City of Susanville

Land Use Planning – CNR - LMU

General Plan Safety Element Assessment
Tier 3

February 24, 2016

Board of Forestry and Fire Protection

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May 2015

Purpose and Background: The State Board of Forestry and Fire Protection (Board) is required to review and make recommendations for the safety element of general plan updates in accordance with Government Code (GC) 65302.5. The review and recommendations apply to those general plans with State Responsibility Area (SRA) (Public Resources Code (PRC) 4125) or Very High Fire Hazard Severity Zone Local Responsibility Area (VHFHSZ LRA) (GC 51177(i), PRC 4125).

The statutory requirements for the Board review and recommendations pursuant to GC 65302.5 (a)(1) and (2), and (b) are as follows:

- *"The draft elements...to the fire safety element of a county's or a city's general plan…shall be submitted to the Board at least 90 days prior to… the adoption or amendment to the safety element of its general plan [for each county or city with SRA or VHFHSZ]."*

- *"The Board shall… review the draft or an existing safety element and report its written recommendations to the planning agency within 60 days of its receipt of the draft or existing safety element…."*

- *"Prior to adoption of the draft element…, the Board of Supervisors… shall consider the recommendations made by the Board… If the Board of Supervisors…determines not to accept all or some of the recommendations…, the Board of Supervisors… shall communicate in writing to the Board its reasons for not accepting the recommendations."*

Methodology for Review and Recommendations: The Board established a standardized method to review the safety element of general plans. The methodology includes 1) examining the safety element for inclusion of factors that are important for mitigation of wildfire hazard and risks, and 2) making recommendations related to these factors. The evaluation factors and recommendations below were developed using CAL FIRE technical documents and input from local fire departments.

The Tier 3 recommendations below apply to communities with

- Small amounts of VHFHSZ Zone acreage or 10% or less acreage is VHFHSZ LRA; or
- Small population base or population density; or
- VHFHSZ that does not encroach on population centers or does not add significantly to contiguous high fire hazard fuels at a regional level.

No counties are assigned Safety Element Assessment Tier 3. There are 41 cities, listed below, evaluated under Tier 3.
As local fuels, boundaries, populations, and other variables change throughout time, Board staff have the discretion to re-assign a jurisdiction into a lower or higher assessment tier. Staff will consider:

- Variations in population and population density; or
- Changes in proportion of land designated VHFHSZ (lower or higher); or
- Firefighting capabilities (paid, volunteer, equipment, etc) and contract changes; or
- Past planning efforts and involvement of organizations such as local Fire Safe Councils and new initiatives or efforts that have emerged over time; or

- Changes to the context of VHFHSZ within the region – does the VHFHSZ in a jurisdiction combine with neighboring fuels to create a continual pattern of very high fire risk in a way that it hadn't previously?

Cities (alphabetical by county)									
Alameda		**Lassen**		**Mono**		**Placer**		**San Mateo**	
	San Leandro		Susanville		Mammoth Lakes		Auburn		Portola Valley
Amador		**Los Angeles**		**Monterey**		**Riverside**			Redwood City
	Ione		Covina		Del Rey Oaks		Canyon Lake		San Mateo
Butte			Culver City		Pacific Grove		Cathedral City	**Santa Barbara**	
	Chico		La Habra	**Napa**			Desert Hot Springs		Lompoc
Contra Costa			La Mirada		Yountville		Norco	**Santa Clara**	
	Danville		Pomona	**Orange**			Palm Desert		Cupertino
	Martinez		Walnut		Dana Point		Rancho Mirage	**Sonoma**	
	Moraga	**Marin**			La Habra	**San Diego**			Cloverdale
	Pinole		Novato		San Juan Capistrano		Oceanside	**Ventura**	
		Mendocino			Tustin	**San Luis Obispo**			Santa Paula
			Willits		Villa Park		Morro Bay		

Review Process and Timeline

The county/local jurisdiction and CAL FIRE Land Use Planning staff will receive and review technical guidance documents, the Board assessment, and relevant information from CAL FIRE and the Governor's Office of Planning and Research.

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The county or local jurisdiction will work closely with CAL FIRE Land Use Planning staff during the development of the general plan and the safety element in particular.

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At least 90 days prior to the adoption or amendment of the General Plan: The county or local jurisdiction will submit the safety element to the Board of Forestry & Fire Protection for review. Jurisdictions are encouraged to send safety elements to the Board prior to the 90 day statutory requirement for greater collaboration.

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No more than 60 days later: The Board will consider staff recommendations and approve as-is or with changes at the next Board meeting. This deadline may be modified upon mutual agreement between Board staff and local jurisdictions.

Standard List of General Plan Safety Element Recommendations

Please click on the appropriate box to "check" whether the plan satisfies each point. Standard recommendations are included in the checklist but please highlight or add additional comments as necessary.

Jurisdiction: City of Susanville	Notes: Review #2	CAL FIRE Unit: Lassen-Modoc	Date Received: 1/19/16
County: Lassen	LUPP Reviewer: Nick Wallingford	Unit Contact: Dave Junette	Dates Reviewed: 1/26/16

1.0 General Wildfire Protection Planning

1.1 General Plan references and incorporates County or Unit Fire Plan: ☐Yes ☒Partial ☐No

Recommendation: Identify, reference or create (if necessary) a fire plan for the geographic scope of the General Plan. General Plan should incorporate the general concepts and standards from any county fire plan, fire protection agency (federal or state) fire plan, and local hazard mitigation plan. Identify or reference the local Unit Fire Plan and, if applicable, the Community Wildfire Prevention Plan.
Priority: ☒High ☐ Medium ☐ Low ☐N/A

Identify and incorporate the CAL FIRE Lassen Modoc Unit Strategic Fire Plan

Recommendation: Ensure fire plans incorporated by reference into the General Plan contain evaluations of fire hazards, assessment of assets at risk, prioritization of hazard mitigation actions, and implementation and monitoring components.
Priority: ☐High ☐ Medium ☐ Low ☐N/A INCLUDED

1.2 Map or describe existing emergency service facilities and areas lacking services, specifically noting any areas in SRA or VHFHSZs. ☒Yes ☐Partial ☐No

Recommendation: Include descriptions of emergency services including available equipment, personnel, and maps of facilities.
Priority: ☐High ☐ Medium ☐ Low ☐N/A INCLUDED

Recommendation: Initiate studies and analyses to identify appropriate staffing levels and equipment needs commensurate with the current and projected emergency response environment.
Priority: ☐High ☐ Medium ☐ Low ☐N/A INCLUDED

Recommendation: Establish goals and policies for emergency service training that meets or exceeds state or national standards.
Priority: ☐High ☐ Medium ☐ Low ☐N/A INCLUDED

1.3 Inter-fire service coordination preparedness/mutual aid and multi-jurisdictional fire service

agreements. ☒Yes ☐Partial ☐No

Recommendation: Adopt the Standardized Emergency Management Systems for responding to large scale disasters requiring a multi-agency response. Ensure and review mutual aid/automatic aid and other cooperative agreements with adjoining emergency service providers.
Priority: ☐High ☐ Medium ☐ Low ☐N/A INCLUDED

2.0 Land Use Planning:

2.1 Disclose wildland urban interface hazards including Fire Hazard Severity Zones designations and other vulnerable areas as determined by CAL FIRE or fire prevention organizations. Describe or map any Firewise Communities or other firesafe communities as determined by the National Fire Protection Association, Fire Safe Council, or other organizations.
☒Yes ☐Partial ☐No

Recommendation: Discuss and/or include local fire hazard maps.
Priority: ☐High ☐ Medium ☐ Low ☐N/A INCLUDED

Recommendation: Adopt CAL FIRE recommended Fire Hazard Severity Zones including model ordinances developed by the Office of the State Fire Marshal for establishing VHFHSZ areas. Include a map of the zones that clearly indicates any area designated VHFHSZ.
Priority: ☐High ☐ Medium ☐ Low ☐N/A COMPLETED/INCLUDED

2.2 Goals and policies include mitigation of fire hazard for future development. ☒Yes ☐Partial ☐No

Recommendation: Create fire safe development codes used as standards for fire protection for new development in State Responsibility Area (SRA) within the entity's jurisdiction that meets or exceed statewide standards in 14 California Code of Regulations Section 1270 et seq. Have the codes certified by the Board of Forestry.
Priority: ☐High ☐ Medium ☐ Low ☐N/A INCLUDED

Recommendation: Establish goals and policies for specific ordinances addressing evacuation and emergency vehicle access; water supplies and fire flow; fuel modification for defensible space; and home addressing and signing.
Priority: ☐High ☐ Medium ☐ Low ☐N/A INCLUDED

Recommendation: Consider mitigation of previously developed areas that do not meet Title14 California Code of Regulations Section 1270 et seq. or equivalent local ordinance.
Priority: ☐High ☐ Medium ☐ Low ☐N/A INCLUDED

2.3 The design and location of new development provides for adequate infrastructure for the safe ingress of emergency response vehicles and simultaneously allows civilian egress during an emergency: ☒Yes ☐Partial ☐No

Recommendation: Specify the local ordinances, code sections, or regulations addressing the

above standards, particularly any ordinances that address right-of-way, easement, and other reasonable offsite and onsite improvements for a division of land which qualifies for a Parcel Map rather than a Tentative/Final Map under the Subdivision Map Act.
Priority: ☐High ☐ Medium ☐ Low ☐N/A INCLUDED

Recommendation: Develop pre-plans for fire prone areas that address civilian evacuations to temporary safety locations.
Priority: ☐High ☐ Medium ☐ Low ☐N/A INCLUDED

2.4 Geographic specific fire risk reduction mitigation measures. ☐Yes ☒Partial ☐No

Recommendation: Include policies and recommendations that incorporate fire safe buffers and greenbelts as part of the development planning. Ensure that land uses designated near high or very fire hazard severity zones are compatible with wildland fire protection strategies/capabilities.
Priority: ☐High ☐ Medium ☒ Low ☐N/A

Low priority due to limited development potential. Land use designations in VHFHSZ's are already included in element.

3.0 <u>Housing:</u>

3.1 Incorporation of current fire safe building codes and fire engineering features for structures in VHFHSZ. ☒Yes ☐Partial ☐No

Recommendation: Adopt building codes for new development in State Responsibility Areas or incorporated areas with VHFHSZ that are based on those established by the Office of the State Fire Marshal in Title 19 and Title 24 CCR, referred to as the "Wildland Urban Interface Building Codes."
Priority: ☐High ☐ Medium ☐ Low ☐N/A INCLUDED (with recent adoption of maps)

Recommendation: Ensure new development proposals contain specific fire protection plans, actions, and codes for fire engineering features for structures in VHFHSZ.
Priority: ☐High ☐ Medium ☐ Low ☐N/A INCLUDED

Recommendation: Ensure residential areas have appropriate fire resistant landscapes and discontinuous vegetation adjacent to open space or wildland areas.
Priority: ☐High ☐ Medium ☐ Low ☐N/A INCLUDED

3.2 Consideration of diverse occupancies and their effects on wildfire protection.
☒Yes ☐Partial ☐No

Recommendation: Ensure risks to uniquely occupied structures, such as seasonally occupied homes, multiple dwelling structures, or other structures with unique occupancy characteristics, are considered for appropriate and unique wildfire protection needs.

