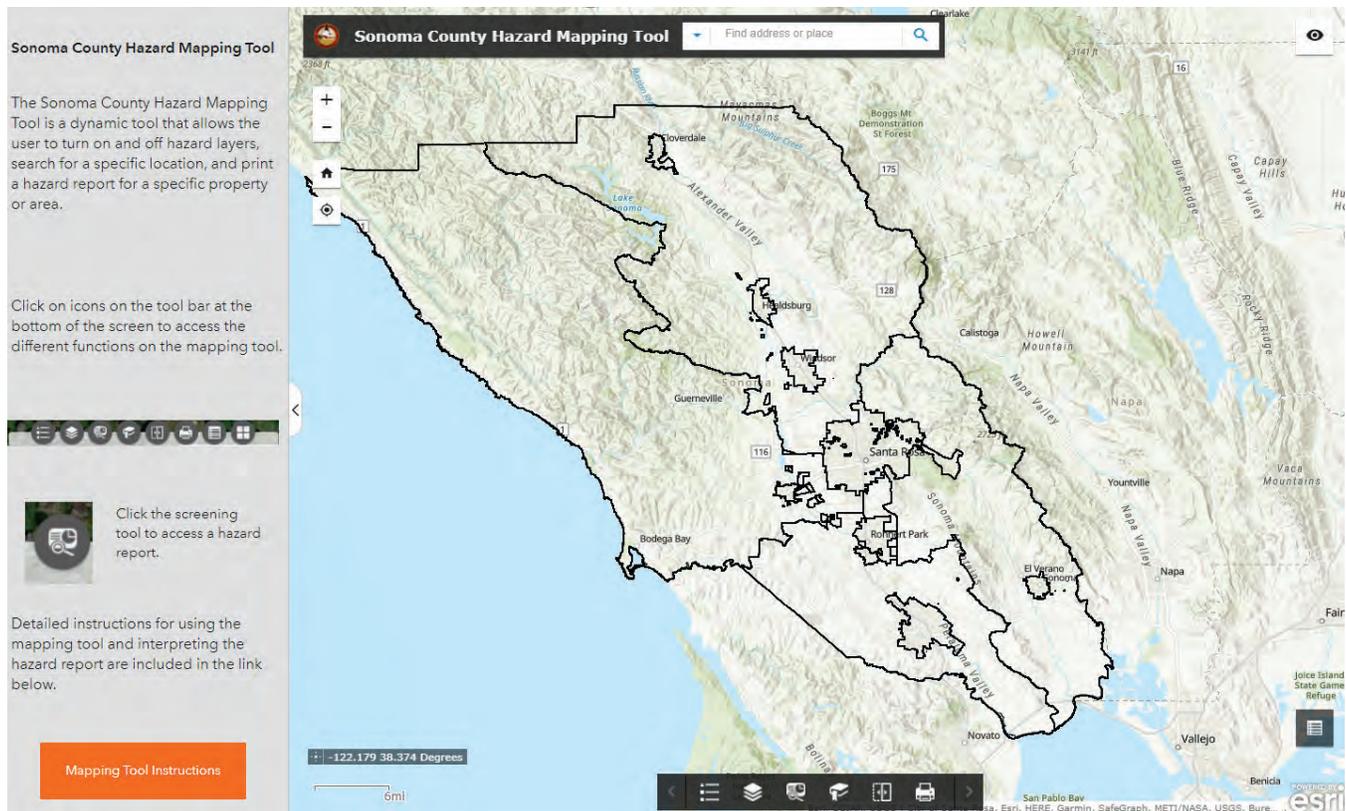


Figure 3-2. Example Story Map Data Page

Survey

A hazard mitigation plan survey (see Figure 3-3) was developed by the planning team with guidance from the Steering Committee. The survey was used to gauge household preparedness for natural hazards and the level of knowledge of tools and techniques that assist in reducing risk and loss from natural hazards. This survey was designed to help identify areas vulnerable to one or more natural hazards. The answers to its 42 questions helped guide the Steering Committee in selecting goals, objectives and mitigation strategies. The survey was made available on the hazard mitigation plan website and advertised throughout the course of the planning process. During the course of this planning process, 691 completed surveys were submitted. The complete survey and a summary of its findings can be found in Appendix A of this volume.

Public Outreach

The public outreach process for this plan update consisted of general outreach information during various partner meetings and events. A virtual public meeting was held on February 15, 2021 to present the Story Map and describe the hazard mitigation plan update process. The draft plan was made available to the public for comment during a noticed, two-week period, June 14 – 28, 2021. A virtual public meeting was held on the evening of July 21, 2021. The format of the meeting was a short overview of the planning process, plan content and how to comment, followed by breakout rooms sponsored by each municipal planning partner to allow for jurisdiction-specific public comment opportunities. The meeting gave the public an opportunity to comment on the draft plan update prior to its submittal to the California Governor’s Office of Emergency Services (Cal OES) and FEMA. The principle avenue for public comment on the draft plan was the website established for this plan update.



Sonoma County 2020 Hazard Mitigation Plan Survey

Survey Introduction

A partnership of local governments and stakeholders in Sonoma County are working together to update the Sonoma County Multijurisdictional Hazards Mitigation Plan. This will enable the jurisdictions to use pre- and post-disaster financial assistance to reduce the exposure of County residents to risks associated with hazards.

To better identify and plan for future disasters, we need your assistance. This questionnaire is designed to help us gauge the level of knowledge local citizens already have about disaster issues, and to find out from local residents about areas vulnerable to various types of natural disasters. The information you provide will help us coordinate activities to reduce the risk of injury or property damage in the future.

The survey consists of 30 questions plus an opportunity for any additional comments at the end. The survey should take less than 10 minutes to complete and is anonymous. When you have finished the survey, please click "Done" on the final page.

The Sonoma County Hazard Mitigation Planning Partnership thanks you for taking the time to participate in this information-gathering process.

* 1. Where in Sonoma County do you live or generally stay?

<input type="checkbox"/> Sonoma	<input type="checkbox"/> Rohnert Park	<input type="checkbox"/> Windsor
<input type="checkbox"/> Petaluma	<input type="checkbox"/> Santa Rosa	<input type="checkbox"/> unincorporated area of the County
<input type="checkbox"/> Cotati	<input type="checkbox"/> Cloverdale	<input type="checkbox"/> I don't live in Sonoma County
<input type="checkbox"/> Healdsburg	<input type="checkbox"/> Sebastopol	
<input type="checkbox"/> Other (please specify)		
<input type="text"/>		

Figure 3-3. Sample Page from Survey Distributed to the Public

In order to engage non-English-speakers in the outreach, all social media posts and the agendas and minutes for Steering Committee meetings were posted in English and Spanish, and a translator was available during the virtual meetings to interpret the presentation and discussion into Spanish. The translator service was advertised in meeting announcements and as each meeting was underway. Spanish-speaking participants could take advantage of this service by joining a break-out room of the virtual meeting. No participants chose to use this service.

3.9.2 Public Involvement Results

Survey

Detailed analysis of the survey findings is presented in Appendix A; a summary is as follows:

- 691 surveys were completed.
- Surveys were received from each planning partner.
- Survey respondents ranked the wildland fire as the hazard of greatest concern, followed by climate change, drought, earthquake, severe weather, sea-level rise, and flood.
- 81 percent of respondents reported having experienced an evacuation, over 76 percent reported having experienced a wildland fire, and more than 70 percent reported having experienced drought.
- Most respondents (75.71 percent) felt that personal experience with one or more natural hazards/disasters provided useful hazard and disaster preparedness information to the public, followed by emergency preparedness information from government sources (federal, state, or local) (75.39 percent).
- Most respondents (39.81 percent) stated that they could survive for 4 to 7 days following a natural hazard event based on their preparedness. 8 to 15 days (24.01 percent), 1 to 3 days (19.43 percent), and 16 days or more (15.80 percent) were the next most common responses. Only 0.95 percent of respondents stated they would survive 0 days.

Survey results were provided to the Steering Committee for use in support of confirming the guiding principle, goals, objectives and county-wide actions for this plan update. Additionally, the survey results were included in the toolkit provided to each planning partner through the jurisdictional annex process described in Volume 2.

Each planning partner was able to use the survey results to help identify actions as follows:

- Gauge the public’s perception of risk and identify what citizens are concerned about.
- Identify the best ways to communicate with the public.
- Determine the level of public support for different mitigation strategies.
- Understand the public’s willingness to invest in hazard mitigation.

Public Outreach Events

The public involvement strategy used for this plan update 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 update process. Details of attendance and comments received from the public outreach events are summarized in Table 3-3.

Table 3-3. Summary of Public Outreach Events

Date	Location	Number of Attendees
2/25/2021	Virtual Public Meeting (Story Map Presentation)	109
Presentations at Meetings of Community Organizations		
4/7/2021	Windsor Senior Citizens Advisory Committee	24
5/10/2021	Bodega Bay Community Emergency Response Team	16
5/11/2021	Oakmont Citizens Advisory Committee	92
5/11/2021	Cotati City Council Meeting	56
5/12/2021	Town of Windsor Parks and Recreation	44
5/12/2021	Mark West Community Advisory Committee	72
5/17/2021	North County Citizens Organized to Prepare for Emergency	~25
5/20/2021	California Wildfire Recovery Roundtable	~70
5/25/2021	Springs Citizens Organized to Prepare for Emergency	~50
5/25/2021	Town of Windsor Planning Commission	17
6/14 – 28/2021	Open Public Comment Period	N/A
7/21	Virtual Public meeting to present the draft plan and to allow opportunity for public comment	49
Total		~624

3.10 PLAN DEVELOPMENT CHRONOLOGY/MILESTONES

Table 3-4 summarizes important milestones in the plan update process.

Table 3-4. Plan Development Chronology/Milestones

Date	Event	Description	Attendance
2020			
4/21	Organize Resources	County selects Tetra Tech as its technical assistance contractor to facilitate the plan update process.	N/A
4/23	Organize Resources	Sonoma County Board of Commissioners approves contract with Tetra Tech and authorizes the notice to proceed on work for the update.	N/A
6/2	Project Kickoff Meeting	<ul style="list-style-type: none"> • Review work plan • Discuss planning partner expectations <ul style="list-style-type: none"> • Organize Steering Committee • Risk assessment data needs • Discuss public involvement strategy • Homework: review prior plan and state plan 	24
6/26	Core Planning Team Meeting #1	<ul style="list-style-type: none"> • Finalize planning partnership roster • Discuss risk assessment data needs • Finalize agenda for Steering Committee meeting #1 	6
7/20	Public Outreach	<ul style="list-style-type: none"> • Hazard mitigation plan website adapted for information on 2021 plan update process. 	N/A
7/23	Steering Committee Meeting #1	<ul style="list-style-type: none"> • Homework report out: Review Sonoma County chapter of state hazard mitigation plan <ul style="list-style-type: none"> • Project overview <ul style="list-style-type: none"> • Role of the Steering Committee • Introduce Phase 1 jurisdictional annex process <ul style="list-style-type: none"> • Confirm ground rules and charter • Discuss public outreach strategy 	25

Date	Event	Description	Attendance
7/23	Steering Committee Debrief	<ul style="list-style-type: none"> Detail wrap-up from 1st Steering Committee meeting <ul style="list-style-type: none"> Discuss future meeting interactivity <ul style="list-style-type: none"> Discuss facilitation GIS needs 	4
Aug.	Sonoma County Wildfires	<ul style="list-style-type: none"> Sonoma County wildfires caused postponing of core planning team and Steering Committee meetings 	
9/10	Core Planning Team Meeting #2	<ul style="list-style-type: none"> Phase 1 instructions and forms <ul style="list-style-type: none"> GIS meeting Inclusion of tribal communities in planning process <ul style="list-style-type: none"> Goals and Objectives Mission Statement Agenda for next Steering Committee Meeting 	7
9/21	Core Planning Team Meeting #3	<ul style="list-style-type: none"> GIS Roundtable Review existing and pending hazard data sources <ul style="list-style-type: none"> Identify data gaps 	13
9/24	Steering Committee Meeting #2	<ul style="list-style-type: none"> Confirm Steering Committee rules, mission statement Review homework: previous County hazard mitigation plan and State hazard mitigation plan <ul style="list-style-type: none"> Confirm hazards of concern Public involvement strategy 	25
10/15	Core Planning Team Meeting #4	<ul style="list-style-type: none"> GIS Roundtable Focused on flood/tsunami/sea level rise risk assessment scenarios 	13
10/21	Core Planning Team Meeting #5	<ul style="list-style-type: none"> Clarification on Phase 1 annex process <ul style="list-style-type: none"> Discuss critical facilities 	6
10/22	Steering Committee Meeting #3	<ul style="list-style-type: none"> Planning Process Community Lifelines framework Jurisdictional Annex Process Public Involvement Strategy 	24
11/5	Core Planning Team Meeting #6	<ul style="list-style-type: none"> GIS Roundtable Dam Failure, Earthquakes, and Landslide/Mass Movement data needs 	13
11/19	Phase II Annex Meeting	<ul style="list-style-type: none"> Overview of Phase 2 process Critical facilities discussion 	11
11/19	Steering Committee Meeting #4	<ul style="list-style-type: none"> Finalize goals and objectives <ul style="list-style-type: none"> Survey review Public engagement 	19
12/8	Core Planning Team Meeting #7	<ul style="list-style-type: none"> Story Map Phase 2 Annex Status <ul style="list-style-type: none"> Survey release 	6
11/19	Public Outreach	<ul style="list-style-type: none"> Hazard mitigation plan survey released 	N/A
11/19	Planning Process	<ul style="list-style-type: none"> Workshop for planning partners to work together to complete Phase 2 of the jurisdictional annex process. Remote technical support provided by Tetra tech 	12
12/17	Steering Committee Meeting #5	<ul style="list-style-type: none"> Confirm objectives Overview of Phase 3 process <ul style="list-style-type: none"> Survey status Public engagement 	21