Priority: ☐High ☐ Medium ☐ Low ☐N/A INCLUDED

3.3 Fuel modification around homes. ☒Yes ☐Partial ☐No

Recommendation: Establish ordinances in SRA or VHFHSZ for vegetation fire hazard reduction around structures that meet or exceed the Board of Forestry and Fire Protection's Defensible Space Guidelines for SRA and the Very High Fire Hazard severity zones, including vacant lots.
See http://www.bof.fire.ca.gov/pdfs/Copyof4291finalguidelines9_29_06.pdf
Priority: ☐High ☐ Medium ☐ Low ☐N/A INCLUDED with specific city code

Recommendation: Reduce fuel around communities and subdivisions, considering fuels, topography, weather (prevailing winds and wind event specific to the area), fire ignitions and fire history.
Priority: ☐High ☐ Medium ☐ Low ☐N/A INCLUDED

3.4 Identification and actions for substandard fire safe housing and neighborhoods relative to fire hazard area. ☒Yes ☐Partial ☐No

Recommendation: Identify plans and actions to improve substandard housing structures and neighborhoods. Plans and actions should include structural rehabilitation, occupancy reduction, demolition, reconstruction, neighborhood –wide fuels hazard reduction projects, community education, and other community based solutions.
Priority: ☐High ☐ Medium ☐ Low ☐N/A INCLUDED

Recommendation: Identify plans and actions for existing residential structures and neighborhoods, and particularly substandard residential structures and neighborhoods, to be improved to meet current fire safe ordinances pertaining to access, water flow, signing, and vegetation clearing.
Priority: ☐High ☐ Medium ☐ Low ☐N/A INCLUDED

3.5 Assessment and projection of future emergency service needs. ☒Yes ☐Partial ☐No

Recommendation: Ensure new development includes appropriate facilities, equipment, personnel and capacity to assist and support wildfire suppression emergency service needs. Future emergency service needs should be:

- Established consistent with state or national standards.
- Developed based on criteria for determining suppression resource allocation that includes elements such as identified values and assets at risk, ignition density, vegetation type and condition, as well as local weather and topography.
- Local Agency Formation municipal services reviews for evaluating level of service, response times, equipment condition levels and other relevant emergency service information.

Priority: ☐High ☐ Medium ☐ Low ☐N/A INCLUDED

4.0 Conservation and Open Space:

Some of the recommendations in Sections 4.0 through 8.7 may in already be in other elements of the general plan. If applicable, they can be incorporated by reference within the safety element.

4.1 Integration of open space into fire safety effectiveness. ☐Yes ☐Partial ☒No

Recommendation: Establish goals and policies for incorporating systematic fire protection improvements for open space. Specifics policies should address facilitation of safe fire suppression tactics, standards for adequate access for firefighting, fire mitigation planning with agencies/private landowners managing open space adjacent to the General Plan area, water sources for fire suppression, and other fire prevention and suppression needs.
Priority: ☐High ☐ Medium ☒ Low ☐N/A

4.2 Identification of critical natural resource values relative to fire hazard areas. ☐Yes ☒Partial ☐No

Recommendation: Identify critical natural resources and other "open space" values within the geographic scope of the General Plan.
Priority: ☐High ☐ Medium ☒ Low ☐N/A

Recommendation: Evaluate and resolve existing laws and local ordinances which conflict with fire protection requirements. Examples include conflicts with vegetation hazard reduction ordinances and listed species habitat protection requirements.
Priority: ☐High ☐ Medium ☒ Low ☐N/A

4.3 Inclusion of resource management activities to enhance protection of open space and natural resource values. ☐Yes ☐Partial ☒No

Recommendation: Develop plans and action items for vegetation management that provides fire damage mitigation and protection of open space values. Plans should address protection of natural resource financial values, establishment of fire resilient natural resources, protection of watershed qualities, and protection of endangered species habitats. Actions should consider prescribed burning, fuel breaks, and vegetation thinning and removal
Priority: ☐High ☒ Medium ☐ Low ☐N/A

Recommendation: Establish goals and policies for reducing the wildland fire hazards within the entity's boundaries and, with the appropriate partners, on adjacent private wildlands, federal lands, vacant residential lots, and greenbelts with fire hazards that threaten the entity's jurisdiction.
Priority: ☒High ☐ Medium ☐ Low ☐N/A

5.0 Circulation:

5.1 Adequate access to high hazard wildland/open space areas. ☐Yes ☒Partial ☐No

Recommendation: Establish goals and policies for adequate access in Very High Fire Hazard Severity Zones that meet or exceed standards in Title 14 CCR 1270 for lands with no structures, and maintain conditions of access in a suitable fashion for suppression access or public evacuation.
Priority: ☐High ☒ Medium ☒ Low ☐N/A

5.3 Incorporate a policy that provides for a fuel maintenance program along roadways in the agency having jurisdiction. ☐Yes ☐Partial ☒No

Recommendation: Develop an adaptive vegetation management plan that considers fuels, topography, weather (prevailing winds and wind event specific to the area), fire ignitions and fire history.
Priority: ☐High ☐ Medium ☒ Low ☐N/A

6.0 <u>Post Fire Recovery and Maintenance:</u>
The post fire recommendations address an opportunity for the community and landowners to re-evaluate land uses and practices that affect future wildfire hazards and risk.

6.1 Revaluate hazard conditions and provide for future fire safe conditions. ☐Yes ☒Partial ☐No

Recommendation: Incorporate goals and policies that provide for reassessment of fire hazards following wildfire events. Adjust fire prevention and suppression needs commensurate for both short and long term fire protection needs.
Priority: ☐High ☐ Medium ☒ Low ☐N/A

Recommendation: Develop burn area recovery plans that incorporate strategic fire safe measures developed during the fire suppression, such as access roads, fire lines, safety zones, and fuelbreaks, and helispots.
Priority: ☐High ☐ Medium ☒ Low ☐N/A

6.2 Evaluation of redevelopment. ☐Yes ☒Partial ☐No

Recommendation: In High and Very High Hazard areas, ensure redevelopment utilizes state of the art fire resistant building and development standards to improve past 'substandard' fire safe conditions.
Priority: ☐High ☐ Medium ☐ Low ☐N/A INCLUDED

8.6 Long term maintenance of fire hazard reduction mitigation projects. ☐Yes ☐Partial ☒No

Recommendation: Provide polices and goals for maintenance of the post-fire-recovery projects, activities, or infrastructure.
Priority: ☐High ☐ Medium ☒ Low ☐N/A

8.7 Post fire life and safety assessments. ☐Yes ☒Partial ☐No

Recommendation: Identity flood and landslide vulnerability areas related to post wildfire

conditions.
Priority: ☐High ☐ Medium ☒ Low ☐N/A

Recommendation: Establish goals and policies that address the intersection of flood /landslide/post fire burn areas into long term public safety protection plans. These should include treatment assessment of fire related flood risk to life, methods to control storm runoff in burn areas, revegetation of burn areas, and drainage crossing maintenance.
Priority: ☐High ☐ Medium ☒ Low ☐N/A

CITYOF SUSANVILLE
DRAFT SAFETY ELEMENT 2016

A. INTRODUCTION

The Safety Element is a required element of the General Plan under Government Code Section §65302(g) which identifies potential hazards in the City of Susanville (City), including risks of injury, death, and property damage resulting from both naturally occurring and man-made hazards. Addressing the potential threats to human and environmental safety provides a starting point for recommending corrective or preventative actions that will minimize public exposure to harm. As stated in California Government Code Section 65302, the Safety Element shall address seismic, geologic, fire, and flood hazards, and should address hazards relevant to the local area, such as hazardous material, citywide emergencies and crime rates.

The Safety Element identifies locations inappropriate for certain land uses due to the presence of hazards that would deteriorate human or environmental health. Although a number of safety issues in the City are addressed in different chapters of the General Plan, this chapter focuses on the risks and hazards as required or recommended in the OPR guidelines, while remaining consistent with city documents and state law.

The western portion of the City is located in a State designated Very High Fire Hazard Severity Zone where the urban fringe interfaces with timbered land with a high vegetation fuel load and has a much steeper terrain. The Susan River, Piute Creek and Barry Creek along with some tributaries have associated flood zones as mapped by FEMA flood insurance rate maps. While there are no identified active earthquake faults within the City the area is seismically sensitive with a potential for moderate ground shaking. Other hazards of lesser risk are also addressed to formulate an approach that encompasses a range of safety issues. The application of prevention and mitigation measures that address each hazard are designed to reduce the impact on property, health and safety.

Goals, objectives, policies and programs set forth the approach and requirements to achieve a direction of growth that incorporates safety at its core. Addressing the impacts of flooding, fire, seismic hazards, volcanic activity, hazardous materials, and crime and developing an emergency response direct the City along a path of safe development. Susanville will be guided by a development approach that minimizes flood risk; be an environment of low urban fire and wildfire risk; be a city prepared for seismic and geologic hazard impacts; be free of health impacts caused by hazardous materials; be a community of low crime activity; and be prepared with an organized emergency response process.

This section covers:

• Fire Hazards

• Flood Hazards

• Seismic, Volcanic & Geologic Hazards

• Hazardous Materials and Hazard Response Plan

• Crime

OVERALL GOALS AND OBJECTIVES

Goal SE 1.
A community protected from injury, loss of life and property damage resulting from natural hazards relating to flooding, fire, seismic and geologic events.

Objective SE 1.1
Building limitations in high-risk zones - Avoid construction of high occupancy or critical services buildings in high fire, flood, and seismic/geologic risk zones.

Objective SE 1.2
Reduce the risk of damage and destruction from wildland fires.

Objective SE 1.3
Maintain a highly trained fire department with staffing and facilities to adequately serve the existing and future population of the City in cooperation with other fire agencies in the area.

Objective SE 1.4
Flood Hazards – minimize the risk of personal injury and property damage due to flooding.

Objective SE 1.5
Reduce the risk of loss of life, personal injury and damage to property resulting from seismic hazards.

GOAL SE 2
A safe community with low crime activity

Objective SE 2.1
Adopt multiple approaches to crime prevention and response.

Objective SE 2.2
Maintain a highly trained police force with staffing and facilities to serve the existing

and future population of the City.

GOAL SE 3
An effective emergency response system to address the effects of natural and man-made hazards throughout the community.

Objective SE 3.1
Build and maintain local capacity to prepare for and cope with disasters through coordination with other local and regional stakeholders.

Objective SE 3.2
Establish essential emergency relief facilities that will function adequately in the event of a disaster.

Objective SE 3.3
Inform the public of what resources will and will not be available during an emergency, how they can prepare and what actions to take in the event of an emergency or disaster.

Objective SE 3.4
Protect public health from the hazards associated with the transportation, storage and disposal of hazardous wastes and storage of flammable materials.

The underlying assumption of these goals and objectives is that the City can reduce the hazards caused by many natural and man-made occurrences if advance plans for dealing with them are in place. Policies and programs will be addressed in each hazard section and relate back to the overall goals and objectives.

FIRE HAZARDS

Fires can be reduced by an active fire department that educates the public, plans for emergencies and anticipates problems that may occur before and during an emergency. At the same time, the City needs to contain urban sprawl within high fire hazard areas and plan growth in a way that maintains the City's ability to provide effective fire services within desired response times.

The location and "spread size" of urban fires are less predictable than wildland fires. The assessment of potential damage from urban fires must concentrate on the public buildings and other facilities whose high occupancy or critical functions justify a low level of acceptable risk. All contiguous buildings, multi-story apartments, mobile homes, commercial and industrial users of flammable substances, hazardous materials or explosives, and all older structures lacking modern fire safety features should be given careful attention. The Susanville Fire Department performs fire inspections for all public and commercial structures within the City to ensure compliance with fire safety codes in buildings in which the general public use. Their goal is to inspect each structure annually

and the majority of the inspections meet this timeline. All buildings are inspected at least once every 2 years.

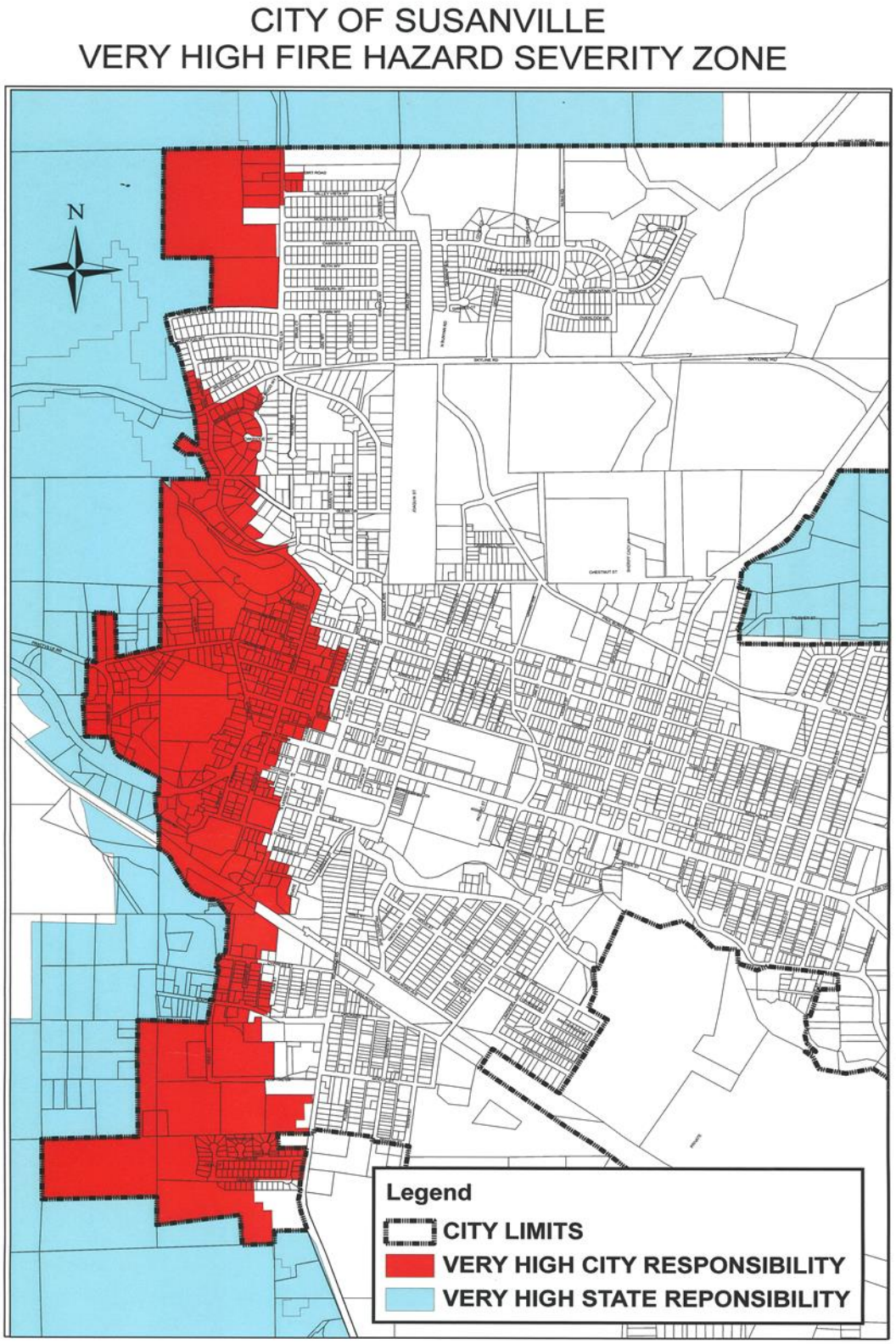
The potential for wildland fire to impact the City occurs almost exclusively at the wildland urban interface on the western side of the City where fuel loads are significantly higher than other areas. As shown by the Figure 9-1 the California Department of Forestry and Fire Protection has adopted a map which shows lands the Department considers to be in a Very High Fire Hazard Severity Zone (VHFHSZ) that is under the control of a Local Response Agency (LRA). This depicted area is characterized by steeper slopes, medium sized lots and a vegetation regime that is primarily conifer forest. The area generally bounded by North Pine Street and its extension (Prattville Road) and Highway 36, including Harris Drive and Cook Street, is particularly vulnerable to wildfire. Narrow roads in this area are susceptible to blockage during a wildland fire event but multiple points of ingress and egress help to offset the risks associated with the narrow road widths. The City shall review the street width in this area to determine if a restriction for on-street parking would be appropriate. Of the approximately 500 parcels within the VHFHSZ 35 are privately owned vacant parcels, 19 of which cannot be further divided. At least five of the remaining parcels have topography issues that most likely prevent division of the parcels. Based on this information the development potential within the VHFHSZ is classified as very low.

In terms of historical wildland fires, there have been three fires which have come up to the western edge of the City over the past 30 years but none have penetrated the urban area.

For local jurisdictions that have adopted the State map, including the City of Susanville, property within the VHFHSZ is subject to certain requirements in the California Government Code and Building Code. Government Code Sections 51175 to 51189 outline the requirements applicable to properties located in a VHFHSZ which include, but are not limited to, the following:

a. Disclosure that property is in VHFHSZ as part of any sale of the property.
b. New construction must meet California Building Code requirements of Chapter 7A.
c. Maintenance of “defensible space” including vegetation removal, fuel reduction, tree trimming within 30 feet of any occupied structure or to the property line whichever is less and within 100 feet or to the property line for any occupied structure with an allowance for vegetation no greater than 18 inches tall for erosion control.
d. Removal of any portion of a tree that extends within 10 feet of a chimney or stove pipe.
e. Maintenance of any tree adjacent to or overhanging any building free from dead or dying wood.
f. Maintenance of the roof of any structure free of leaves, needles, or other dead vegetative growth.

Figure 9-1, Fire Hazard Areas



In addition to the requirements above, there are other safety measures the City can implement within the area to help reduce fire hazards to residents including maintaining lower densities and prohibiting uses that have high occupancy such as schools or hospitals or structures which house critical services such as fire/police stations, ensuring that emergency access routes are maintained, requiring adequate road widths for projects creating new lots requiring new roadways, ensuring that the City's addressing system is fully implemented which requires all homes have a visible address and for the City to maintain automatic aid agreements with other local and regional fire agencies. The City has an active weed abatement program which was originally adopted in 1956 and most recently updated in 2006 and is codified in City Code in Chapter 8.28 which is enforced throughout the City.

The City currently has two critical pieces of infrastructure in the State designated VHFHSZ which are both municipal water storage tanks. One is the Harris/Hwy 36 water storage tank located at Harris Drive and Highway 36 and the other is the South Street water storage tank located at the intersection of the South Street extension and Cheney Creek Road. Access to these tanks and associated facilities is currently adequate and continuing to maintain adequate defensible remains a priority.

There are other adopted documents which address wildland fire protection in the region. The Lassen County Community Wildfire Protection Plan adopted in 2004 and updated in 2006 is a planning tool to help concerned citizens, planning professionals, Fire Safe Councils, responsible Federal, State and local fire agencies, and other interested parties assess the threat level and to identify measures that may be taken to reduce the threat that wildland fire poses to the communities in Lassen County. Individual community Fire Safe Plans were also prepared including one for Susanville. These plans are hereby adopted as part of the Safety Element by reference. The city is committed to working with Cal Fire and other Fire agencies to work to mitigate fire hazard conditions in the areas outside of the City which have the potential to impact City residents and structures.

Since 2008 the City has been a National Fire Protection Association (NFPA) "Firewise Community" which is a program co-sponsored by the USDA Forest Service, the US Department of the Interior, and the National Association of State Foresters. The "Firewise" designation is given to communities that work to save lives and property from wildfire. NFPA's Firewise Communities program teaches people how to adapt to living with wildfire and encourages neighbors to work together and take action now to prevent losses and in teaching that everyone has a role to play in protecting their community from the risk of wildfire.

City Fire Protection Services

The City has one fire station located at 1505 Main Street which serves the entire City. The City currently meets the response time guideline established by the National Fire Protection Association (NFPA) 1710 which is six minutes at least 90 percent of the time, with response time measured from the 911-call time to the arrival time of the first-responder at the scene. The Susanville Fire Department has a standard operating

procedure SOP 6.19 which provides for a 60-90 second turnout time 90% of the time, and a 240-480 second travel time 90% of the time. The average response time for the City of Susanville Fire Department (within Susanville) is approximately 5 minutes, with a maximum of 6 minutes to remote parts of the City (City of Susanville Municipal Services Review 2015).

Overall the Susanville Fire Department's ability to provide service can be characterized as good. The industry standard for rating communities across the nation on their structure fire suppression capabilities comes from the Insurance Service Office (ISO) which evaluates, analyzes and assigns a numerical rating using their Fire Suppression Rating Schedule (FSRS). The rating number assigned is referred to as a Public Protection Classification grade commonly known as your PPC grade. The PPC grade scale is 1-10 with a grade of 1 representing an exemplary fire department and 10 representing a department that fails to meet the minimum criteria. The PPC grade is based on property loss due to structure fire in small and average sized buildings, it does not take into account multiple alarms, simultaneous incidents, and life safety. Large properties that have a required fire flow exceeding 3500 gallons per minute are evaluated separately and assigned their own PPC grade. The FSRS uses data collected from four areas in the jurisdiction being rated, these four areas are:

1. Needed fire flows (the amount of water needed for the fire department to extinguish a fire at a given location or building).

2. Emergency Communications (this includes emergency reporting 911, telecommunications and dispatch centers).

3 Fire Department (includes equipment, staffing, training, distribution of fire engines and stations, and community risk reduction).

4 Water Supply (testing and flowing of fire hydrants, alternative water supplies, and evaluation of available water with relation to the amount needed to extinguish fires up to 3,500 gpm).

The City of Susanville Fire Department was recently re-evaluated in July of 2015 and received a PPC rating of 3/3y, the 3y is a rating assigned to areas within the City limits that are more than 1000 feet from a fire hydrant or more than 5 miles from a fire station. The most recent rating was also a change from our previous rating of 4/4y this indicates the City of Susanville is quite well prepared to minimize loss due to structure fire.

Another important component to structural fire response is adequate building addressing. The City has adopted addressing standards for development within the City. Each building must have an address which is legible, placed in an approved location and easily viewed from the public entrance to the property. New development must install an illuminated number a minimum of 4" high in a ½ inch wide stroke.

New development within the current City limits, such as a subdivision, is reviewed on a

case by case basis to consider the ability of the department to meet the standards due to increased call for service volume which may require to an increase to staffing levels. Future growth outside the current City limits would impact the department's ability to meet desired response times/distance, including the desired 1.5 mile radius per station, which could require additional stations, equipment, and staffing to be required for the new development.

In general, major access routes from a fire station to various areas of the city must be kept clear to the extent possible. Evacuation routes have not been adopted specifically designated within the City of Susanville. Developing an evacuation plan is one of the tasks identified in the Lassen County Hazard Mitigation Plan but has yet to be completed. However, the City is not so large that evacuation routes cannot be determined very quickly and in general the routes will follow the major roads which lead out of town: Highway 36, Highway 139, Skyline Road, Johnstonville Road and Richmond Road. The routes should be flexible to respond appropriately to various emergencies - flood, fire, earthquake, or volcano - and they may need to change at the peak of an emergency because of unforeseen obstructions.

Fire Hazard Policies and Action Programs

Policy SE 1.1.1 Review and revise the General Plan Land Use Element and city zoning code to re-designate lands with additional zoned development capacity within the Very High Fire Hazard Severity Zone to the current developed density which would allow for infill development without increasing overall densities. Restrict placement of new buildings or structures which house critical services or facilities with the VHFHSZ unless adequate mitigation can be incorporated into the design.

> Program SE 1.1.1.1 Initiate an application to amend the General Plan and Rezone all R-2 and R-3 properties located in the VHFHSZ to a Single Family Residential and R-1 designation.
>
> Program SE 1.1.1.2 Review existing road widths within the State designated VHFHSZ to determine if on-street parking should be restricted on certain roads to preserve emergency accessibility.