Date	Event	Description	Attendance
2021			
1/11	Core Planning Team Meeting #8	<ul style="list-style-type: none"> Phase 2 annexes Story Map Survey 	6
1/19	Core Planning Team Meeting #9	<ul style="list-style-type: none"> Phase 2 jurisdictional annex status report <ul style="list-style-type: none"> Phase 3 workshops Hazard analysis status Survey status and responses 	8
1/28	Steering Committee Meeting #6	<ul style="list-style-type: none"> Phase 2 jurisdictional annex process status <ul style="list-style-type: none"> Phase 3 workshop schedule Development of action items Public engagement updates 	24
2/11	Core Planning Team Meeting #10	<ul style="list-style-type: none"> Discuss March public meeting 	6
2/23	Public Meeting Practice Run	<ul style="list-style-type: none"> Discuss zoom protocol Show Story Map to Sonoma County core planning team 	6
2/25	Steering Committee Meeting #7	<ul style="list-style-type: none"> Plan progress report Upcoming Phase 3 workshops Discuss plan maintenance strategy <ul style="list-style-type: none"> Discuss public meeting 	18
2/25	1st Public Meeting	<ul style="list-style-type: none"> Discuss hazard mitigation plan process and plan Show Sonoma County Story Map to the public 	109
4/22	Steering Committee Meeting #8	<ul style="list-style-type: none"> Discuss plan progress Draft plan release date Public comment period Next public meeting date 	20
5/12	Core Planning Team Meeting #11	<ul style="list-style-type: none"> Public comment process 	6
4/27 – 5/25	Public Outreach	Meeting with community groups to provide information about hazard mitigation plan	~650
6/1 – 6/24	Stakeholder Draft Review	Tetra Tech sent draft hazard mitigation plan and corresponding annexes to Steering Committee, planning partners, and core planning team	N/A
7/12	Public Outreach	Opening of the 2-week public comment period	N/A
7/21	Public Outreach	Virtual Public Meeting to present the Draft Plan	49
7/30	Public Outreach	Closure of the 2-week public comment period	N/A
8/6	Plan Submittal	Pre-adoption review draft of the plan submitted to Cal OES.	N/A
9/27	APA	Approval Pending Adoption (APA) provided by FEMA	N/A
10/26	Adoption	Adoption window opens for planning partnership	N/A
12/14/2021	FEMA Final Approval	Final Plan approval issued by FEMA Region IX	N/A

4. SONOMA COUNTY PROFILE

4.1 GEOGRAPHIC OVERVIEW

Sonoma County, the most northerly of the nine counties in the San Francisco Bay Region, is located along the Pacific coastline about 40 miles north of San Francisco and the Golden Gate Bridge. At just over 1,500 square miles, it is the largest of the nine Bay Area counties. Sonoma County is bordered by the Pacific Ocean on the west, Marin County and San Pablo Bay to the south, Solano, Napa and Lake Counties to the east, and Mendocino County to the north (see Figure 4-1).

The major population centers in Sonoma County are the incorporated cities of Cloverdale, Cotati, Healdsburg, Petaluma, Rohnert Park, Santa Rosa, Sebastopol, Sonoma, and Windsor. Unincorporated communities include Annapolis, Bodega, Bodega Bay, Cazadero, Duncans Mills, Forestville, Fort Ross, Geyserville, Glen Ellen, Graton, Guerneville, Kenwood, Jenner, Monte Rio, Occidental, Salmon Creek, and The Sea Ranch. Santa Rosa, centrally located in the county, is the county seat and most populous city.

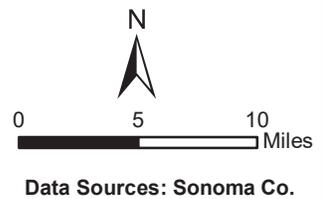
U.S. Highway 101 is the main highway in the county, running north to south through the county's center. Highway 1 follows the coastline along most of the county's western boundary. Other major roadways are State Highways 12, 37, 116, 121 and 128. Airports include Charles M. Schulz–Sonoma County Airport in Santa Rosa and the Sonoma Valley Airport and Sonoma Skypark in the City of Sonoma. Sonoma County Transit buses run countywide. The SMART Train (Sonoma–Marin Area Rail Transit) carries passengers from the Charles M. Schulz–Sonoma County Airport to Larkspur in Marin County; future extensions as far north as Cloverdale are planned.

The Sonoma County Board of Supervisors sits as the governing board of Sonoma County and of various special jurisdictions such as the Sonoma County Water Agency, the Northern Sonoma County Air Pollution Control District, the Agricultural Preservation and Open Space District, County Sanitation Districts, and the Community Development Commission. The Board is composed of five supervisors elected from supervisorial districts for four year terms. The risk analysis for this hazard mitigation plan assessed risk both countywide and for each supervisorial district. The boundaries of these districts are included on Figure 4-1.



Figure 4-1. Sonoma County Planning Area

-  Cities
-  County Boundary
-  Supervisory District Boundaries
-  Highways



Data Sources: Sonoma Co.

4.2 HISTORICAL OVERVIEW

Early peoples began to settle in Sonoma Valley roughly 12,000 years ago, attracted by fertile soil, water, game, fish, wild oats, berries, acorns, and other natural resources. The name Sonoma may have derived from an indigenous word for “many moons,” or may come from “noma,” a Miyakmah word for town (Sonomavalley.com 2021). Eventually, these early residents numbered about 5,000 people across a number of tribes:

- Miwoks along the coast
- Wintuns, Wapo and Miyakmahs in the north near the Mayacamas Mountain Range
- Pomos in the lower valley
- Koskiwok near the edge of San Pablo Bay
- Patwins in the southeast corner

These early peoples lived in long, multi-family grass- and tule-thatched huts with communal cooking areas. Life focused on gathering and preparing food and tribal celebrations—religious and otherwise. Their activities included trade between tribes and clearing land (by burning) to expose game.

In 1812, Russians established the short-lived Fort Ross along the coast north of the Russian River. In the early 19th century, Spanish explorers and missionaries arrived, looking for land and converts and hoping to set up a bulwark against the Russians, who had advanced down the coast from the north. In 1823, Franciscan missionaries established the mission San Francisco Solano de Sonoma. The Mission regime was harsh, and a rebellion in 1826 caused mission founder Fr. Jose Altamira to flee Sonoma Valley. A memorial outside Sonoma’s restored mission bears the names of the native people who died there.

Sonoma became the county’s first town, a pueblo, under General Mariano Vallejo. Sections of the county were transformed into land-grant ranchos, such as Vallejo’s holdings that extended from today’s Petaluma to the town of Sonoma (County of Sonoma n.d.). The continual encroachment of European and American settlers overwhelmed the native population. By the late 1800s, indigenous tribes had all but vanished as a society. Many died from smallpox and measles; others were sent north to reservations or absorbed into the burgeoning new pueblo of Sonoma.

Sonoma County was one of the original counties when California achieved statehood on September 9, 1850. The county seat of Sonoma County was moved to Santa Rosa in 1854 (City of Sonoma 2017). After statehood, logging along the coast hills, cattle ranching, wheat and potato farming, and the early development of the wine industry supported the sparsely settled county. During the 1860s to the 1890s, Petaluma, at the head of navigation on the Petaluma Creek, enjoyed rapid economic growth that fueled the construction of its downtown.

Later, the railroads facilitated the movement of goods and people, leading to the establishment of processing plants and factories along the rail lines. Around the turn of the century, the Russian River developed as a vacation resort, a destination for those in the San Francisco Bay Area. During this time, Santa Rosa saw an increase in population and importance as the center of finance and county government. Until World War II, the poultry industry, the processing of local fruit, and the production of hops sustained the economy throughout the county. In 1935, Sonoma County ranked tenth in the nation in overall agricultural production.

Today the southwestern part of the county continues to support cattle grazing and dairy farms. Toward the north, many of the ranches and orchards have been replaced with acres of vineyards and thriving winery operations.

Over the years many of the poultry farms, fruit growers, and dairy operations have relocated to the Central Valley. In their place, small specialty farms and ranches now operate sustainable and organic endeavors. Dotting the countryside throughout the county are modern residences where rural homesteads used to be. The Russian River area still caters to vacationers. The cities along the freeway continue to expand to provide housing and services with new subdivisions, business parks, and strip-mall shopping centers.

4.3 MAJOR PAST HAZARD EVENTS

Presidential disaster declarations are typically issued for hazard events that cause more damage than state and local governments can handle without assistance from the federal government, although no specific dollar loss threshold has been established for these declarations. A presidential disaster declaration makes federal recovery programs available to help public entities, businesses, and individuals. Some disaster assistance programs are partially matched by state programs. Review of presidential disaster declarations helps establish the probability of reoccurrence for each hazard and identify targets for risk reduction. Table 4-1 shows the declared disasters that have affected Sonoma County through 2020 (records date back to 1964).

Table 4-1. Historical Sonoma County Natural Hazard Events

Year	Event Name	Dates	County EOC ^a Activated	Governor's Declaration	Presidential Declaration
1964	Heavy Rains and Flooding	Dec. 24			X
1969	Severe Storms, Flooding	Jan. 26			X
1981-1982	Severe Storms, Flood, Mudslides, High Tide	Dec. 19 – Jan. 8			X
1983	Coastal Storms, Floods, Slides, Tornadoes	Jan. 21 – Mar. 30			X
1986	Severe Storms, Flooding	Feb. 12 – Mar. 10			X
1990-1991	Freeze of '91	Dec. 90–Feb. 91		X	X
1993	Flood of '93	Jan. 20-25	X	X	X
1994	Fishing Emergency	May–Sep.		X	X
1995	Flood of '95, Part 1	Jan. 8-31	X	X	X
1995	Flood of '95, Part II	Mar. 7-15	X	X	X
1995	December Winter Storm	Dec. 11-12	X		
1996	February Winter Storm	Feb. 4-5	X		
1996	Cavedale Fire	Jul. 31–Aug. 20	X		
1996	Jenner Sandbarrier	Jul. 31–Aug. 20			
1996	Porter Creek Fire	Oct. 27-28	X		
1996-1997	New Year's Flood	Dec. 30, 1996–Jan. 4, 1997	X	X	X
1997	Superbowl Flood	Jan. 25	X		
1998-2000	Flood of '98/ Rio Nido Debris Flow	Feb. 2, 1998–Jan. 4, 2000	X	X	X
1999	February Winter Storm	Feb. 8-10		X	
2002-2003	December Winter Storms	Dec. 17, 02–Apr. 8, 03			
2004	Geysers Fire	Sept. 3-8	X		
2005-2006	New Year's Floods	Dec. 31, 05–Jan. 3, 06	X	X	X
2006	Late Spring Storms	Mar. 29-Apr. 16		X	X
2007	SF Oil Spill	Nov. 7		X	
2009	H1N1 Influenza Pandemic	Apr.-May			
2011	Great Tohoku Tsunami	Mar. 11	X	X	X

Year	Event Name	Dates	County EOC ^a Activated	Governor's Declaration	Presidential Declaration
2012	Holiday Decoration Flood	Dec. 2	X		
2013	Lopez Protests	Oct. 29 and Nov. 5	X		
2014-2016	Drought	Feb. 25		X	
2014	South Napa Earthquake	Aug. 24	X	X	X
2014	December Winter Storm	Dec. 11-12	X		
2015	Valley Fire	Sep. 12-25	X	X	X
2017	Severe Winter Storms, Flooding, and Mudslides	Jan. 3-12	X		X
2017	Severe Winter Storms, Flooding, Mudslides	Feb. 1-23	X		X
2017	LNU Complex Fires	October	X		
2017	Wildfires	Oct. 8-31			X
2018	PG&E Power Shutoff	October	X		
2019	Severe Winter Storms, Flooding, Landslides, Mudslides	Feb. 24 – Mar. 1	X		X
2019	PG&E Power Shutoff	October	X		
2019	Kincadee Fire	Oct. 23 – Nov. 7	X	X	
2020	COVID-19 Pandemic	Jan. 20 – present	X	X	X
2020	Wildfires	Aug. 14 – Sept. 26			X
2020	Wildfires	Sept. 4 – Nov. 17			X

a. EOC = Emergency Operations Center

Sources: Sonoma County Department of Emergency Management, www.gov.ca.gov, www.fema.gov/disaster

4.4 PHYSICAL SETTING

4.4.1 Topology and Surface Waters

The broad, flat Santa Rosa Plain, which lies between the Sonoma Mountains on the east and low coastal hills on the west, contains the cities of Santa Rosa, Rohnert Park, and Cotati. The sparsely settled coastal area of the county includes redwood and mixed conifer forests in the north and rolling oak woodland, dairy lands, and coastal prairies in the south. The Mayacamas Range forms the eastern boundary of the county. The Mayacamas and Sonoma Mountain ranges enclose the Sonoma Valley or “Valley of the Moon,” which extends from near Santa Rosa southeast to the City of Sonoma and San Pablo Bay. In the north, the Mayacamas Range and Mendocino Highlands surround the farming regions of Alexander and Dry Creek Valleys. In the far northeast, the remote interior of the Mayacamas Range contains the Geysers geothermal steam field.