Policy SE 1.2.1 Notify all property owners within the VHFHSZ of the requirements of Government Code Section 51182 for defensible space and the California Building Code requirements for construction in the VHFHSZ. Encourage existing residents to upgrade their non-complying structures when considering exterior remodeling projects.

> Program SE 1.2.1.1 Review and update City Fire and Building Codes when new standards are adopted by the State.
>
> Program SE 1.2.1.2 The City shall send out an annual flyer to all properties located in the VHFHSZ outlining regulations and fire safe actions to take to protect their structures. Included in the handout will be information on where residents can get

information of the planting of fire resistant landscaping and the benefits of fire safe construction.

Program SE 1.2.1.3 The City Fire Department will review all new development permits for the ability to provide adequate response times, adequate access and for sufficient fire flows as well as compliance with building and fire code requirements..

Program SE 1.2.1.4 Continue to enforce the City's Weed Abatement Program.

Program SE 1.2.1.5 Maintain adequate defensible space around the City's water storage facilities located in the VHFHSZ.

Policy SE 1.3.1 The Fire Department shall continue and expand its education, inspection, and abatement programs.

Program SE 1.3.1.1 Revise existing City ordinances regarding open burning to reflect current statutory restrictions on the burning of trash and garbage and restrict all open burning (limited to clean dry natural vegetation) to designated burn days and by city issued permit.

Program SE 1.3.1.2 Continue the City's weed abatement program and continue the operation of the City's Fire Safe Trailer program for the education of the public and schools for teaching kitchen fire safety and exit drills in the home.

Program SE 1.3.1.3 Maintain the City's designation as a Firewise Community.

Policy SE 1.3.2 The City Fire Department shall work cooperatively with other fire agencies within Lassen County and the State of California through mutual aid and automatic aid agreements.

Program SE 1.3.2.1 The City Fire Department currently has automatic aid agreements with the Susan River Fire Department and Cal Fire and mutual aid agreements with all fire departments statewide.

Program 1.3.2.2 Participate with Cal Fire and other fire agencies in developing policies, programs and action plans to address the mitigation of wildfire hazards around the City of Susanville including but not limited to fuel load reductions.

Policy SE1.3.3 Maintain adequate water infrastructure to meet fire flow demands and require water infrastructure for fire fight purposes in proximity to new development.

Program SE 1.3.3.1 Evaluate the amount of water storage available for emergency purposes on a 5-year interval. The current storage amount (2016) is approximately 3.4 million gallons.

Program SE 1.3.3.2: All new buildings (whether in existing or new subdivisions) shall

be located within 300 feet of a fire hydrant.

Program SE 1.3.3.3 The City shall continue with its current program to update and replace out dated fire hydrants throughout the City.

Flooding Hazards

Despite its generally dry conditions, Lassen County and the City of Susanville experience periodic winter storms and thunderstorms that may result in flooding events under certain storm conditions, the region's stream systems pose a significant hazard to people and property from flooding.

Flood hazards are considered in three categories: natural flooding, dam inundation/failure, and mud and debris flows. *Natural flooding* results from major rainstorms that cause overflows of stream courses, and may be attenuated by local storm drain facilities. *Dam inundation* occurs in association with structural failure of a nearby water impoundment. *Mud and debris flows* originate in hillside areas having deep top soils with poor drainage characteristics.

Natural flooding can take several hours to days to develop; the following flood characterization designates the amount of time for response:

• **Flood Watch** – a flood is possible in the area.

• **Flood Warning** – flooding is already occurring or will occur soon in the area.

• **Flash Flood Watch** – a flash flood is possible in the area. Seek immediate shelter or higher ground.

• **Flash Flood Warning** – flooding is already occurring or will occur soon in the area. Flash floods can occur without warning, during heavy rain in mountainous regions ensure that precautions and flash flood warnings are adhered to.

Alluvial Fan Flooding

Alluvial fan flooding occurs in the steep arid or semiarid mountains found throughout California. Alluvial fans are fan-shaped deposits of eroded rock and soil carried out of mountains and into valley floors by landslides, mudslides, mudflows, and surface runoff. At the beginning of the valley, alluvial fans are steep and narrow with boulders and other course material. The deposited material becomes increasingly fine as the gradient decreases and the material, mainly gravels, sand and mud, spreads.

When rain falls, runoff from the canyon walls flows as a high-velocity sheet that channels into rivulets, and then to natural drainage courses. The rapidly moving water often carries large boulders and other material from the watershed depositing them into runoff channels, blocking the flow of water. Floodwater then spills out onto the fan, with each event finding

a new channel that soon fills up with deposits and overflows. Flooding in alluvial fans often can cause greater damage than clear-water flooding.

Flash Flooding

A flash flood is a rapid flooding of low-lying areas, generally along rivers and streams, that is caused by the intense rainfall associated with a thunderstorm, or multiple thunderstorms. Flash floods may also occur when a man-made structure, such as a dam, collapses. Flash flooding occurs when the ground under a storm becomes saturated with water so quickly that it cannot be absorbed. The runoff collects in low-lying areas and flows rapidly downhill. The main characteristic is of a flash flood is limited advance warning of the potential event.

As a result, anything in its path is suddenly in rising water. A typical flash flood begins with a slow moving thunderstorm. This usually takes longer to move out of the affected areas and causes the area to endure a greater amount of rainfall for a longer period of time. In addition, a thunderstorm may stall over an affected area dumping even more rainfall.

The heavy rainfall associated with these storm systems contributes to urban flooding in a number of ways. Primarily, heavy rainfall will often overwhelm the capacity of the conventional drainage system made up of storm drains, catch basins, sewers, and additional natural mechanisms for storm-water management. These systems typically cannot handle more than one or two inches of rainfall per hour before they begin to backup and overflow. This amount is further diminished if the storm drains, and other components of the storm-water management system, have not been adequately maintained, are clogged with debris such as trash or natural waste, or are old and in a state of disrepair. Downed trees, that are either washed down from upstream or fall locally and vegetation/debris build-up at bridge crossings can significantly affect stormwater flows. Heavy rainfall, combined with storm-water runoff, can cause local waterways to rise and overflow their banks.

Extended Rainfall Flooding

California periodically experiences extended rainfall periods characterized by heavy rainfall events produced by several storms or what has been called a superstorm. The most significant of these events have been caused by what is termed a “pineapple express” which is a non-technical term for a meteorological phenomenon characterized by a strong and persistent flow of atmospheric moisture and associated with heavy precipitation from the waters adjacent to the Hawaiian Islands and extending to any location along the Pacific coast of North America. A Pineapple Express is an example of an atmospheric river, which is a more general term for such narrow corridors of enhanced water vapor transport at mid-latitudes around the world. Many Pineapple Express events follow or occur simultaneously with major arctic troughs in the northwestern United States, often leading to major snow-melt flooding with warm, tropical rains falling on frozen, snow laden ground which results in both rainfall and rapid snow melt. The most extreme example of this occurred in early in 1862 when extreme storms riding the Pineapple Express battered the west coast for 45 days. In addition to a sudden snow melt, some

places received an estimated 8.5 feet of rain, leading to the worst flooding in recorded history of California, Oregon, and Nevada. Due to the potential for winter snowpack in the neighboring mountains Susanville is susceptible to this type of flooding. Typically there is advanced warning of such events anywhere from three days to a week allowing for a certain degree of preparation.

Various factors and environmental conditions contribute to flood hazards in the City. Heavy precipitation and inadequacy of existing infrastructure to accommodate the excessive flow of water may lead to inundation. Additionally, log-jams and excess debris can block creek flow during storms that can cause micro-flooding in areas with excessive storm water runoff. Improper maintenance or design of levees and dams may lead to a mechanical failure that will result in flooding. Localized flooding may also occur from irrigation ditches which carry diverted water from the Susan River, including the Ramsey Ditch and Jensen Slough.

Some locations in Susanville are subject to flooding during a storm with a 1 percent chance of occurrence in a year--the “100-year flood”--which has been set as the “base flood” standard for acceptable risk. Past flooding has occurred during the winter and during the spring storm runoff, primarily along the Susan River and Piute Creek. These areas are delineated on maps prepared by the Federal Emergency Management Agency (FEMA). The areas of special flood hazard was identified by FEMA in the Flood Insurance Study (FIS) for the City of Susanville with accompanying Flood Insurance Rate Maps (FIRMs) and Flood Boundary and Floodway Maps (FBFM), dated September 3, 2010 and all subsequent amendments and/or revisions. These maps are hereby adopted by reference as the flood hazard areas for the City’s Safety Element. The City utilizes these maps to determine if a property is in a flood hazard zone. Due to the size and detail of the mapping a meaningful representation of the maps cannot be produced at a scale that would fit into this document. Full scale maps are available at City Hall from the Community Development Division and the maps are available for viewing online at https://msc.fema.gov/portal/search.

The City does not have any locations protected from flood waters by levees or floodwalls. However there are several properties on the west side of Carroll Street between Mills Street and the point where Carroll Street makes a bend to the west which are protected by a temporary K-rail barrier. The K-rail is the supporting structure for a visquine/plastic barrier and sandbags to provide protection for these homes from occasional flooding from the Susan River. The City has prepared a preliminary plan to provide a more permanent solution to protecting these homes however a funding source has not yet been identified. The need for sandbagging is triggered by a river water level of 12 feet as measured at the South Lassen Street Bridge. Below are the various flood stage descriptions

River Level	Flooding Description
10.5	Those along river should begin careful monitoring of river and keep informed of forecast updates. Localized minor lowland flooding below Susanville in Johnstonville, Leavitt Lake, Standish, and Litchfield rural areas.

11.0	Local minor lowland flooding below Susanville in Johnstonville, Leavitt Lake, Standish, and Litchfield rural areas.
11.5	Localized minor to moderate lowland flooding below Susanville in the Johnstonville, Leavitt Lake, Standish, and Litchfield rural areas
12.0	Flood Stage. Several homes on Carroll Street in Susanville begin to flood. Local flooding in Susanville from Lassen Street downstream along Riverside Drive, especially below Piute Creek which enters river near Alexander Drive. Moderate lowland flooding below Susanville in Johnstonville, Leavitt Lake, Standish, and Litchfield areas. Some rural roads affected by flooding.
12.5	Minor to moderate flooding in Susanville from Lassen Street downstream along Riverside Drive. Several homes along river affected, especially on Carroll Street. Moderate lowland flooding below Susanville in Johnstonville, Leavitt Lake, Standish, and Litchfield areas. Rural roads and bridges begin to flood in these areas.
13.0	Moderate flooding in Susanville from Lassen Street downstream along Riverside Drive. Some homes along river have moderate flood affects, especially on Carroll Street. Significant lowland flooding below Susanville in Johnstonville, Leavitt Lake, Standish, and Litchfield areas. Rural roads and bridges in these areas flood. Similar to flood of 3/13/1983
13.5	Moderate to major flooding in Susanville, Johnstonville, Leavitt Lake, Standish, and Litchfield. Susanville flooded from Lassen Street downstream along Riverside Drive and from Cornell/River Street on north to Hood Street/Sunkist Drive on south. River up to bottom of Lassen Street bridge. Many homes along river have minor to moderate flooding. Many roads and bridges in the Honey Lake Valley area flood, with moderate transportation impacts. Similar to 3/30/1974 and 1/21/1969 floods.
14.0	Major flooding in Susanville, Johnstonville, Leavitt Lake, Standish, and Litchfield. Susanville flooded from Lassen Street downstream along Riverside Drive and from Main St (Highway 36) on north to railroad tracks on south. Many homes, businesses, schools, roads, and bridges in the Honey Lake Valley area flooded. Serious transportation impacts. Impacts to power, phone, and rural water systems begin. Similar to 2/24/1958 flood.
14.5	Major flooding in Susanville, Johnstonville, Leavitt Lake, Standish, and Litchfield areas in Honey Lake Valley. Susanville flooded from Lassen Street downstream along Riverside Drive and from Main Street (Highway 36) on north to railroad tracks on south. Serious flood impacts to homes, businesses, schools, roads, and bridges throughout Honey Lake Valley. US Highway 395 flooded. Serious transportation impacts, moderate impacts to power, phone, and rural water systems. Similar to 12/23/1955 flood.
15.0	Major flooding in Susanville, Johnstonville, Leavitt Lake, Standish, and Litchfield areas. Major flooding in Susanville from Lassen Street

	downstream along Riverside Drive, and from Main Street (Highway 36) on north to railroad tracks on south. Serious flood impacts to homes, businesses, schools, roads, and bridges throughout Honey Lake Valley. US Highway 395 flooded. Serious transportation, power, phone, and rural water system impacts. Similar to 1/31/1963 and 1/13/1980 floods.
15.5	Major flood damage from Susanville to Honey Lake. Flooding of homes, businesses and schools in flood plain throughout Honey Lake Valley, including Susanville. Extensive damage to transportation systems as roads, bridges, and culverts are flooded or washed out. US Highway 395 is flooded. Major transportation, power, phone, and rural water system impacts. Similar to 1/31/1963 flood.

In 2013, based on the FIRMs the City adopted an updated floodplain management ordinance which was reviewed by FEMA and was found to meet all of their requirements. The purpose of the flood plain regulations is to promote the public health, safety, and general welfare, and to minimize public and private losses due to flood conditions in specific areas through legally enforceable regulations applied uniformly throughout the community to all publicly and privately owned land within flood prone, mudslide (i.e., mudflow) or flood-related erosion areas. These regulations are designed to:

A. Protect human life and health;
B. Minimize expenditure of public money for costly flood control projects;
C. Minimize the need for rescue and relief efforts associated with flooding and generally undertaken at the expense of the general public;
D. Minimize prolonged business interruptions;
E. Minimize damage to public facilities and utilities such as water and gas mains; electric, telephone and sewer lines; and streets and bridges located in areas of special flood hazard;
F. Help maintain a stable tax base by providing for the sound use and development of areas of special flood hazard so as to minimize future blighted areas caused by flood damage;
G. Ensure that potential buyers are notified that property is in an area of special flood hazard; and
H. Ensure that those who occupy the areas of special flood hazard assume responsibility for their actions.
I. Reduce debris from residential structures and residential uses which would restrict water flows during storm events.

Adoption of this ordinance serves to create the major framework for protecting lives and property within the City from flooding hazards. In addition the Susan River Parkway Master Plan includes an area which, when constructed will provide a temporary overflow basin to accommodate flood waters without exacerbating stream bank erosion or stabilization.

Dam Failure/Inundation

There are three dams that have the potential to impact the City of Susanville. The first two are Hog Flat Reservoir and McCoy Flat Reservoir both located northwest of Susanville just off of State Highway 44. Both drain into the Susan River. Hog Flat Reservoir is created by an earthen dam 15 feet high 1760 feet long which impounds 8,000 acre feet. McCoy Flat is an earthen dam is 21 feet high, 650 feet long impounding 17,290 acre feet. Both were constructed in 1891 to provide irrigation water and are currently owned by the Lassen Irrigation Company. These two reservoirs typically only have water impounded in them from late winter to early June. The reservoirs are located are an altitude of 5,500 feet and during typical years are gradually filled with snow melt. Water from the reservoirs is currently used for agricultural irrigation purposes. Both of these dams are subject to the regulations of the California Division of Safety of Dams including routine safety inspections. A catastrophic breach of one or both of these dams could send a flash flood down the Susan River impacting the City of Susanville. No dam inundation maps have been prepared for either dam.

The third dam is known as the Mardis or Barry Creek Reservoir which is also subject to the regulations of the State Division of Safety of Dams including regular inspections. The dam is 600 feet long, 14 feet in height and impounds 113 acre feet. The dam has been inspected annually since its construction in 1941, and the owners have taken several actions in accordance with this inspection including removal of vegetation on the dam and around the spillway, and reinforcement of the earthen dam. Dam condition improvements may continue to be required following annual inspections. No dam inundation map has been prepared for this dam. Downstream lands are sparsely populated however the wastewater treatment for the City would potentially be affected by a catastrophic breach of Mardis/Barry Creek Dam.

Flood Hazard Policies and Action Programs

Policy SE 1.4.1. The City shall preclude new developments from compounding or impacting the potential for flooding.

> Program SE 1.4.1.1 The City shall adopt design standards for stormwater detention for new development to mitigate peak flow runoff. The detention design shall attempt to maximize onsite infiltration.

Policy SE 1.4.2. The City shall reduce the potential for flooding along the Susan River and along its tributaries.

> Program SE 1.4.2.1 Improve drainage channel capacity using engineering techniques that will preserve the natural quality of waterways.

> Program SE 1.4.2.2 Seek a source of funding to construct a permanent flood wall structure along Carroll Street to protect several homes in the area from periodic flooding.

Program SE 1.4.2.3 Protect drainage channels and keep them clear of silt, vegetation and debris.

Policy SE 1.4.4 The City shall regulate land uses in flood-plain areas and allow development in those areas only with appropriate mitigation.

Program 1.4.4.1 The City shall establish impact fees, standards, and other measures to mitigate down-stream impacts associated with new development.

Program SE 1.4.4.2 The City shall adopt an ordinance to require a hydrologic analysis of runoff and drainage from new development which has as its objective a no net increase in peak runoff as compared to pre-development levels. The ordinance should include local rainfall intensity curves and development standards for storm event design parameters.

Program SE 1.4.4.3 Enforce the requirements of the Lahontan Regional Water Quality Control Board for requiring erosion control plans including Storm Water

Program SE 1.4.4.4 Keep the Flood Plain Ordinance current with changes in FEMA requirements.

Program SE 1.4.4.5 Adopt the Floodplain Overlay zoning designation for all Zone A floodplain areas within the City.

Seismic/Geologic Activity

Within a seismically active area, earthquakes pose hazards to development. Earthquakes occur when a slip in the fault releases built up energy. The primary seismic hazards are ground-shaking and the potential for ground-rupture along the surface traces of the fault. Secondary seismic hazards result from the interaction of ground-shaking with soil and bedrock, and include liquefaction, settlement, landslides, and seiches (oscillating waves in enclosed water bodies). In comparison to other regions in the State, the Lassen County/ Susanville area has a relatively low seismic threat.

Even with a reduced seismic threat, structures of all types, if not designed or constructed to withstand ground shaking, may suffer severe damage or collapse. Likewise, some slopes will collapse due to the soil or geological characteristics resulting in hazard both in terms of collapse of structures located thereon, or collapse of structures within the path of resulting landslides. The severity of damage to buildings from earthquakes is related to the intensity of ground shaking, soils and geologic characteristics, and the type of building construction used.

The most recent seismic activity with epicenters near Susanville occurred as an earthquake and aftershocks during the period of May 24, 2013 from a 5.7 magnitude earthquake that occurred at Canyon Dam near Lake Almanor along with numerous

aftershocks. The epicenter was located approximately 26 miles southwest of Susanville. While ground motion was felt in Susanville no damage was reported. The previous notable local seismic events occurred February 22 1979, when a 5.2 magnitude event occurred near Doyle in the Honey Lake region. The February 22 earthquake was preceded by a foreshock (M 3.5) at 11:17 p.m. February 21. A magnitude 3.7 aftershock occurred at 7:41 p.m. February 22. This event was the largest in a small series of aftershocks. Aftershock activity quickly diminished after February 23. The focal depth of the February 22 earthquake was about 12 km (University of Nevada, Reno). The causitive fault for this event may have been the Honey Lake fault or the Fort Sage fault. A magnitude 5.6 earthquake occurred December 14, 1950 in the Fort Sage Mountains. Ground shaking was strongly felt in the epicenter region and damage was sustained in Doyle and the Sierra Ordnance Depot at Herlong. Surface fault rupture occurred along the Fort Sage fault, located on the south side of the Fort Sage Mountains.

No substantial faults are known to be located within the Susanville area according to the Alquist-Priolo Earthquake Fault Zoning Maps and the State of California Department of Conservation. The City is not located within a mapped Alquist-Priolo Earthquake Fault Zone. The California Division of Mines and Geology indicates Susanville is located within the Honey Lake Fault Zone, with four quaternary (potentially active) faults and three pre-quaternary (inactive) faults located in or near the city. There are no faults classified as "active" within the City's Sphere of Influence. A fault is considered "Active" if displacement has occurred in the past 11,000 years. "Historic" displacement is seismic activity which occurred within the past 200 years. The California Geological Survey, on its *Fault Map of California,* indicates that Susanville is located in the Honey Lake Fault Zone. The aforementioned map shows the quaternary and prequaternary faults that run through or near the city. Quaternary Faults are less than 1.8 million years old and are classified as "potentially active." Prequaternary faults are more than 1.8 million years old and are generally classified as "inactive" unless a detailed study concludes there is potential for activity. The four quaternary faults within the City include the "Hospital Fault" and "Inspiration Fault" located on the west side of the City and the "Grand Fault" and "College Fault" on the northeast side of the City.

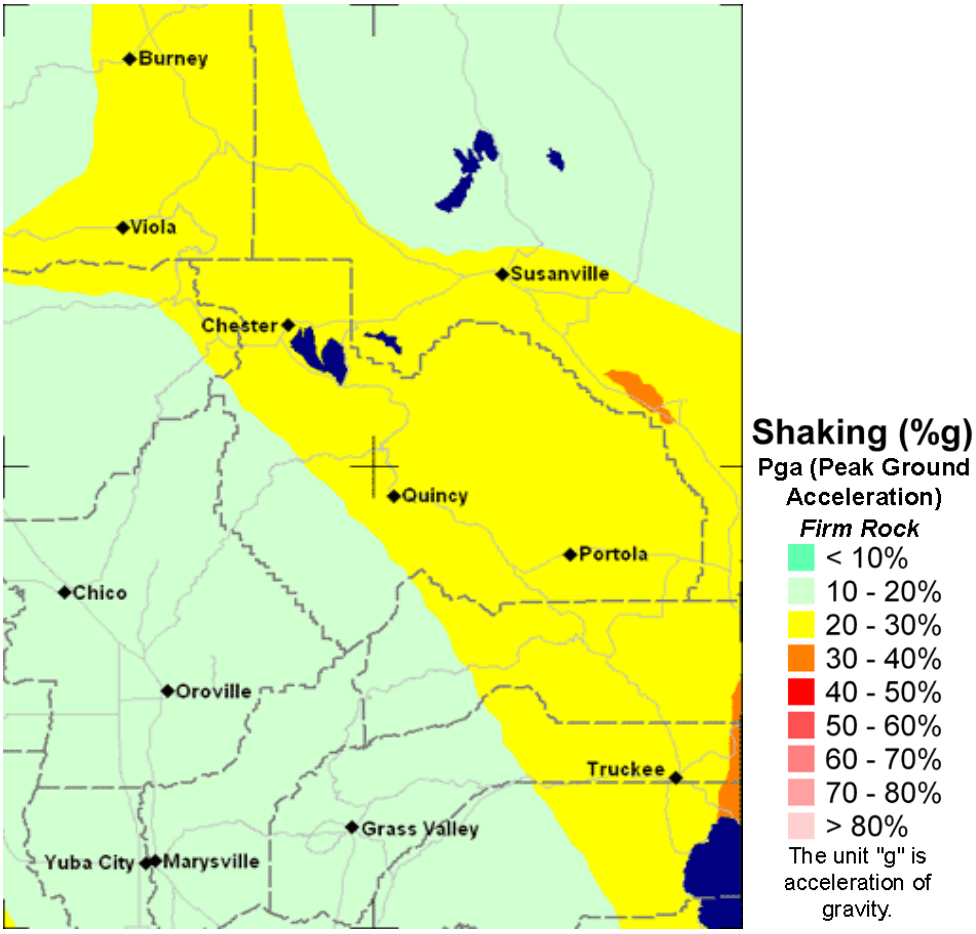
These quaternary faults run mostly in north-to-south patterns. The "Hospital Fault" runs west of the old hospital located in the southwest portion of the city. "Inspiration Fault" runs south through the Susanville Ranch Park and crosses Main Street below Inspiration Point, then runs towards Richmond Road and the south City Limits. In the northeast, the "Grand Fault" runs northwest of and parallel to State Highway 139, toward the intersection of Third Street and Grand Avenue. The "College Fault" runs parallel to and along the southeastern edge of State Highway 139, toward the intersection of Paul Bunyan Road and Hall Street. No faults classified as "Active" or "Historic" are situated within the City's Sphere of Influence.