Topography in the county is varied and includes mountainous areas, rolling hills and broad flat river valleys, and bay flats. The valleys and foothills are predominantly in agricultural uses with some urbanized areas and with a dense population. The county contains numerous watersheds, but the Russian River is the largest and most significant, draining over 1,485 square miles as it flows south from Mendocino County to the Pacific Ocean. The Russian River is the primary water supply and a key attraction to many communities along its banks. The Petaluma River connects to San Pablo Bay and thence to the San Francisco Bay in the south. Lake Sonoma is a dam-created reservoir on Dry Creek in the northwest part of the county.

Sonoma County is on the coast of the Pacific Ocean, north of San Francisco Bay. Santa Rosa lies in the county's central valley near the junction of the Mantanzas and Santa Rosa Creeks, which flow to the west from hills that surround a large central valley (U.S. Soil Conservation Service 1972).

In general, the northern half of the county is made up of small, rugged mountains that begin at the coast and rise to an elevation of 3,500 to 4,400 feet. The Russian River flows from Mendocino County in a southeasterly direction through the north-central half of Sonoma County and then turns west a few miles south of Healdsburg. Eventually, after passing through the large resort and recreational areas surrounding Guerneville and Monte Rio, this river empties into the Pacific Ocean.

The western part of the southern half of Sonoma County generally is low, rolling grassy hills at an elevation of 500 to 600 feet. The cities of Petaluma and Sonoma are in long narrow valleys in the southwestern and southeastern parts of the county, respectively. East of the Sonoma Plains and on both sides of the Sonoma Valley are grass-covered hills that rise to about 2,000 feet. Tidal flats reclaimed from the San Pablo Bay are at the lower ends of Sonoma and Petaluma Valleys and the Petaluma plains area.

4.4.2 Soils

Sonoma County has over a dozen unique soil associations (U.S. Soil Conservation Service 1972). Table 4-2 lists each association, along with descriptions and percent of soil occupation.

4.4.3 Climate

Sonoma County's Mediterranean climate is characterized by a summer dry season followed by a winter rainy season, generally extending from November to April. Rainfall varies throughout the county from 70 to 20 inches annually in the north central and the southeastern sections of the county. The quantity of rainfall in the county increases with elevation, with the greatest precipitation occurring over the highest ridges. The valleys, where most of the water users are located, receive considerably less rainfall with some areas averaging just over 20 inches of precipitation annually.

In the Russian River Watershed, approximately 93 percent of the annual precipitation normally falls during the wet season, October to May, with a large percentage of the rainfall typically occurring during three or four major winter storms. These major storms often come in the form of an atmospheric river, the horizontal transport of large amounts of water vapor through the atmosphere along a narrow corridor. Although brief, atmospheric rivers can produce 30 to 50 percent of the region's annual precipitation in a matter of a few days.

Except for areas immediately along the coast, the weather from May through October is generally warm and dry during the day, with peak summer day temperatures of 80° to 100° F, and relative humidity ranging between 20 and 35 percent. Gradient winds are generally out of the south/southwest at 5 to 10 mph, strengthening to 10 to 15 mph in late afternoon and diminishing by dark. Strong and dry northeast "Santa Ana" or "Foehn" winds often occur in the fall months.

Coastal onshore flow, often accompanied by fog, frequently prevails after sunset, allowing for good nighttime relative humidity recovery in the warm inland areas. In the inland valleys, fog usually dissipates by 11:00 am. Fog in the county usually is seen at elevations between 1,000 and 1,500 feet. Elevations above this often do not experience fog or receive the same nighttime cooling and moisture recovery as lower elevations.

Table 4-2. Sonoma County Soil Types

Soil Association	Soil Description	Portion of County	Distribution of Soil Types
Clear Lake-Reyes	Poorly drained, nearly level to gently sloping clays to clay loams; in basins and on tidal flats	6%	50% Clear Lake soils, 40% Reyes soils, 10% Wright / Yolo soils
Haire-Diablo	Moderately well drained and well drained, gently sloping to steep fine sandy loams to clays; on terraces and uplands	4%	45% Haire soils, 45% Diablo soils, 10% Arbuckle / Clear Lake / Raynor / Zamora soils
Huichica-Wright-Zamora	Somewhat poorly drained to well drained, nearly level to strongly sloping loams to silty clay loams; on low bench terraces and alluvial fans	6%	35% Huichica soils, 30% Wright soils, 25% Zamora soils, 10% Clear Lake / Yolo / Pajaro / Cole / Cortina soils
Pajaro	Somewhat poorly drained, nearly level to gently sloping fine sandy loams to clay loams; on low terraces and flood plains	1%	90% Pajaro soils, 10% Blucher / Goldridge / Steinbeck / Los Osos soils
Yolo-Cortina Pleasanton	Well-drained to excessively drained, nearly level to moderately sloping very gravelly sandy loams to clay loams; on flood plains, alluvial fans, and low terraces	3%	60% Yolo soils, 15% Cortina soils, 15% Pleasanton soils, 10% Arbuckle / Manzanita / Pajaro / Positas / Zamora soils
Spreckels-Felta	Well-drained, gently sloping to very steep very gravelly loams to clay loams; on mountain foothills and on high terraces	4%	50% Spreckels soils, 40% Felta soils, 10% Laniger / Toomes / Guenoc soils
Yorkville-Suther	Moderately well drained, moderately sloping to very steep loams and clay loams; on uplands	8%	40% Yorkville, 40% Suther soils, 20% Hugo / Josephine / Laughlin soils
Goulding-Toomes-Guenoc	Well-drained, gently sloping to very steep clay loams to loams; on uplands	8%	70% Goulding soils, 10% Toomes soils, 10% Guenoc soils, 10% Boomer / Henneke / Josephine / Red Hill / Spreckels / Supan soils
Kidd-Forward-Cohasset	Somewhat excessively drained and well-drained, moderately sloping to very steep gravelly and stony loams; on uplands	2%	30% Kidd soils, 30% Forward soils, 20% Cohasset soils, 20% Laniger / Red Hill / Spreckels / Supan soils and Rock land
Los Gatos-Henneke-Maymen	Well-drained to excessively drained, moderately sloping to very steep loams, gravelly loams, and gravelly sandy loams; on mountains	75	50% Los Gatos soils, 20% Henneke soils, 20% Maymen soils, 10% Boomer / Huse / Hugo / Josephine / Montara soils
Hugo-Josephine-Laughlin	Well-drained, gently sloping to very steep gravelly loams and loams; on mountains	33%	55% Hugo soils, 20% Josephine soils, 15% Laughlin soils, 10% Boomer / Hely / Maymen / Sites / Suther / Yorkville soils
Steinbeck-Los Osos	Moderately well drained and well drained, gently sloping to steep loams and clay loams; on uplands	6%	65% Steinbeck soils, 25% Los Osos soils, 10% Cotati / Diablo/ Goldridge soils and Kneeland sandy variant
Goldridge-Cotati-Sebastopol	Moderately well drained and well drained, gently sloping to steep fine sandy loams and sandy loams; on coastal terraces and uplands	6%	60% Goldridge soils, 20% Cotati soils, 10% Sebastopol soils, 10% Clear Lake / Diablo / Steinbeck soils
Kneeland-Rohnerville-Kinman	Well drained and moderately well drained, nearly level to steep loams to clay loams; on coastal benches, terraces, and uplands	3%	30% Kneeland soils, 25% Rohnerville soils, 25% Kinman soils, 20% Baywood / Laughlin / Los Osos / Noyo / Yorkville soils
Empire-Caspar-Mendocino	Well drained and moderately well drained, strongly sloping to steep sandy loams to sandy clay loams; on coastal uplands and terraces	3%	35% Empire soils, 30% Caspar soils, 20% Mendocino soils, 15% Goldridge / Hugo / Josephine soils

Source: (U.S. Soil Conservation Service 1972)

4.5 SENSITIVE RESOURCES

Sonoma County boasts scenic vistas, fertile agricultural lands, impressive redwood forests, a sizeable meandering river, and 50 miles of rocky coastline. In addition to these natural resources, there are cultural landscapes that illustrate the county’s historic past with a broad array of properties that mirror the passage of time.

4.5.1 Cultural Resources

Historic building surveys for the coastal, Sebastopol, Healdsburg, and Sonoma Valley areas provide an inventory of Sonoma County’s historic resources, some of which may be threatened by development or by a lack of maintenance. With reference to residential, commercial, and industrial architecture, many of the towns still retain excellent examples of both high style and vernacular building examples from the 19th and early 20th centuries.

Archaeological sites provide information on the history and culture of the county’s earliest residents. Heritage and landmark trees enhance the quality of the environment and have historical significance (County of Sonoma 2013).

4.5.2 Scenic Resources

Coastal bluffs, vineyards, San Pablo Bay, the Laguna de Santa Rosa, and other landscapes are of special importance to Sonoma County. Preservation of these scenic resources is important to the quality of life of county residents and the tourists and agricultural economy. Other features such as the Mayacamas and Sonoma Mountains provide scenic backdrops to communities. As the county urbanizes, the openness of these areas provides important visual relief from urban densities. These landscapes have little capacity to absorb development without significant visual impact. Major Scenic Landscape Units have been identified as follows (County of Sonoma 2013):

- The Coast—The Sonoma coast is a scenic resource vital to the county. Three basic types of landscapes are included, the flat terraces south of the Russian River, the hillier terraces from Fort Ross northward, and the cliffs and landslide areas in between.
- Oat Valley—Oat Valley and the hillsides above it provide the scenic northern entrance to the county near Cloverdale.
- Alexander and Dry Creek Valleys—Protection of these agricultural valleys’ scenic beauty is not only important from an aesthetic standpoint, but also from an economic one as agricultural marketing is closely tied to the area’s scenic image. The hills along Highway 101 and above the valley floor are particularly sensitive.
- Hills East of Windsor—These hills provide a scenic backdrop to the Santa Rosa Plain. North of Windsor the area extends into the plain and adjoins the low, rolling hills that form part of the Windsor-Healdsburg Community Separator.
- Eastside Road—This area of rolling hills is an important transition between the community of Windsor and the rich agricultural and mineral resource areas of the Russian River Valley.
- River Road—This area provides a variety of landscapes, including valleys planted in vineyards, orchard covered hillsides, and redwood groves adjacent to the Russian River.
- Laguna de Santa Rosa—This area consists primarily of the scenic lowlands and floodplain around the Laguna de Santa Rosa marsh, swamp, and riparian forest. It also includes hills between Forestville, Sebastopol, and Meacham Hill. It defines the eastern boundary of Sebastopol and associated rural residential development.

- Bennett Valley—Bennett Mountain forms a scenic backdrop from Bennett Valley Road. This area defines Santa Rosa’s southeastern boundary and abuts Annadel State Park.
- Highway 116—The view corridor along Highway 116 contains unique views of orchards, redwood groves, and the Russian River. This area also defines the community boundaries of Forestville, Guerneville, and Monte Rio and their adjacent rural residential development.
- Atascadero Creek—This area consists primarily of the lowlands and floodplains along Atascadero Creek and the hills along Occidental Road. The area defines the western boundary of Sebastopol and its adjacent rural residential development, separates Sebastopol and Graton, and creates a visual connection to the Laguna de Santa Rosa.
- Coleman Valley—The Coleman Valley Road area contains unique views of forests, canyons, grazing lands, and the ocean.
- Sonoma Mountains—These are highly valuable scenic lands, clearly defining the eastern edge of the Santa Rosa Plain between Petaluma and Sonoma.
- Hills South of Petaluma—The open grassy hillsides and ridgelines of the area are extremely sensitive. Located at the Marin County border, this area serves as a gateway to the county.
- Sonoma Valley/Mayacamas Mountains—Included in this area are the Sonoma-Napa Mountains that provide a backdrop to the valley and agricultural areas bordering the valley. These areas define the boundaries of the urban and rural communities and are very sensitive because of their small size and the unobstructed view of them from roads and adjoining urban areas.
- South Sonoma Mountains—These hillsides are an important part of the south county landscape with a simple landform, minimal vegetation, and a clear widespread viewing area. Pasture and forage lands along the Highway 37 corridor are included to preserve views of the San Pablo Bay.

4.5.3 Natural Resources

Sonoma County’s varied natural landscapes range from the marine environments of the coast to the forests, woodlands and grasslands of the Coast Range to the vernal pools and freshwater marshes of the Santa Rosa Plain and other valley floors to the extensive marshlands along San Pablo Bay. Areas of natural vegetation support many native plant and animal species and encompass habitat for special status species, wetlands, and sensitive natural communities. The vegetative cover also helps reduce surface runoff, protect water quality, maintain air quality, retain soil, increase recharge, and maintain stream channels. These areas together create a varied natural environment important to the quality of life and the unique character of the county. The background and policies below are separated into a Biotic Habitat Areas section that addresses protection of several types of biotic habitat in the county and a section that focuses on one type of habitat, the Riparian Corridor.