The fault mapping shown in Figure 9-2 is an excerpt for a larger map prepared by the California Department of Conservation, California Geological Survey entitled "Preliminary Geologic Map of the Susanville 30' x 60' Quad 2013" available at ftp://ftp.consrv.ca.gov/pub/dmg/rgmp/Prelim_geo_pdf/Susanville_100k_v2.0_Map.pdf.

A limited legend is also included which pertains to the faults shown on the map. The full legend which also includes information on the soil types is available on the website listed above. The information on the map is too detailed to reproduce in this document so the map is hereby adopted as part of this document by reference and a copy is available for viewing at City Hall, 66 N. Lassen Street, Susanville.

Ground Motions for Susanville

Four major factors influence the degree of ground shaking; the release of energy at its source, the distance that energy travels, bedrock type and geometry, and soil properties. The figure below shows the intensity of ground shaking as a percent (g). The maps are probabilistic and general. In a future earthquake, there will be pockets of more or less intense shaking caused by the factors described above. The structural construction type also influences the degree of damage caused by earthquakes. The California Seismic Safety Commission has designated unreinforced masonry (URM) structures as especially vulnerable to collapse in an earthquake. There are several unreinforced masonry (URM) structures in Susanville, many of which are historic. None have been seismically retrofitted.



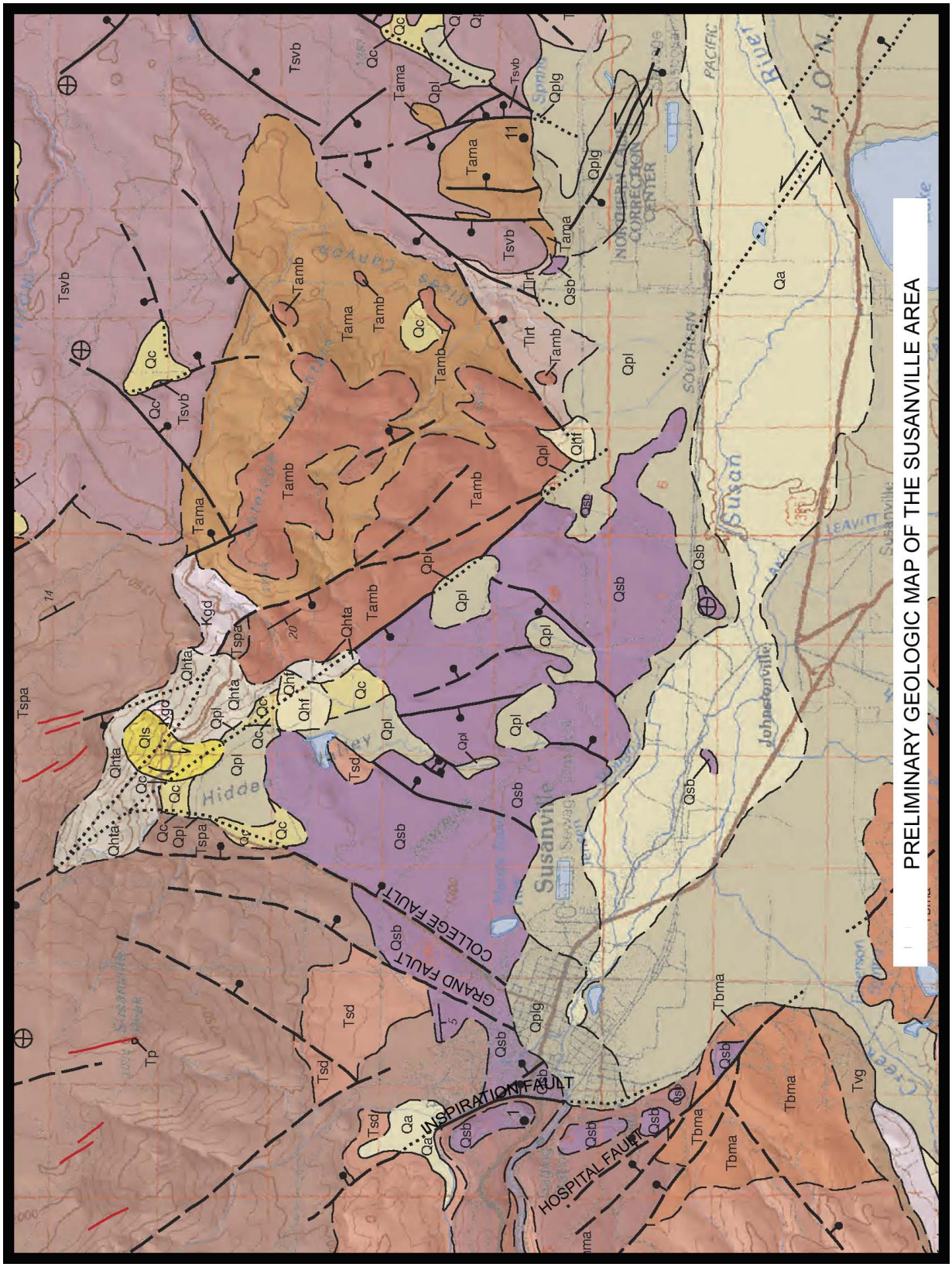
Ground Motion	Firm Rock	Soft Rock	Alluvium
Pga	0.215	0.235	0.275
Sa 0.2 sec	0.517	0.564	0.669
Sa 1.0 sec	0.172	0.218	0.298

Ground motions (10% probability of being exceeded in 50 years) are expressed as a fraction of the acceleration due to gravity (g). Three values of ground motion are shown: peak ground acceleration (Pga), and spectral acceleration (Sa) at short (0.2 second), and moderately long (1.0 second) periods. Ground motion values are also modified by the local site soil conditions. Each ground motion value is shown for three different site conditions: firm rock (conditions on the boundary between site categories B and C as defined by the building code), soft rock (site category C), and alluvium (site category D).

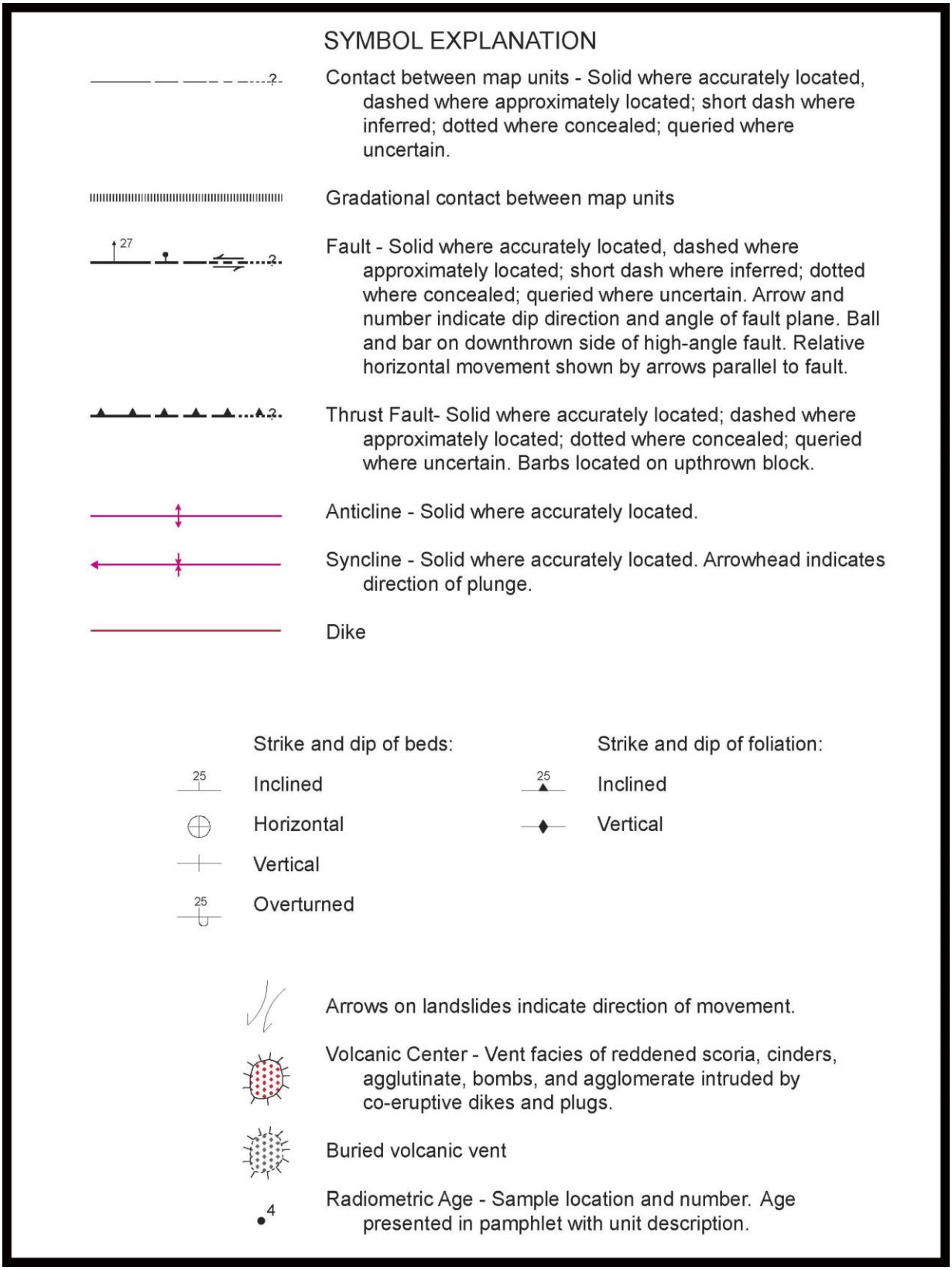
Historic buildings must meet the provisions of the State Historical Building Code, adopted in 1988. The State Historical Building Code departs from the Uniform Building Code to acknowledge the special problems present in older buildings and to provide building regulations that consider all aspects of public safety, yet are appropriate for the rehabilitation, restoration, and relocation of historic buildings or structures.

Critical public facilities and high-occupancy structures include hospitals, fire stations, police stations, gas, electric, and water lines, ambulance services, emergency broadcast services, power plants, schools, apartments, and employment centers should be located away from any fault zones .

Figure 9-2 Geologic Map of the Susanville Area



Geologic Map Legend for Fault Lines



Expansive Soils

The swelling and shrinking qualities of adobe clay soils pose problems for development in the City. Clay minerals swell when moisture level increases. When moisture levels decrease and the ground dries, the adobe content in the soil causes the soil to crack. Movement and cracking of soils may create unstable foundations for development. Foundation design in areas with expansive soils is address at the building permit application stage by the engineer for the structure.

Landslide

The USGS and California Geological Survey (CGS) have not yet developed detailed landslide maps for the Susanville area or Lassen County. Landslides can be expected in areas with steep slopes and weak soils. There are no areas within the City which have these characteristics but the steepest slopes occur in the western part of the City. Landslides can be induced by sustained rainfall as well as earthquake related shaking.