4.6 DEVELOPMENT PROFILE

4.6.1 Land Ownership and Use

The Sonoma County General Plan and Land Use Maps govern the types of land uses and development that may occur in different areas of the unincorporated county. Figure 4-2 indicates the breakdown of land use as of the 2008 Land Use Element of the General Plan; that element is scheduled to be updated in 2021. Current land use policies promote city and community centered growth, and limit new development to levels consistent with adequate infrastructure and services, including public safety considerations.

Source: (County of Sonoma 2017)

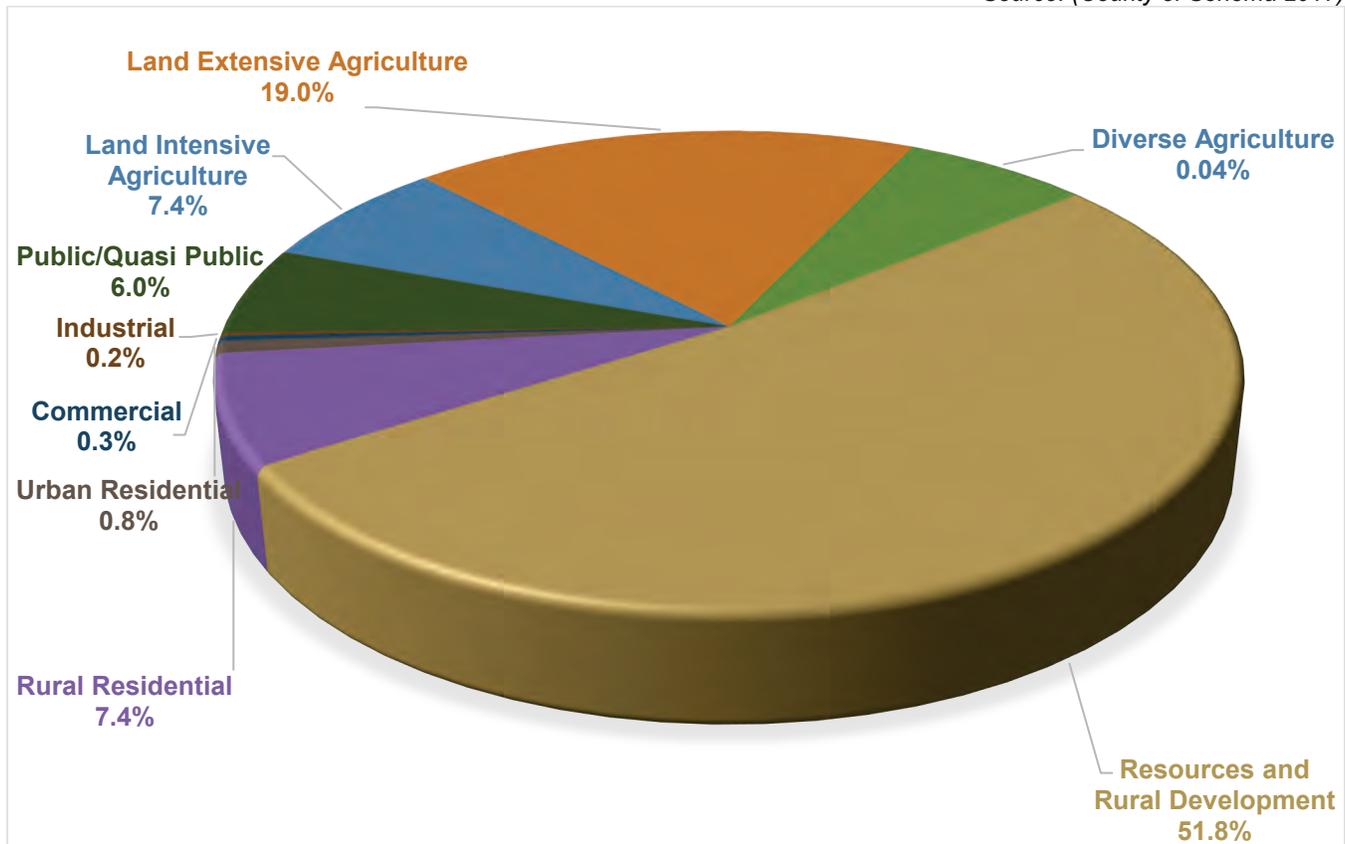


Figure 4-2. Chief Characteristics of Land within Sonoma County

Approximately half of the county is in rugged rural areas with limited access. Most of the development in these areas is limited to open space and timber/natural resource production.

4.6.2 Building Count, Occupancy Class and Estimated Replacement Value

Table 4-2 presents planning area building counts by building occupancy class. Table 4-3 summarizes estimated replacement value for building structures and contents combined.

4.6.3 Critical Facilities

Critical facilities are those that are essential to the health and welfare of the population. These become especially important after any hazard event. Also included are facilities that hold or carry significant amounts of hazardous materials with a potential to impact public health and welfare during a hazard event. The risk assessment for each hazard in this plan discusses that hazard’s potential impact on critical facilities.

Table 4-2. Planning Area Building Counts by Occupancy Class

	Number of Buildings							Total
	Residential	Commercial	Industrial	Agricultural	Religion	Government	Education	
Cloverdale	2,914	166	16	20	8	22	12	3,158
Cotati	2,450	149	34	7	5	27	10	2,682
Healdsburg	4,047	346	46	50	15	32	16	4,552
Petaluma	18,275	999	137	39	25	91	43	19,609
Rohnert Park	11,284	387	40	14	14	37	14	11,790
Santa Rosa	50,372	2,396	142	136	75	308	118	53,547
Sebastopol	2,489	285	8	9	12	21	8	2,832
Sonoma	4,109	397	12	22	14	44	7	4,605
Windsor	8,017	272	55	36	9	43	12	8,444
Unincorporated								
1st Supervisorial Dist.	12,473	447	48	2,045	19	92	17	15,141
2nd Supervisorial Dist.	5,684	217	25	1,487	16	79	21	7,529
3rd Supervisorial Dist.	745	106	17	97	1	17	3	986
4th Supervisorial Dist.	6,601	439	144	3,705	24	105	26	11,044
5th Supervisorial Dist.	21,736	805	63	4,475	71	356	59	27,565
Total	151,196	7,411	787	12,142	308	1,274	366	173,484

Table 4-3. Estimated Replacement Value of Planning Area Buildings

Jurisdiction	Estimated Total Replacement Value (Structure and Contents) ^a
Cloverdale	\$2,499,664,593
Cotati	\$2,163,132,258
Healdsburg	\$4,803,401,892
Petaluma	\$18,679,915,783
Rohnert Park	\$9,749,459,659
Santa Rosa	\$44,098,486,212
Sebastopol	\$2,676,395,901
Sonoma	\$3,658,235,342
Windsor	\$6,407,101,168
Unincorporated	\$123,838,778,174
Total	\$218,574,570,981

For some hazards, potential damage to critical facilities was estimated using the Hazards U.S. (Hazus) computer model developed by FEMA. For this reason, the list of critical facilities was categorized using categories that are defined in the Hazus model:

- **Safety and Security**—Law Enforcement/Security, Search and Rescue, Fire Services, Government Service, Responder Safety, and Imminent Hazard Mitigation
- **Food, Water and Sheltering**—Evacuations, Schools, Food/Potable Water, Shelter, Durable Goods, Water Infrastructure, and Agriculture
- **Health and Medical**—Medical Care/Hospitals: Patient Movement, Public Health, Fatality Management, Health Care, and Supply Chain

- **Energy**—Power (Grid), Temporary Power and Fuel
- **Communications**—Infrastructure, Alerts, Warnings, Messages, 911 and Dispatch, Responder Communications and Financial Services
- **Transportation**—Highway/Roadway, Mass Transit, Railway, Aviation, Maritime and Pipeline
- **Hazardous Materials**—Facilities, Hazardous Debris, Pollutants and Contaminants

Table 4-4 summarizes the number of critical facilities by Hazus-defined category, based on the best data available on critical facilities at the time of this plan update. The County and its planning partners consider this information to be subject to change as new information about critical facilities become available during the performance period for this plan. Due to the sensitivity of this information, a detailed list of facilities is not provided. General locations of critical facilities in the planning area are shown in Figure 4-3 and Figure 4-4.

Table 4-4. Planning Area Critical Facilities

	Number of Facilities							Total
	Communications	Energy	Food, Water, Shelter	Hazardous Material	Health & Medical	Safety & Security	Transportation	
Cloverdale	2	1	5	29	4	15	2	58
Cotati	1	0	0	45	4	17	1	68
Healdsburg	10	0	5	45	10	20	2	92
Petaluma	20	2	11	128	22	70	6	259
Rohnert Park	10	2	4	191	9	34	1	251
Santa Rosa	55	3	37	354	93	209	5	756
Sebastopol	7	0	3	27	13	19	0	69
Sonoma	11	1	3	65	11	19	0	110
Windsor	6	0	6	105	9	16	1	143
Unincorporated								
1st Supervisorial Dist.	25	5	11	431	10	45	63	590
2nd Supervisorial Dist.	7	8	7	340	4	31	45	442
3rd Supervisorial Dist.	3	1	1	65	1	5	1	77
4th Supervisorial Dist.	17	44	16	703	10	48	89	927
5th Supervisorial Dist.	17	7	22	581	19	102	169	917
Total	191	74	131	3,109	219	650	385	4,759

4.6.4 Development Trends

The municipal planning partners have adopted general plans that govern land use decision and policy making for their jurisdictions. Decisions on land use will be governed by these programs. This plan will work together with these programs to support wise land use in the future by providing vital information on the risk associated with natural hazards in the planning area. All municipal planning partners will incorporate this hazard mitigation plan update in their general plans by reference. This will ensure that future development trends can be informed by the information on risk and vulnerability to natural hazards identified in this plan. County land use policies help reduce the potential impact of new development on hazard vulnerability within the unincorporated areas of Sonoma County.

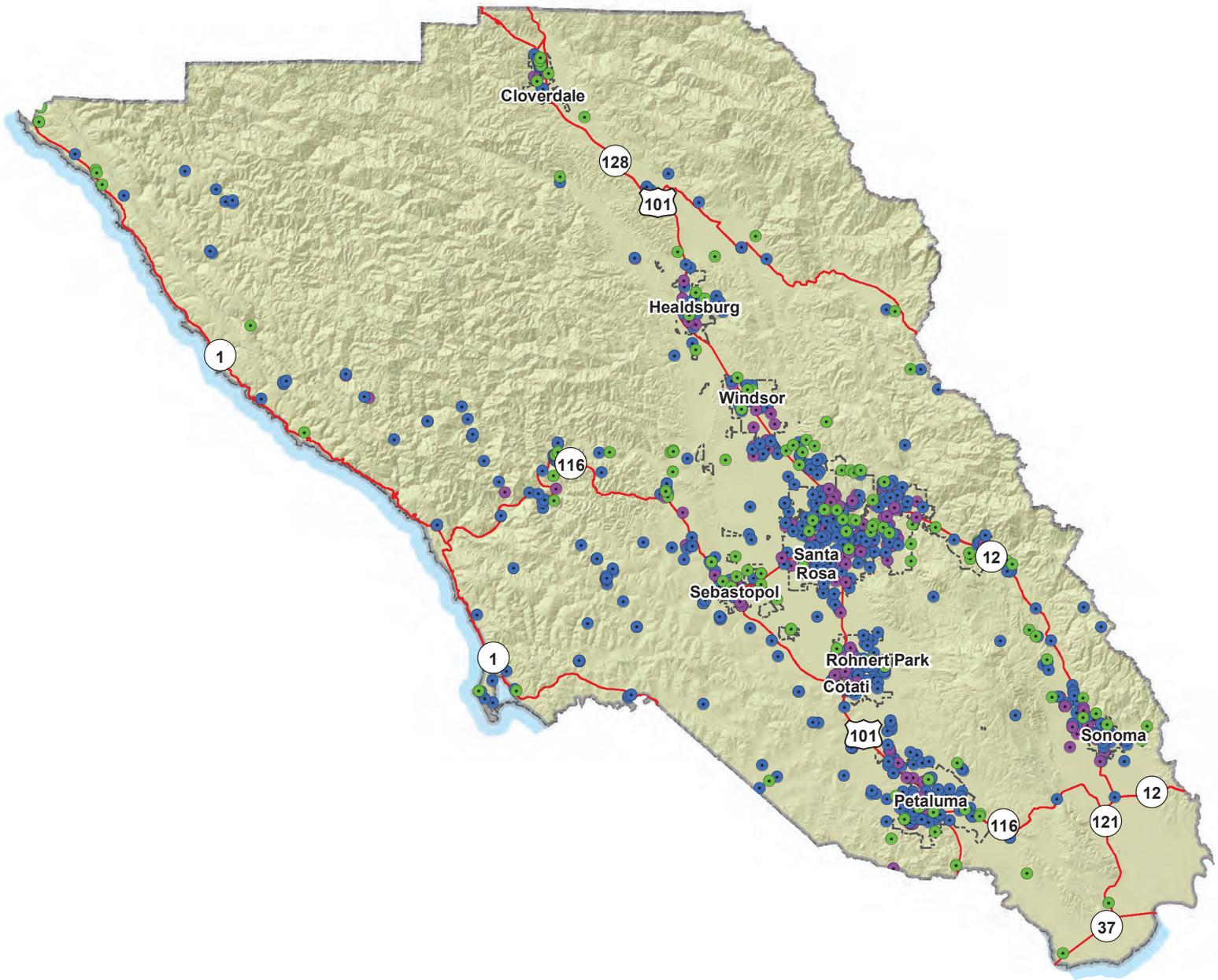


Figure 4-3. Critical Facilities, 1 of 2

- Food, Water, Shelter
- Health and Medical
- Safety and Security
- Cities
- County Boundary
- Highways