Regulatory Framework

The Seismic Hazard Mapping Act of 1990 (Public Resource Code, Chapter 7.8, Section 2690-2699.6) requires identification and mitigation of seismic hazards to reduce the risk of property damage and loss of life. The California Geological Survey, under the California Department of Conservation, maps areas at risk of amplified shaking, liquefaction, and earthquake-induced landslides. Cities and counties are directed to reference the seismic hazard maps in the planning and permitting process. Within a seismic hazard zone development permits, other than for a single family dwelling, are withheld until a geologic investigation of soil conditions is reported and any necessary mitigation measures are included in the projected plan.

The Alquist-Priolo Earthquake Fault Zoning Act (Public Resource Code 2621), passed in 1972, identifies active faults and prohibits construction on fault lines. Earthquake Fault Zones are established around surface traces of active faults that have the potential for surface rupture. A geologic report may be required before an undeveloped parcel is subdivided or a structure is placed on the site. A project proposed within an Earthquake Fault Zone requires further geologic investigation (Seismic Safety Commission, 2003). Structures for human occupation, such as homes, offices, hospitals, and public buildings, cannot be placed on an active fault and typically must be buffered at least 50 feet from the fault. If a property exists in a fault zone, the owner must disclose its location to the buyer at the time of the transaction. The State Board of Mines and Geology sets the policies and land uses for development in Alquist-Priolo Zones, but local jurisdictions regulate projects in the zones.

Unreinforced Masonry Law (Public Resources Code 8875), passed in 1986, requires jurisdictions in seismic zone 4, the zone of highest seismicity identified in the Uniform Building Code, to create an inventory of unreinforced masonry buildings and establish programs to reduce risks associated with these buildings by retrofitting the structure to reduce the danger of collapse in the event of an earthquake. Susanville is located in a seismic zone 3 which does not currently require this retrofitting.

Policy SE 1.5.1 The City shall not allow placement of structures, particularly critical facilities and high-occupancy structures directly upon known fault lines or unstable slopes prone to ground failure during an earthquake.

Program 1.5.1.1 Detailed geologic investigations shall be required before allowing any construction on or in the immediate vicinity of known, mapped faults, irrespective of their record of activity or inactivity.

Program 1.5.1.2 Enforce safety standards for design of new and existing structures. Give priority to identification of existing critical public facilities and high-occupancy structures which present unacceptable levels of risk.

Program 1.5.1.3 Record information on potential geologic hazards with parcel or subdivision maps.

Program 1.5.1.4 Increase public awareness of seismic hazards, and educate the community on procedures that can help to minimize injury and property loss before, during, and after an earthquake.

Program 1.5.1.5 Prohibit building of structures within 50 feet of the four identified four quaternary faults unless determined to be appropriate after completion of a geologic engineering study approved by the City.

Program 1.5.1.6 Regularly update the City Building Code to include new construction and seismic safety standards from the California Building Standards Code.

Volcanic Activity

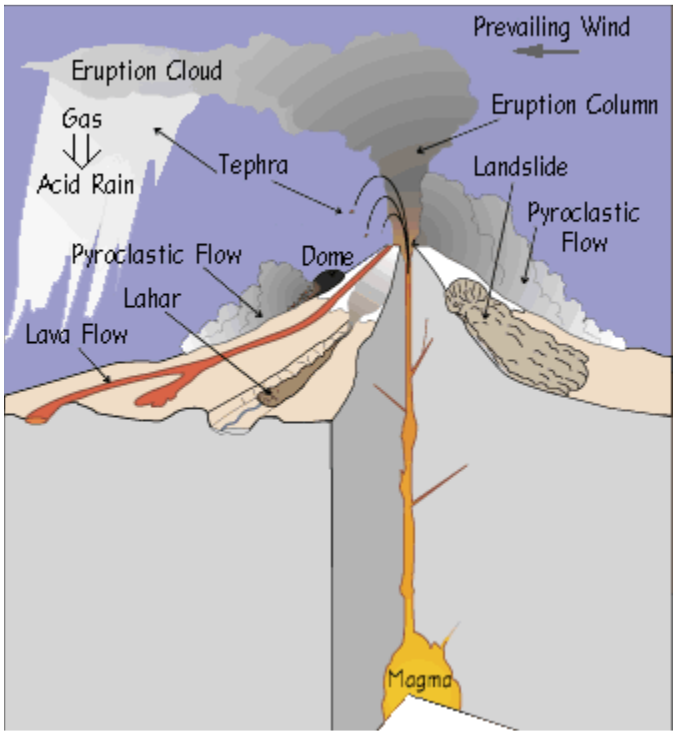
More than 50 volcanoes in the United States have erupted one or more times in the past 200 years. The most volcanically active regions of the Nation are in Alaska, Hawaii, California, Oregon, and Washington. Volcanoes produce a wide variety of hazards that can kill people and destroy property. Large explosive eruptions can endanger people and property hundreds of miles away and even affect global weather and climate. The closest area of volcanic activity to the City of Susanville is Lassen Peak in Lassen National Park. Lassen Peak is approximately 45 miles northwesterly of Susanville.

Some of the volcanic hazards described below, such as lahars landslides, can occur even when a volcano is not erupting. Volcanoes produce a wide variety of natural hazards that can kill people and destroy property. This simplified sketch shows a volcano typical of those found in the Western United States and Alaska, but many of these hazards also pose risks at other volcanoes, such as those in Hawaii.

Eruption Columns and Clouds

An explosive eruption blasts solid and molten rock fragments (tephra) and volcanic gases into the air with tremendous force. The largest rock fragments (bombs) usually fall back to the ground within 2 miles of the vent. Small fragments (less than about 0.1 inch across) of volcanic glass, minerals, and rock (ash) rise high into the air, forming a huge, billowing eruption column. Eruption columns can grow rapidly and reach more than 12 miles above a volcano in less than 30 minutes, forming an eruption cloud. The volcanic ash in the cloud can pose a serious hazard to aviation. During the past 15 years, about 80 commercial jets have been damaged by inadvertently flying into ash clouds, and several have nearly crashed because of engine failure.

Large eruption clouds can extend hundreds of miles downwind, resulting in ash fall over enormous areas; the wind carries the smallest ash particles the farthest. Ash from the May 18, 1980, eruption of Mount St. Helens, Washington, fell over an area of 22,000 square miles in the Western United States. Heavy ash fall can collapse buildings, and even minor ash fall can damage crops, electronics, and machinery.



Volcanic Gases

Volcanoes emit gases during eruptions. Even when a volcano is not erupting, cracks in the ground allow gases to reach the surface through small openings called fumaroles. More than ninety percent of all gas emitted by volcanoes is water vapor (steam), most of which is heated ground water. Other common volcanic gases are carbon dioxide, sulfur dioxide, hydrogen sulfide, hydrogen, and fluorine. Sulfur dioxide gas can react with water droplets in the atmosphere to create acid rain, which causes corrosion and harms vegetation. Carbon dioxide is heavier than air and can be trapped in low areas in concentrations that are deadly to people and animals. Fluorine, which in high concentrations is toxic, can be adsorbed onto volcanic ash particles that later fall to the ground. The fluorine on the particles can poison livestock grazing on ash-coated grass and also contaminate domestic water supplies. Cataclysmic eruptions, such as the June 15, 1991, eruption of Mount Pinatubo (Philippines), inject huge amounts of sulfur dioxide gas into the stratosphere, where it combines with water to form an aerosol (mist) of sulfuric acid. By reflecting solar radiation, such aerosols can lower the Earth's average surface temperature for extended periods of time by several degrees Fahrenheit (°F). These sulfuric acid aerosols also contribute to the destruction of the ozone layer by altering chlorine and nitrogen compounds in the upper atmosphere.

Lava Flows and Domes

Molten rock (magma) that pours or oozes onto the Earth's surface is called lava and forms lava flows. The higher a lava's content of silica (silicon dioxide, SiO2), the less easily it flows. For example, low-silica basalt lava can form fast-moving (10 to 30 miles per hour) streams or can spread out in broad thin sheets up to several miles wide. Since 1983, Kilauea Volcano on the Island of Hawaii has erupted basalt lava flows that have destroyed more than 200 houses and severed the nearby coastal highway. In contrast, flows of higher-silica and esite and dacite lava tend to be thick and sluggish, traveling only short distances from a vent. Dacite and rhyolite lavas often squeeze out of a vent to form irregular mounds called lava domes. Between 1980 and 1986, a dacite lava dome at Mount St. Helens grew to about 1,000 feet high and 3,500 feet across.

Pyroclastic Flows

High-speed avalanches of hot ash, rock fragments, and gas can move down the sides of a volcano during explosive eruptions or when the steep side of a growing lava dome collapses and breaks apart. These pyroclastic flows can be as hot as 1,500 °F and move at speeds of 100 to 150 miles per hour. Such flows tend to follow valleys and are capable of knocking down and burning everything in their paths. Lower-density pyroclastic flows, called pyroclastic surges, can easily overflow ridges hundreds of feet high.

Volcano Landslides

A landslide or debris avalanche is a rapid downhill movement of rocky material, snow, and (or) ice. Volcano landslides range in size from small movements of loose debris on the surface of a volcano to massive collapses of the entire summit or sides of a volcano. Steep volcanoes are susceptible to landslides because they are built up partly of layers of loose volcanic rock fragments. Some rocks on volcanoes have also been altered to soft, slippery clay minerals by circulating hot, acidic ground water. Landslides on volcano slopes are triggered when eruptions, heavy rainfall, or large earthquakes cause these materials to break free and move downhill.

Mudflows

Mudflows or debris flows composed mostly of volcanic materials on the flanks of a volcano are called lahars. These flows of mud, rock, and water can rush down valleys and stream channels at speeds of 20 to 40 miles per hour and can travel more than 50 miles. Some lahars contain so much rock debris (60 to 90% by weight) that they look like fast-moving rivers of wet concrete. Close to their source, these flows are powerful enough to rip up and carry trees, houses, and huge boulders miles downstream. Farther downstream they entomb everything in their path in mud. Historically, lahars have been one of the deadliest volcano hazards. They can occur both during an eruption and when a volcano is quiet. The water that creates lahars can come from melting snow and ice (especially water from a glacier melted by a pyroclastic flow or surge), intense rainfall, or the breakout of a summit crater lake.

Volcano Hazard History

On May 22, 1915, an explosive eruption at Lassen Peak, the southernmost active volcano in the Cascade Range, devastated nearby areas and rained volcanic ash as far away as 200 miles to the east. This explosion was the most powerful in a 1914-17 series of eruptions that were the last to occur in the Cascades before the 1980 eruption of Mt. St. Helens. Lassen Peak is the largest of a group of more than 30 volcanic domes erupted over the past 300,000 years in Lassen Volcanic National Park.