Data Sources: Sonoma Co.,
 CA ENERGY, CA WRCB,
 CALTRANS, DHS HIFLD

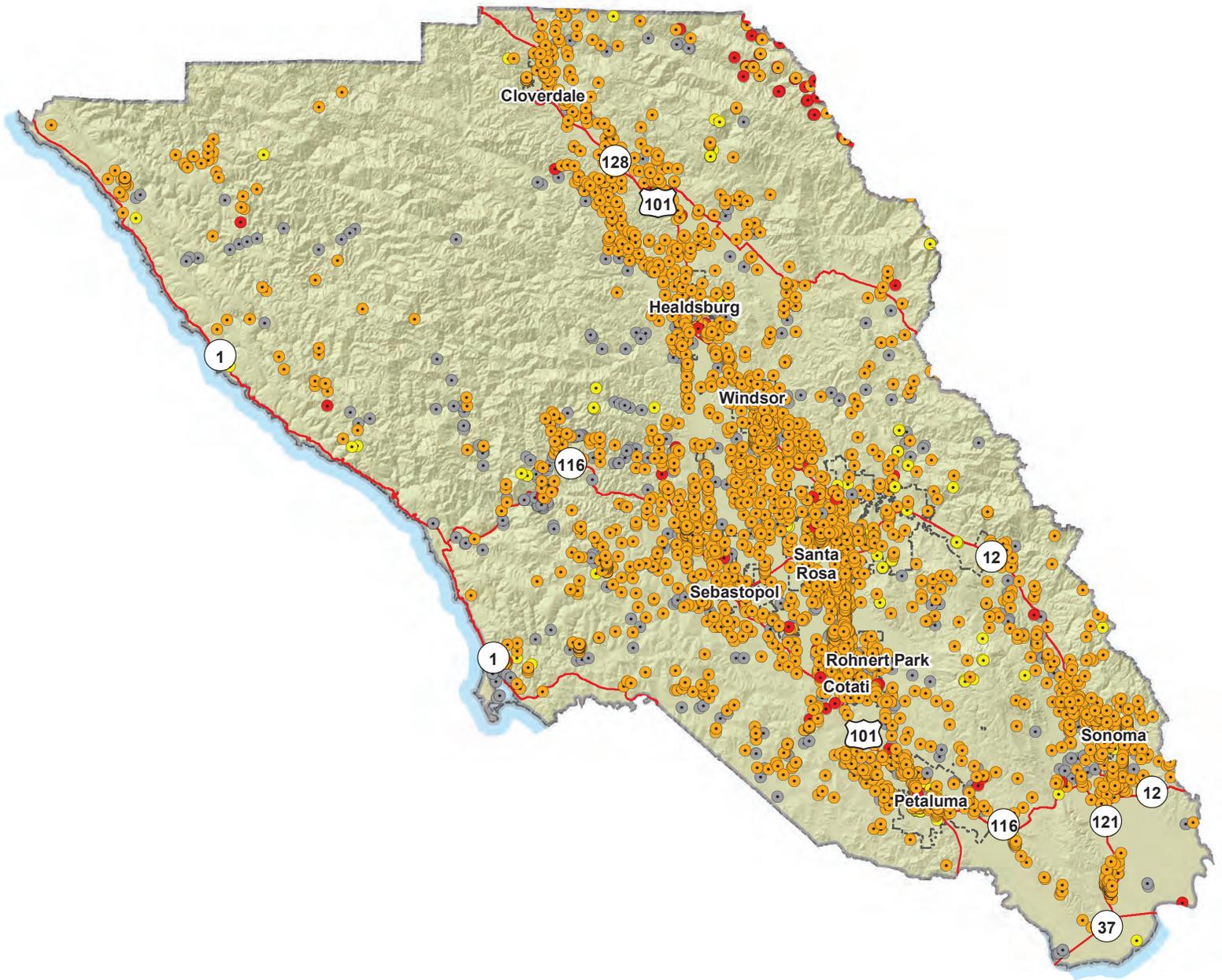


Figure 4-4. Critical Facilities, 2 of 2

- | | |
|--|--|
| ● Communication | Cities |
| ● Energy | County Boundary |
| ● Transportation | Highways |
| ● Hazardous Material | |



Data Sources: Sonoma Co.,
CA ENERGY, CA WRCB,
CALTRANS, DHS HIFLD

Sonoma County was in the process of updating its General Plan at the time of this hazard mitigation plan update. The following development trends from the previous General Plan (*Sonoma County General Plan 2020*) are likely to change when the General Plan update is completed:

- The number of housing units increased by 21,419 units between 2000 and 2010, with 16.6 percent of the increase in unincorporated county areas.
- Household growth was projected to grow about 38,490 units between 2000 and 2020 period, an average growth rate of 1,920 households per year.
- About 80 percent of 2000 – 2020 projected growth was expected to occur within city urban service areas, with the remainder in unincorporated areas outside of the cities.

4.7 DEMOGRAPHICS

The vulnerability of people and groups to hazard events is dynamic, varying with physical location as well as economic, social, geographic, demographic, cultural, institutional, governance, and environmental factors. The impacts of a hazard event on individuals and communities can depend on factors such as wealth, education, race, ethnicity, religion, gender, age, access and functional needs, and health status. The capacity to anticipate, cope with, and adapt to a hazard is an important factor of vulnerability (Cardona et al. 2012). These factors often overlap spatially, so spatial analysis to locate areas where there are higher concentrations of people experiencing different vulnerabilities can help to extend focused public outreach, education, and resources to these residents. Understanding communities' makeup and demographic changes over time is important to making decisions that may impact these communities future, such as land used decisions that affect housing, industry, stores, public facilities and services, and transportation.

4.7.1 Total Population Estimates

Current Population

Sonoma County is the 17th largest of California's 58 counties. The U.S. Census Bureau estimates the population at 494,336 as of 2019.

Historical Population Trends

Population changes are useful socio-economic indicators. A growing population can indicate a growing economy, and a decreasing population may signify economic decline. Figure 4-5 shows the population growth trend in Sonoma County from 1960 to 2019 compared to that of the State of California. Since the 1960s, the county has seen slow and declining growth rates (less than 5 percent per decade); the state growth rate has declined to about 7 percent over the 9-year period from 2000 to 2010.

Table 4-5 shows the population of incorporated municipalities and the combined unincorporated areas in Sonoma County from 2000 to 2018. The portion of the planning area's residents living outside incorporated areas has gradually decreased over that period, changing from about 32.7 percent in 2000 to about 28.3 percent in 2018. Overall growth in the incorporated areas from 2000 to 2018 was approximately 4 percent.

Source: California Department of Finance

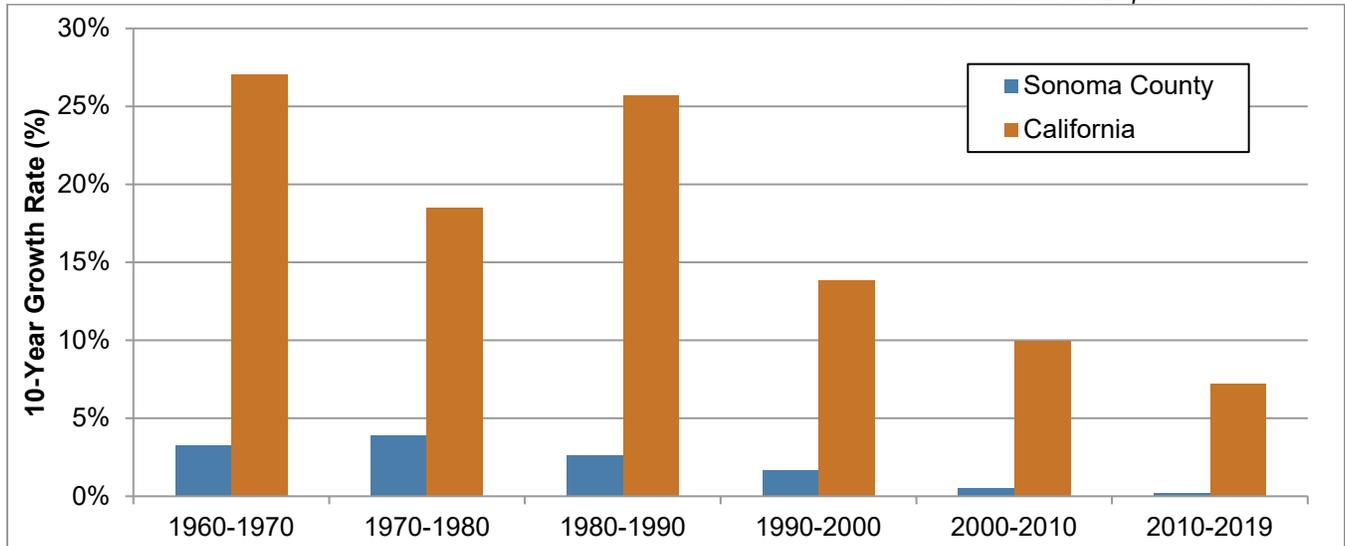


Figure 4-5. California and Sonoma County Historical Population Growth Rates

Table 4-5. Population Growth Data

	Population					
	April 1, 2000	April 1, 2010	January 1, 2015	January 1, 2016	January 1, 2017	January 1, 2018
Cloverdale	6,831	8,618	8,893	8,927	8,988	9,134
Cotati	6,471	7,265	7,371	7,376	7,453	7,716
Healdsburg	10,915	11,254	11,707	11,734	11,757	12,061
Petaluma	54,550	57,941	60,953	61,488	61,657	62,708
Rohnert Park	42,236	40,794	42,325	42,586	42,490	43,598
Santa Rosa	147,595	167,815	175,693	176,937	178,064	178,488
Sebastopol	7,774	7,379	7,593	7,609	7,624	7,786
Sonoma	9,275	10,648	10,906	10,929	11,072	11,390
Windsor	22,744	26,801	27,364	27,445	27,492	28,060
Unincorporated	150,223	145,363	147,278	147,444	148,016	142,391
Total	458,614	483,878	500,083	502,475	504,613	503,332

Source: California Department of Finance

Projected Future Population

According to population projections by the California Department of Finance, Sonoma County’s population should decrease to 485,017 by 2040. This represents a 3.8 percent decrease from the 2018 population.

4.7.2 Age Distribution

Although advanced age by itself does not create vulnerability to hazards, certain problems that are more common in old age can increase vulnerability. They include decreased strength, poor tolerance of physical activity, functional limitations, and decreased sensory awareness. The severity of the impact of disasters on older people

depends on the specific characteristics of the elderly and their environments, the type and severity of the hazard, disaster management systems, and interactions between all of these (Pan American Health Organization 2012).

Children are particularly vulnerable during natural disasters and experience increased problems regarding their physical health, mental health, and learning after exposure. Compared to adults, children suffer more severe physical effects from disasters because they breathe more air per pound of their weight, have thinner skin, are at greater risk in cases of fluid loss, and are more likely to lose body heat. Disasters also can harm children indirectly. When a disaster affects parents and other adults (such as teachers), children’s care, protection, and support systems are eroded. Beyond the immediate trauma and harm caused by natural disaster exposure, children also may suffer longer-term physical, psychological, and educational deficits (Society for Research in Child Development 2020).

The overall age distribution for the planning area is illustrated in Figure 4-6. Based on U.S. Census data, 19.6 percent of the planning area’s population is 65 years or older, and 22.2 percent of the population is 19 years or younger. According to U.S. Census data, 6.7 percent of the over-65 years population have incomes below the poverty level. Of children under 18 years, 13.9 percent live below the poverty level.

Source: American Fact Finder, American Community Survey

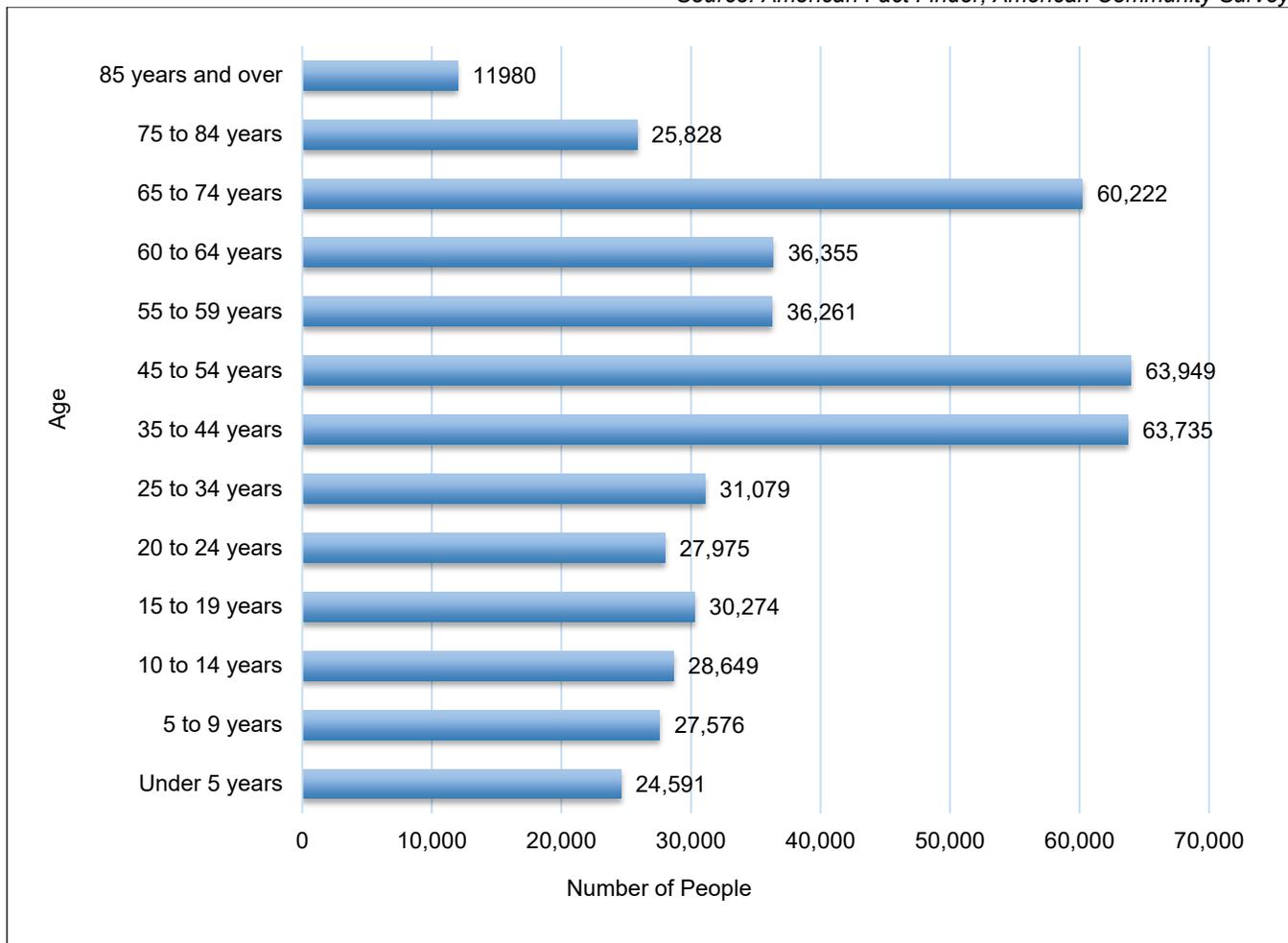


Figure 4-6. Planning Area Age Distribution

4.7.3 Race, National Origin, and Language

Research shows that communities of color are less likely to be involved in pre-disaster planning and experience higher mortality rates during a disaster event. Higher proportions of communities of color live below the poverty line than the white population, so these communities have fewer resources to prepare for disasters in advance or recover afterwards.

The U.S. Census Bureau’s 2019 American Community Survey reports the following data on race and national origin in Sonoma County:

- The racial composition of the planning area is predominantly white, at about 74.8 percent. This percentage has fallen steadily since 1980, when the white population made up 89.1 percent of the county total (MTC and ABAG, 2021).
- The largest racial categories in the 2019 Census data other than white, as self-reported by respondents, are “some other race” at 12.9 percent and “two or more races” at 5.4 percent.
- The planning area has 26.7 percent Hispanic or Latino population across all races, which has risen steadily from a percentage of only 6.9 percent in 1980 (MTC and ABAG, 2021).

About U.S. Census Data on Race and National Origin

The U.S. Census Bureau collects race data in accordance with guidelines provided by the U.S. Office of Management and Budget, and these data are based on self-identification. The racial categories included in the census questionnaire generally reflect a social definition of race recognized in the United States, not an attempt to define race biologically, anthropologically, or genetically. The categories of the race item include racial and national origin or sociocultural groups. People may choose to report more than one race to indicate their racial mixture, such as “American Indian” and “White.” People who identify their origin as Hispanic, Latino, or Spanish may be of any race.

The concept of race is separate from the concept of Hispanic origin. Percentages for the various race categories add to 100 percent, and should not be combined with the percent Hispanic.

Source: U.S. Census 2021a

Figure 4-7 shows the 2019 racial distribution in the planning area; results may differ in the newest U.S. Census data, which was still being processed at the time this plan was developed.

The planning area has a 16.9 percent foreign-born population. The most spoken language in the county other than English is Spanish. The census estimates 52.3 percent of the residents speak English “less than very well.”

4.7.4 Individuals with Disabilities or with Access and Functional Needs

People with disabilities are more likely than the general population to have difficulty responding to a disaster. Local government is the first level of response to assist these individuals, and coordination of efforts to meet their access and functional needs is paramount to life safety efforts. It is important for emergency managers to distinguish between functional and medical needs to plan for incidents that require evacuation and sheltering. Knowing the percentage of population with a disability will allow emergency management personnel and first responders to have personnel available to provide services needed by those with access and functional needs. The last full U.S. Census (from 2010) estimated that one in five Americans live with disabilities in the United States. According to U.S. Census data, 30.5 percent of the over-65 population in the planning area has disabilities of some kind, as well as 7.2 percent of those under 65.

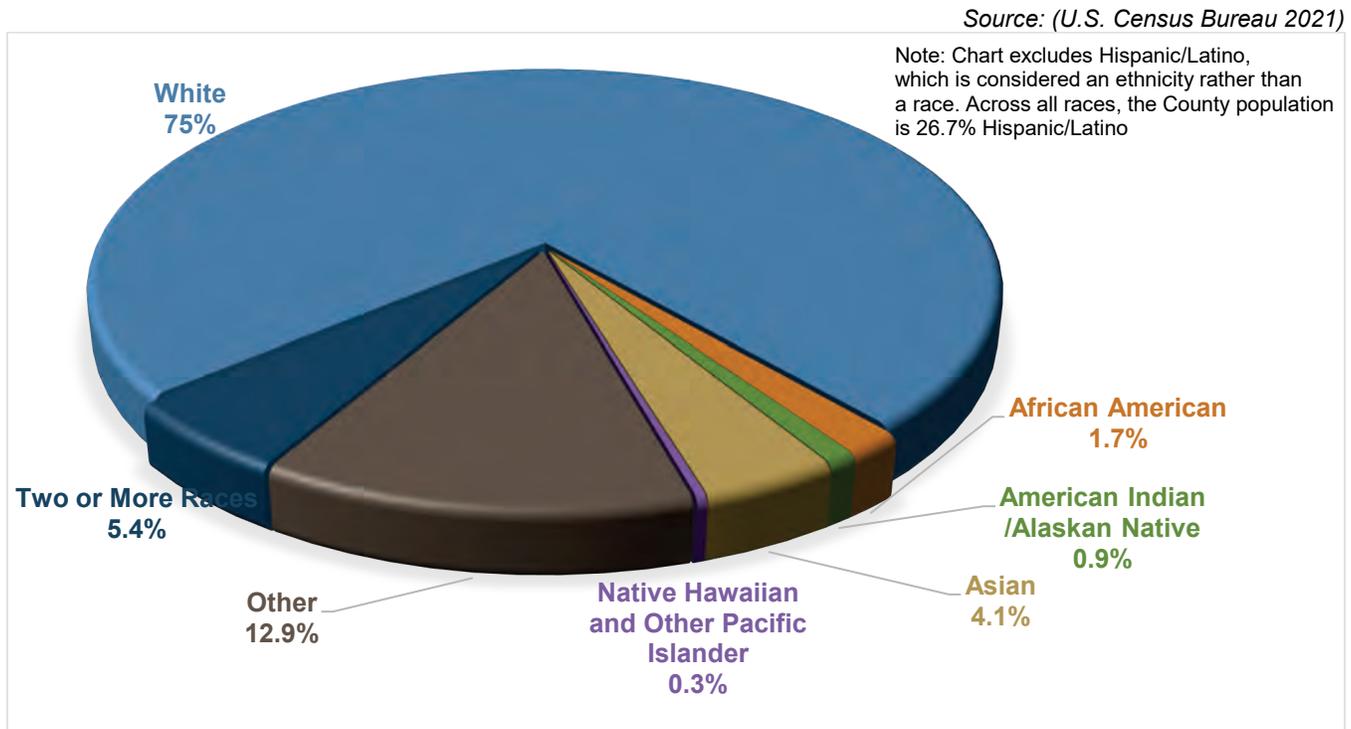


Figure 4-7. Planning Area Race Distribution

4.8 ECONOMY

Over 25,000 large and small businesses call Sonoma County home. Business startups are discovering Sonoma County as an ideal place to launch and grow, with some of the most affordable housing costs in the San Francisco Bay Area and a more competitive cost-of-doing-business. *Nerdwallet.com* recently ranked the cities of Healdsburg and Sonoma in the top 20 places to start a business. Sonoma County has also been recognized as one of the top 10 places for supporting minority-owned businesses and Latino entrepreneurs (County of Sonoma 2021).

4.8.1 Income

In the United States, individual households generally use private resources to prepare for, respond to and recover from disasters to some extent. Households living in poverty have less access to time and resources to plan for and respond to hazards. Low-income households also typically occupy more poorly built and inadequately maintained housing. Mobile or modular homes, for example, are more susceptible to damage than other types of housing. In urban areas, families living in poverty often live in older houses and apartments, which are more likely to be made of a building type that is susceptible to earthquake damage. Residents below the poverty level are less likely to have insurance to compensate for losses from natural disasters, and federal aid is designed to restore property to owners, not renters (Howell and Elliott 2018). Personal household economics also significantly impact people's decisions on evacuation.

Based on U.S. Census Bureau estimates, per capita income in the planning area in 2018 was \$39,929, and the median income of all households was \$76,753. It is estimated that 18.8 percent of households receive an income between \$100,000 and \$149,999 per year and 10.6 percent of household incomes are above \$150,000 annually.

The Census estimates that 9.3 percent of all families in the planning area have incomes below the poverty level. To analyze the hazard exposure of socially vulnerable populations, the risk assessment in this hazard mitigation plan identified low-income households as follows:

- County data for 2021 show “low income” (defined as 80 percent of the area median income) as \$74,450 for two-person households and \$83,750 for three-person households (County of Sonoma 2021).
- The U.S. Census shows an average of 2.6 persons per household in Sonoma County
- The Hazus model used for risk assessment allows analysis of households by income at four levels: \$50,000, \$60,000, \$75,000, or \$100,000.
- The \$75,000 household income level was chosen as closest to the low-income level for the average Sonoma County household size.

4.8.2 Industry, Businesses, and Institutions

Table 4-6 lists the top employers in the planning area in 2021 as identified by the California Employment Development Department. Figure 4-8 shows the breakdown of employment by industry type in the planning area, according to the State of California Employment Development Department.

4.8.3 Employment Trends and Occupations

The U.S. Census estimates a civilian labor force in Sonoma County of 268,068. According to the American Community Survey, about 65 percent of the planning area’s working-age population (16 and over) is in the labor force. Figure 4-9 compares California’s and Sonoma County’s unemployment trends from 2010 through July 2021. The county and state rates both declined steadily after the 2008-2009 recession until the COVID pandemic in spring of 2020. Although both rates have fallen sharply since the pandemic peak, neither has yet returned to pre-pandemic levels.

Table 4-6. Top Employers for the Planning Area

Employer Name	Location	Industry
1,000-4,999 Employees		
Aabalat Fine & Rare Wines	Petaluma	Wineries
Medtronic Inc	Santa Rosa	Surgical Instruments-Manufacturers
Santa Rosa Memorial Hospital	Santa Rosa	Hospitals
Sonoma Developmental Ctr	Eldridge	Hospitals
US Coast Guard	Petaluma	Federal Government-National Security
500 - 999 Employees		
Amys Kitchen	Santa Rosa	Frozen Food Processors
Fairmont Sonoma Msn Inn & Spa	Sonoma	Hotels & Motels
Kaiser Permanente Santa Rosa	Santa Rosa	Hospitals
Protransport-1	Cotati	Transportation Services
Scoe Employee Ctr	Santa Rosa	County Government-Education Programs
Sonoma County Dept-Fire	Santa Rosa	Fire Departments
Sonoma County Sheriff	Santa Rosa	Government Offices-County
Sutter Santa Rosa Regl Hosp	Santa Rosa	Hospitals
250 - 499 Employees		
Army National Guard Recruiter	Santa Rosa	Government Offices-State
First Security Svc	Rohnert Park	Security Guard & Patrol Service
Flex Products Inc	Santa Rosa	Coatings-Vacuum Deposition
Freeman Toyota	Santa Rosa	Automobile Dealers-Used Cars
Ghilotti Construction	Santa Rosa	Excavating Contractors
La Torilla Factory	Santa Rosa	Factory Outlets
Macy's	Santa Rosa	Department Stores
Petaluma City Passports	Petaluma	Government Offices-City/Village & Township
Petaluma Valley Hospital	Petaluma	Hospitals
Press Democrat	Santa Rosa	Newspapers
Santa Rosa Police Dept	Santa Rosa	Police Departments
Walmart	Windsor	Department Stores

Source: California Employment Development Department 2021 (using data from *America's Labor Market Information System (ALMIS) Employer Database, 2021 1st Edition*)

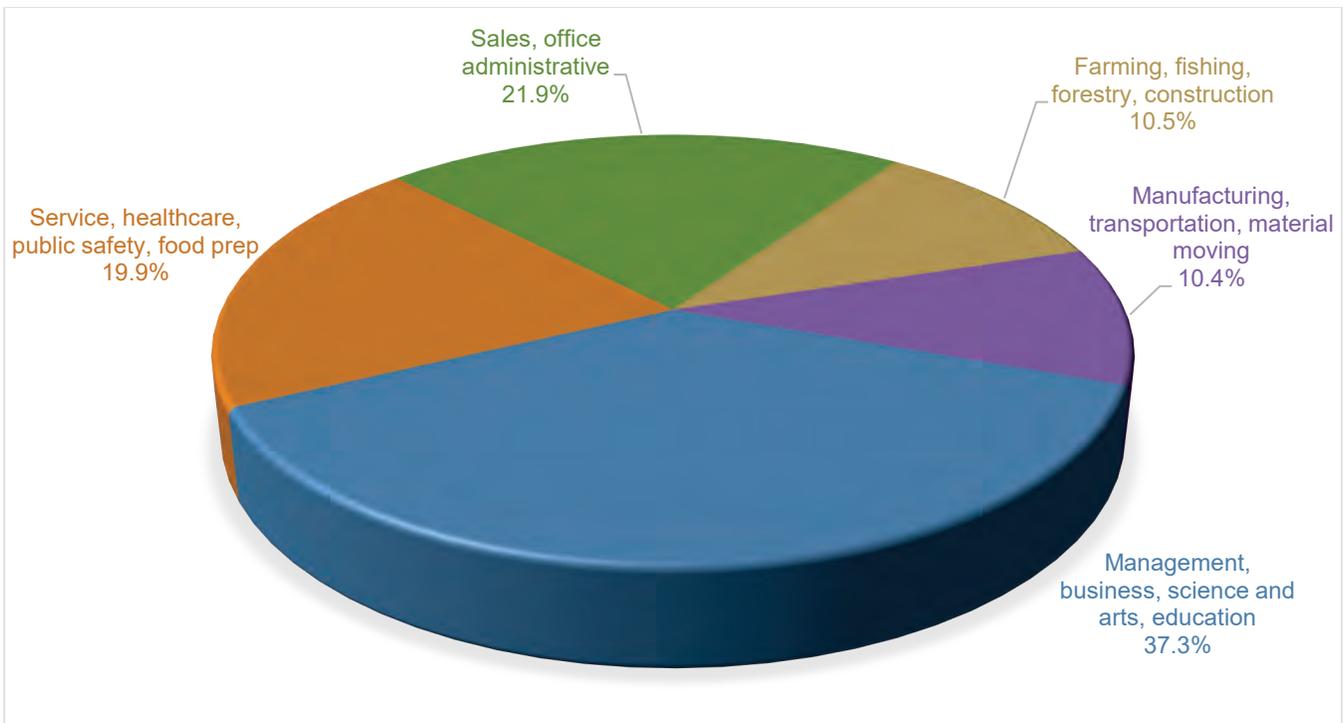


Figure 4-8. Industry in the Planning Area

Source: (Federal Reserve Bank of St. Louis 2021)

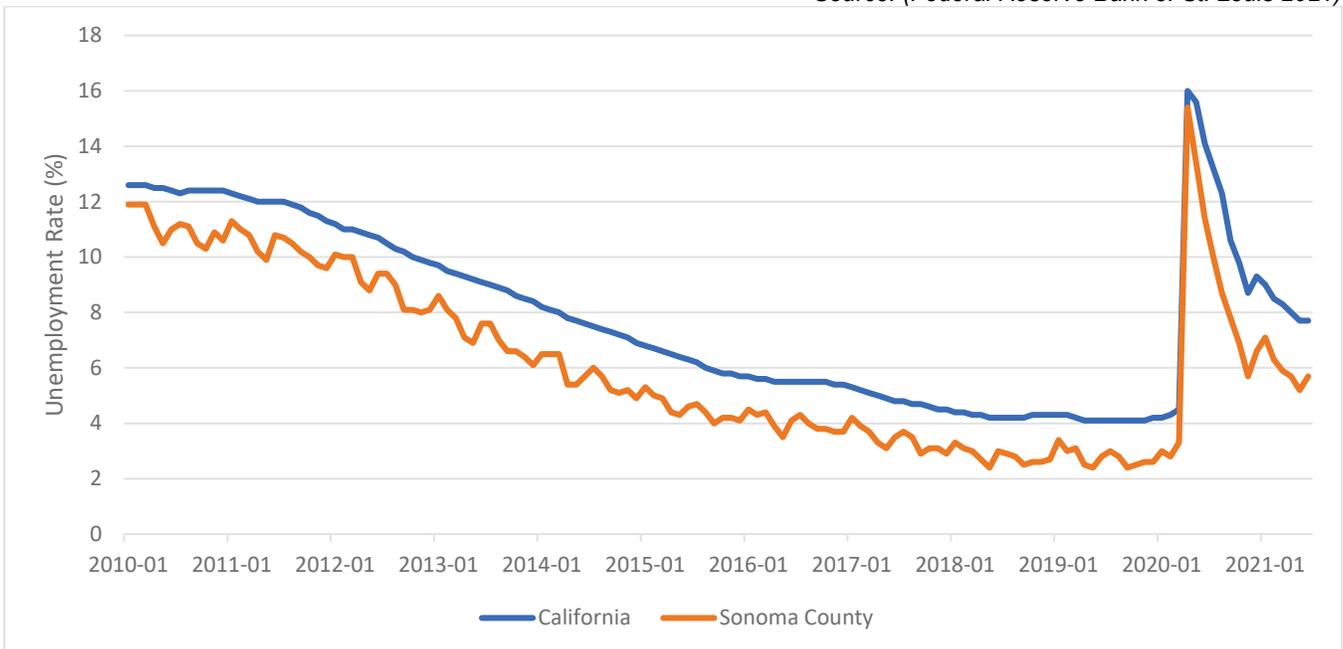


Figure 4-9. California and Sonoma County Unemployment Rate

5. REGULATIONS AND PROGRAMS

Existing regulations, agencies and programs at the federal, state, and local level can support or impact hazard mitigation actions identified in this plan. Hazard mitigation plans are required to include a review and incorporation, if appropriate, of existing plans, studies, reports, and technical information as part of the planning process (44 CFR, Section 201.6(b)(3)). Information presented in this section can be used to review local capabilities to implement the action plan this hazard mitigation plan presents. Individual review by each planning partner of existing local plans, studies, reports, and technical information is presented in the annexes in Volume 2.

5.1 RELEVANT FEDERAL AND STATE AGENCIES, PROGRAMS AND REGULATIONS

State and federal regulations and programs that need to be considered in hazard mitigation are constantly evolving. For this plan, a review was performed to determine which regulations and programs are currently most relevant to hazard mitigation planning. The findings are summarized in Table 5-1 and Table 5-2. Short descriptions of each program are provided in Appendix B.

5.2 LOCAL PLANS, REPORTS AND CODES

Plans, reports, and other technical information were identified and provided directly by participating jurisdictions and stakeholders or were identified through independent research by the planning consultant. These documents were reviewed to identify the following:

- Existing jurisdictional capabilities.
- Needs and opportunities to develop or enhance capabilities, which may be identified within the local mitigation strategies.
- Mitigation-related goals or objectives considered during the development of the overall goals and objectives.
- Proposed, in-progress, or potential mitigation projects, actions and initiatives to be incorporated into the updated jurisdictional mitigation strategies.

Table 5-1. Summary of Relevant Federal Agencies, Programs and Regulations

Agency, Program or Regulation	Hazard Mitigation Area Affected	Relevance
Americans with Disabilities Act	Action Plan Implementation	FEMA hazard mitigation project grant applications require full compliance with applicable federal acts.
Bureau of Land Management	Wildfire Hazard	The Bureau funds and coordinates wildfire management programs and structural fire management and prevention on its lands.
Civil Rights Act of 1964	Action Plan Implementation	FEMA hazard mitigation project grant applications require full compliance with applicable federal acts.
Clean Water Act	Action Plan Implementation	FEMA hazard mitigation project grant applications require full compliance with applicable federal acts.
Community Development Block Grant Disaster Resilience Program	Action Plan Funding	This is a potential alternative source of funding for actions identified in this plan.
Community Rating System	Flood Hazard	This voluntary program encourages floodplain management activities that exceed the minimum National Flood Insurance Program requirements.
Disaster Mitigation Act	Hazard Mitigation Planning	This is the current federal legislation addressing hazard mitigation planning.
Emergency Relief for Federally Owned Roads Program	Action Plan Funding	This is a possible funding source for actions identified in this plan.
Emergency Watershed Program	Action Plan Funding	This is a possible funding source for actions identified in this plan.
Endangered Species Act	Action Plan Implementation	FEMA hazard mitigation project grant applications require full compliance with applicable federal acts.
Federal Energy Regulatory Commission Dam Safety Program	Dam Failure Hazard	This program cooperates with a large number of federal and state agencies to ensure and promote dam safety.
Federal Wildfire Management Policy and Healthy Forests Restoration Act	Wildfire Hazard	These documents mandate community-based collaboration to reduce risks from wildfire.
National Dam Safety Act	Dam Failure Hazard	This act requires a periodic engineering analysis of most dams in the country
National Environmental Policy Act	Action Plan Implementation	FEMA hazard mitigation project grant applications require full compliance with applicable federal acts.
National Fire Plan (2001)	Wildfire Hazard	This plan calls for joint risk reduction planning and implementation by federal, state and local agencies.
National Flood Insurance Program	Flood Hazard	This program makes federally backed flood insurance available to homeowners, renters, and business owners in exchange for communities enacting floodplain regulations
National Incident Management System	Action Plan Development	Adoption of this system for government, nongovernmental organizations, and the private sector to work together to manage incidents involving hazards is a prerequisite for federal preparedness grants and awards
Presidential Executive Order 11988 (Floodplain Management)	Flood Hazard	This order requires federal agencies to avoid long and short-term adverse impacts associated with modification of floodplains
Presidential Executive Order 11990 (Protection of Wetlands)	Action Plan Implementation	FEMA hazard mitigation project grant applications require full compliance with applicable presidential executive orders.
U.S. Army Corps of Engineers Dam Safety Program	Dam Failure Hazard	This program is responsible for safety inspections of dams that meet size and storage limitations specified in the National Dam Safety Act.
U.S. Army Corps of Engineers Flood Hazard Management	Flood Hazard, Action Plan Implementation, Action Plan Funding	The Corps of Engineers offers multiple funding and technical assistance programs available for flood hazard mitigation actions

Agency, Program or Regulation	Hazard Mitigation Area Affected	Relevance
U.S. Fire Administration	Wildfire Hazard	This agency provides leadership, advocacy, coordination, and support for fire agencies and organizations.
U.S. Fish and Wildlife Service	Wildfire Hazard	This service's fire management strategy employs prescribed fire throughout the National Wildlife Refuge System to maintain ecological communities.

Table 5-2. Summary of Relevant State Agencies, Programs and Regulations

Agency, Program or Regulation	Hazard Mitigation Area Affected	Relevance
AB 9: Fire safety: Wildfires: Fire Adapted Communities	Wildfire Hazard	Establishes the Regional Forest and Fire Capacity Program to support regional leadership to build local and regional capacity and develop, prioritize, and implement strategies and projects that create fire adapted communities and landscapes by improving watershed health, forest health, community wildfire preparedness, and fire resilience.
AB 32: The California Global Warming Solutions Act	Action Plan Development	Establishes a state goal of reducing greenhouse gas emissions to 1990 levels by 2020
AB 38: Fire safety: Low-Cost Retrofits: Regional Capacity Review: Wildfire Mitigation	Wildfire Hazard	Directs the California Natural Resources Agency to review the regional capacity of each county that contains a very high fire hazard severity zone and establishes a comprehensive wildfire mitigation and assistance program.
AB 70: Flood Liability	Flood Hazard	A city or county may be required to partially compensate for property damage caused by a flood if it unreasonably approves new development in areas protected by a state flood control project
AB 162: Flood Planning	Flood Hazard	Cities and counties must address flood-related matters in the land use, conservation, and safety and housing elements of their general plans.
AB 267: California Environmental Quality Act: Exemption: Prescribed Fire, Thinning, and Fuel Reduction Projects.	Wildfire Hazard	Extends to January 1, 2026, the exemption from requirements of the California Environmental Quality Act for prescribed fire, thinning, or fuel reduction projects on federal lands to reduce the risk of high-severity wildfire that had been reviewed under the National Environmental Policy Act.
AB 380: Forestry: Priority Fuel Reduction Projects	Wildfire Hazard	Requires the Department of Forestry and Fire Protection to identify priority fuel reduction projects annually and exempts the identified priority fuel reduction projects from certain legal requirements.
AB 431: Forestry: Timber Harvesting Plans: Defensible Space: Exemptions	Wildfire Hazard	Extends to January 1, 2026, the exemption from a requirement to complete a timber harvest plan for maintaining defensible space between 150 feet and 300 feet from a habitable structure.
AB 497: Forestry and Fire Protection: Local Assistance Grant Program: Fire Prevention Activities: Street and Road Vegetation Management	Wildfire Hazard	Appropriates funds for local assistance grants for fire prevention activities with priority for projects that manage vegetation along streets and roads to prevent the ignition of wildfire.
AB 575: Civil Liability: Prescribed Burning Activities: Gross Negligence	Wildfire Hazard	Provides that a private entity engaging in a prescribed burning activity that is supervised by a person certified as burn boss is liable for damages to a third party only if the prescribed burning activity was carried out in a grossly negligent manner.
AB 642: Wildfires	Wildfire Hazard	This bill is an omnibus fire prevention bill that makes various changes to support cultural and prescribed fire, including the creation of a Cultural Burning Liaison at the Department of Forestry and Fire Protection, and requires a proposal for creating a prescribed fire training center.

Agency, Program or Regulation	Hazard Mitigation Area Affected	Relevance
AB 747: General Plans—Safety Element	Hazard Mitigation Planning	The safety elements of cities’ and counties’ general plans must address evacuation routes and include any new information on flood and fire hazards and climate adaptation and resiliency strategies.
AB 800: Wildfires: local general plans: safety elements: fire hazard severity zones.	Wildfire Hazard	This Bill has provisions for wildfire hazard mapping and applications for that mapping in the Safety elements General plans within the state.
AB 1255: Fire prevention: Department of Forestry and Fire Protection: Grant Programs	Wildfire Hazard	Requires the Natural Resources Agency to develop a guidance document that describes goals, approaches, opportunities, and best practices in each region of the state for ecologically appropriate, habitat-specific fire risk reduction. Requires consultation with counties related to the Department of Forestry and Fire Protection’s local fire prevention grant program.
AB 1295: Residential development Agreements: Very High-Risk Fire Areas	Wildfire Hazard	Prohibits the legislative body of a city or county from entering into a residential development agreement for property in a very high fire risk area as designated by a local agency or a fire hazard severity zone classified by the director of CAL FIRE.
AB 1439: Property Insurance Discounts	Wildfire Hazard	Requires residential or commercial property insurance policies to include a discount if a local government where the insured property is located funds a local wildfire protection or mitigation program.
AB 1500: Safe Drinking Water, Wildfire Prevention, Drought Preparation, Flood Protection, Extreme Heat Mitigation, and Workforce Development Bond Act of 2022.	Drought, Flood, Extreme Heat and Wildfire Hazards	If approved by the voters, would authorize the issuance of bonds to finance projects for safe drinking water, wildfire prevention, drought preparation, flood protection, extreme heat mitigation, and workforce development programs.
AB 2140: General Plans—Safety Element	Hazard Mitigation Planning	This bill enables state and federal disaster assistance and mitigation funding to communities with compliant hazard mitigation plans.
AB 2800: Climate Change—Infrastructure Planning	Action Plan Development	This act requires state agencies to take into account the impacts of climate change when developing state infrastructure.
Alquist-Priolo Earthquake Fault Zoning Act	Earthquake Hazard	This act restricts construction of buildings used for human occupancy on the surface trace of active faults.
California Coastal Management Program	Flood, Landslide/Mass Movement, Tsunami and Wildfire Hazards	This program requires coastal communities to prepare coastal plans and requires that new development minimize risks to life and property in areas of high geologic, flood, and fire hazard.
Board of Forestry and Fire Protection Fire Safe Regulations	Wildfire Hazard	The Fire Safe Regulations set the floor for fire safety standards for perimeters and access to residential, commercial, and industrial building construction.
California Department of Forestry and Fire Protection (CAL FIRE)	Wildfire Hazard	CAL FIRE has responsibility for wildfires in areas that are not under the jurisdiction of the Forest Service or a local fire organization.
California Department of Parks and Recreation	Wildfire Hazard	State Parks Resources Management Division has wildfire protection resources available to suppress fires on State Park lands.
California Department of Water Resources	Flood Hazard	This state department is the state coordinating agency for floodplain management.
California Division of Safety of Dams	Dam Failure Hazard	This division monitors the dam safety program at the state level and maintains a working list of dams in the state.
California Environmental Quality Act	Action Plan Implementation	This act establishes a protocol of analysis and public disclosure of the potential environmental impacts of development projects. Any project action identified in this plan will seek full California Environmental Quality Act compliance upon implementation.

Agency, Program or Regulation	Hazard Mitigation Area Affected	Relevance
California Fire Alliance	Wildfire Hazard	The alliance works with communities at risk from wildfires to facilitate the development of community fire loss mitigation plans.
California Fire Plan	Wildfire Hazard	This plan's goal is to reduce costs and losses from wildfire through pre-fire management and through successful initial response.
California Fire Safe Council	Wildfire Hazard	This council facilitates the distribution of National Fire Plan grants for wildfire risk reduction and education.
California Fire Service and Rescue Emergency Mutual Aid Plan	Wildfire Hazard	This plan provides guidance and procedures for agencies developing emergency operations plans, as well as training and technical support.
California General Planning Law	Hazard Mitigation Planning	This law requires every county and city to adopt a comprehensive long-range plan for community development, and related laws call for integration of hazard mitigation plans with general plans.
California Multi-Hazard Mitigation Plan	Hazard Mitigation Planning	Local hazard mitigation plans must be consistent with their state's hazard mitigation plan.
California Residential Mitigation Program	Earthquake Hazard	This program helps homeowners with seismic retrofits to lessen the potential for damage to their houses during an earthquake.
California State Building Code	Action Plan Implementation	Local communities must adopt and enforce building codes, which include measures to improve buildings' ability to withstand hazard events.
Disadvantaged and Low-Income Communities Investments	Action Plan Funding	This is a potential source of funding for actions located in disadvantaged or low-income communities.
Division of the State Architect's AB 300 List of Seismically At-Risk Schools	Earthquake Hazard, Action Plan Development	The Division of the State Architect recommends that local school districts conduct detailed seismic evaluations of seismically at-risk schools identified in the inventory that was required by AB 300.
Governor's Executive Order S-13-08 (Climate Impacts)	Action Plan Implementation	This order includes guidance on planning for sea level rise in designated coastal and floodplain areas for new projects.
Office of the State Fire Marshal	Wildfire Hazard	This office has a wide variety of fire safety and training responsibilities.
Senate Bill 12: Local government: planning and zoning: wildfires.	Wildfire Hazard	Requires the safety element to be reviewed and updated as necessary to include a comprehensive retrofit strategy to reduce the risk of property loss and damage during wildfires. Requires the planning agency to submit the adopted strategy to the Office of Planning and Research for inclusion into a central clearinghouse.
Senate Bill 92: Dam Emergency Action Plans; Public Resources Portion of Biennial Budget Bill	Dam Failure Hazard	This bill requires dams (except for low-risk dams) to have emergency action plans that are updated every 10 years and inundation maps updated every 10 years, or sooner if specific circumstances change.
Senate Bill 97: Guidelines for Greenhouse Gas Emissions	Action Plan Implementation	This bill establishes that greenhouse gas emissions and the effects of greenhouse gas emissions are appropriate subjects for California Environmental Quality Act analysis.
Senate Bill 99: General Plans: Safety Element: Emergency Evacuation Routes	Action Plan Implementation	This bill requires the safety element must include information to identify residential developments in hazard areas that do not have at least two emergency evacuation routes.
Senate Bill 182: Local Government: Planning and Zoning: Wildfires	Wildfire Hazard	This bill made a number of changes to state law regarding planning for and permitting development in areas designated as very high fire risk areas.
Senate Bill 379: General Plans: Safety Element—Climate Adaptation	Action Plan Implementation	This bill requires cities and counties to include climate adaptation and resiliency strategies in the safety element of their general plans.
Senate Bill 1000: General Plan Amendments—Safety and Environmental Justice Elements	Action Plan Implementation	Under this bill, review and revision of general plan safety elements are required to address only flooding and fires (not climate adaptation and resilience), and environmental justice is required to be included in general plans.

Agency, Program or Regulation	Hazard Mitigation Area Affected	Relevance
Senate Bill 1241: General Plans: Safety Element—Fire Hazard Impacts	Wildfire Hazard	This bill requires cities and counties to make findings regarding available fire protection and suppression services before approving a tentative map or parcel map.
Standardized Emergency Management System	Action Plan Implementation	Local governments must use this system to be eligible for state funding of response-related personnel costs.
Western Governors Association Ten-Year Comprehensive Strategy	Wildfire Hazard	This strategy implementation plan prepared by federal and Western state agencies outlines measures to restore fire-adapted ecosystems and reduce hazardous fuels.

The following local regulations, codes, ordinances, and plans were reviewed to develop complementary and mutually supportive goals, objectives, and mitigation strategies that are consistent across local and regional planning and regulatory mechanisms:

- General plans (land use, housing, safety, and open space elements)
- Building codes
- Zoning and subdivision ordinances
- NFIP flood damage prevention ordinances
- Stormwater management plans
- Emergency management and response plans
- Land use and open space plans
- Climate action plans.
- Community wildfire protection plans
- Tribal hazard mitigation plans.

5.3 LOCAL CAPABILITY ASSESSMENT

All participating jurisdictions compiled an inventory and analysis of existing authorities and capabilities called a “capability assessment.” A capability assessment creates an inventory of a jurisdiction’s mission, programs and policies, and evaluates its capacity to carry them out. This assessment identifies potential gaps in the jurisdiction’s capabilities.

The planning partnership views all core jurisdictional capabilities as fully adaptable to meet a jurisdiction’s needs. Every code can be amended, and every plan can be updated. Such adaptability is itself considered to be an overarching capability. If the capability assessment identified an opportunity to add a missing core capability or expand an existing one, then doing so has been selected as an action in the jurisdiction’s action plan, which is included in the individual annexes presented in Volume 2 of this plan.

Capability assessments for each planning partner are presented in the jurisdictional annexes in Volume 2. The sections below describe the specific capabilities evaluated under the assessment.

5.3.1 Legal and Regulatory Capabilities

Jurisdictions can develop policies and programs and to implement rules and regulations to protect and serve residents. Local policies are typically identified in a variety of community plans, implemented via a local ordinance, and enforced through a governmental body.

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.

5.3.2 Fiscal Capabilities

Assessing a jurisdiction's fiscal capability provides an understanding of the ability to fulfill the financial needs associated with hazard mitigation projects. This assessment identifies both outside resources, such as grant-funding eligibility, and local jurisdictional authority to generate internal financial capability, such as through impact fees.

5.3.3 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.

5.3.4 NFIP Compliance

Flooding is the costliest natural hazard in the United States and, with the promulgation of recent federal regulation, homeowners throughout the country are experiencing increasingly high flood insurance premiums. Community participation in the NFIP opens up opportunity for additional grant funding associated specifically with flooding issues. Assessment of the jurisdiction's current NFIP status and compliance provides planners with a greater understanding of the local flood management program, opportunities for improvement, and available grant funding opportunities.

5.3.5 Public Outreach Capability

Regular engagement with the public on issues regarding hazard mitigation provides an opportunity to directly interface with community members. Assessing this outreach and education capability illustrates the connection between the government and community members, which opens a two-way dialogue that can result in a more resilient community based on education and public engagement.

5.3.6 Participation in Other Programs

Other programs, such as the Community Rating System, Storm/Tsunami Ready, and Firewise USA, can enhance a jurisdiction's ability to mitigate, prepare for, and respond to natural hazards. These programs indicate a jurisdiction's desire to go beyond minimum requirements set forth by local, state and federal regulations in order to create a more resilient community. These programs complement each other by focusing on communication,

mitigation, and community preparedness to save lives and minimize the impact of natural hazards on a community.

5.3.7 Development and Permitting Capability

Identifying previous and future development trends is achieved through a comprehensive review of permitting since completion of the previous plan and in anticipation of future development. Tracking previous and future growth in potential hazard areas provides an overview of increased exposure to a hazard within a community.

5.3.8 Adaptive Capacity

An adaptive capacity assessment evaluates a jurisdiction’s ability to anticipate impacts from future conditions. By looking at public support, technical adaptive capacity, and other factors, jurisdictions identify their core capability for resilience against issues such as sea level rise. The adaptive capacity assessment provides jurisdictions with an opportunity to identify areas for improvement by ranking their capacity high, medium or low.

5.3.9 Integration Opportunity

The assessment looked for opportunities to integrate this mitigation plan with the legal/regulatory capabilities identified. Capabilities were identified as integration opportunities if they can support or enhance the actions identified in this plan or be supported or enhanced by components of this plan. Planning partners considered actions to implement this integration as described in their jurisdictional annexes.