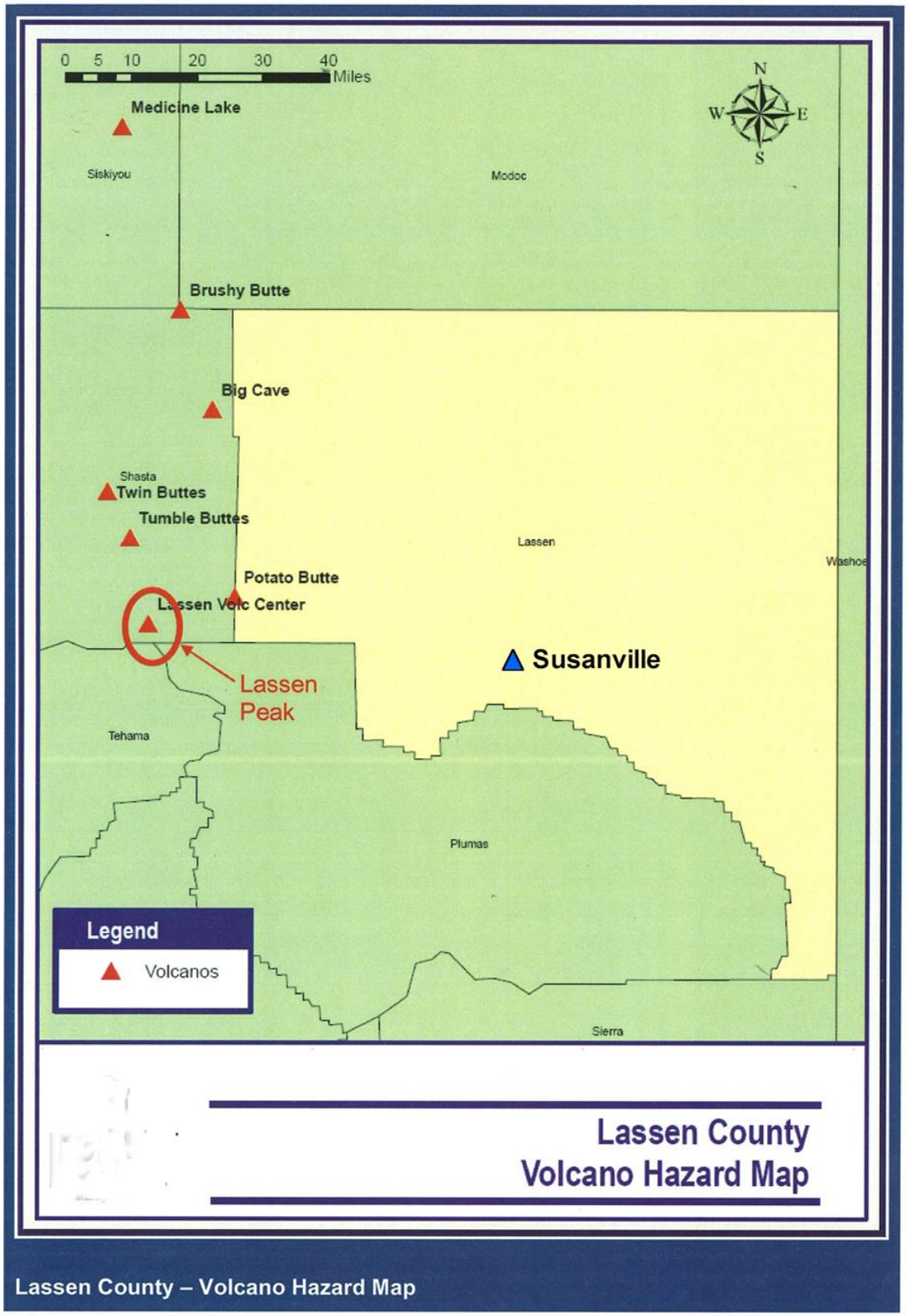
Volcano Probability, Frequency, and Magnitude

Because geologically recent volcanic activity in an area is the best guide to forecasting future eruptions, scientists study the lava flows, ash, and other deposits from past eruptions. Volcanoes in the Lassen area tend to erupt infrequently, and may be inactive for periods lasting centuries or even millennia. The most recent eruptions in the Lassen area were the relatively small events that occurred at Lassen Peak between 1914 and 1917. The most recent large eruption produced Chaos Crags about 1,100 years ago.

Such large eruptions in the Lassen area have an average recurrence interval of about 10,000 years. However, the geologic history of the Lassen area indicates that volcanism there is episodic, having periods of relatively frequent eruptions separated by long quiet intervals. For example, the last large event before the Chaos Crags eruption was the one that built Lassen Peak 27,000 years ago.

After the eruption of Mount St. Helens in 1980, the U.S. Geological Survey (USGS) intensified its monitoring of active and potentially active volcanoes in the Cascade Range. Monitoring of the Lassen area includes periodic measurements of ground deformation and volcanic gas emissions and continuous transmission of data from a local network of nine seismometers to USGS offices in Menlo Park, California. Should indications of a significant increase in volcanic activity be detected, the USGS will immediately deploy scientists and specially designed portable monitoring instruments to evaluate the threat. In addition, the National Park Service (NPS) has developed an emergency response plan that would be activated to protect the public in the event of an impending eruption. The map below shows volcanic mountains located near Susanville/Lassen County.

Figure 9-3 Volcano Hazard Map



In addition, there is a four-tiered Volcano Alert Level that uses the terms Normal, Advisory, Watch, and Warning (from background levels to highest threat). The Volcano Alert Levels are intended to inform people on the ground about a volcano's status and are issued in conjunction with the Aviation Color Code. Notifications are issued for both increasing and decreasing volcanic activity and are accompanied by text with details about the nature of the unrest or eruption and about potential or current hazards and likely outcomes. The table on the following page illustrates the Alert Level as well as the associated volcanic state.

LEVEL	VOLCANIC STATE
Normal	Volcano is in typical background, non-eruptive state or, after a change from a higher level, volcanic activity has ceased and volcano has returned to non-eruptive background state.
Advisory	Volcano is exhibiting signs of elevated unrest above known background level or, after a change from a higher level, volcanic activity has decreased significantly but continues to be closely monitored for possible renewed increase.
Watch	Volcano is exhibiting heightened or escalating unrest with increased potential of eruption, timeframe uncertain, **OR** eruption is underway but poses limited hazards.
Warning	Hazardous eruption is imminent, underway, or suspected.

Due to the 45 mile distance from the Lassen Volcanic area and the intervening topography Susanville would not be affected by lava flows, pyroclastic flows, mud flows or lahars. The most likely impact from significant volcanic activity at Lassen would be the potential of ash fallout.

If ashfall is a possibility, residents should be advised of the steps to take to protect their structures. The following steps will help mitigate the effects of ashfall to the building:
.

•Seal entrances and openings (doors, windows, dampers, air intakes).

◦Select an entry point which can be used as an 'ash lock'. Two sets of doors separated by a few meters are ideal. Ash-covered clothing and footwear should be left in this area.

◦Place damp towels at the bottom of external doors - Close and seal (e.g. with duct tape) non-essential doors, windows, vents and other gaps.

◦Use ash foot baths (cleans ash off shoes to avoid ingress).

◦Stockpile cleaning supplies, duct tape, disposal containers, vacuum cleaner bags and filters.

•Cover/close external air intakes. Where this is not possible, install extra (and heavier)

filters.

•Restrict access to a building or home to the most protected entrance to reduce the potential for ash to get inside.

•Establish an entry room or cleaning and decontamination rooms for people entering the building. Provide vacuum cleaners and brushes for people to remove as much ash as possible from clothing; provide shoe covers and disposable caps as appropriate. Remove outdoor clothing before entering a building as appropriate.

•Establish any necessary, extra cleaning procedures to protect the interior environment.

•Keep ash out of building interiors, intake vents, drains and sewer systems.

•Ensure adequate supplies of necessary equipment (i.e. clean up equipment, disposal bags, etc.)

• Check insurance policies to see if any actions undertaken to clean-up or repair damage would void the insurance policy, or, conversely, any inaction towards the roof or structure during or after an ash fall might void the policy as well.

• Know what plan your community/authorities has developed for disposing ash that you collect.

More information on the effects of ashfall and actions to take before and after an ashfall event can be found at https://volcanoes.usgs.gov/volcanic_ash/.

Crime

Police Department

The City Police Department (PD) is responsible for enforcing the laws and ordinances of the City and the State of California, for apprehending violators of the law, and for assisting in the prosecution of violators of the law. The City provides 24-hour police coverage of the City, including community patrol, traffic and parking enforcement, investigations, school resource officer for Lassen High School District, part-time bicycle patrol unit and a Safe Steets Gangs Task Force officer assigned to a regional task force managed by the Reno area office of the FBI. The department operates with 17 sworn officers, 1 full-time administrative assistant, 1 full-time and 1 part-time non-sworn Community Service Officers, and 1 part-time Youth Services Officer (total of 21 personnel). The City also has an active volunteer program which supplements the City's paid staff and primarily performs neighborhood patrol, ride along, and assists with community public relations.

The police department contracts with the Lassen County Sheriff's Office for dispatch services. The City relies on the Sheriff's Office for search and rescue, and the California

Department of Corrections and Rehabilitation staff for SWAT type services. Crime laboratory services are provided by the California Department of Justice's Redding office or the Sacramento area office of the Federal Bureau of Investigations.

The police department provides part-time animal control services to City residents, and contracts with Lassen County for animal shelter services. Animal control services consists of patrolling for loose animals within the City limits, enforcing animal laws ordinances, picking up stray and dead animals, enforcing rabies control and licensing, as taking and following-up on state-mandated animal bite reports.

Crime Rates

The police department workload involves responding to emergency and non-emergency calls for service including but not limited to homicides, assaults, sexual assaults, burglaries, thefts, vandalisms, burglary alarms, suspicious circumstances, vehicle accidents, and citizen assists, in addition to patrol activities and well as parking and traffic citations. The Susanville Police Department responds to approximately 9,000 calls for service each year. Service calls have remained relatively stable over the past three years; however crime has increased over the past 5 years and the rates are generally higher than the State averages.

CITY OF SUSANVILLE CRIME RATES										
	Pop.	Violent Crime	Homicide	Rape	Robbery	Assault	Property Crime	Burglary	Larceny Theft	Car Theft
Susanville 2014	8,900	70	1	4	9	93	315	96	201	18
Rate/100,000 inhabitants		787	11	45	101	1,045	3,541	1,079	2,259	202
Susanville 2009	9,480	26	1	3	9	13	230	65	154	11
Rate/100,000 inhabitants		274	11	32	95	137	2,426	686	1,624	116
CA Cities 2014 Rate/100,000	<10,000	366	2.6	23	48	289	2,551	656	1,619	276
California 2014	38.8 M	153,709	1,699	8,398	48,680	91,803	947,192	202,670	592,670	151,852
Rate/100,000 inhabitants		396	4	26	126	237	2,441	522	1,527	391

The table above compares the change in crime rates within Susanville from 2009 to 2014. Most of the categories increased significantly. Overall, the violent crime rate increased 187% and property crimes increased 46%. Compared to 93 other cities in California with a population under 10,000 people, the crime rates for Susanville exceeded the average for both violent crimes and property crimes. The 2014 crime rates for Susanville also exceed the State averages. It should be noted that due to relatively small population in Susanville that the presence of a small number of people undertaking criminal activities can quickly skew the overall averages for the City when the number of crimes are extrapolated to an equivalent population of 100,000 people.

Crime can be reduced by an active police department that plans for emergencies and anticipates problem areas. At the same time, the City needs to maintain its ability to provide effective police services as the city grows.

Policy SE 2.1.1. The City shall maintain a professional approach and commitment to police protection, investigation, community relations and education, crime reduction, animal control, and administration.

Program SE 2.1.1.1 Continue community-oriented activities, especially those which emphasize crime prevention and community education. Provide public information, education, and crime prevention programs.

Program SE 2.1.1.2 Work with Lassen College to maintain and expand educational opportunities in law enforcement.

Program SE 2.1.1.3 Expand and improve the neighborhood watch program.

Policy SE 2.1.2 The City shall maintain the ability to respond to emergencies in a timely and efficient manner.

Program 2.1.2.1 Annually evaluate law enforcement statistics and the City's need to expand or modify its services.

Program 2.1.2.2 Annually evaluate the existing dispatch of emergency services and approaches to improve service, including the need for and feasibility of operating a City Dispatch Center.

Policy SE 2.1.3 The City's street system shall be designed and upgraded to enhance vehicular and pedestrian safety and to assist the police in traffic enforcement.

Program SE 2.1.3.1 Require traffic signals at intersections when traffic counts warrant, based on Caltrans standards.

Program SE 2.1.3.2 Use development review and the zoning ordinance to require project features that enhance police and neighbor surveillance of property, and that deter criminal activity.

Program SE 2.1.3.3 In conjunction with the City's Public Works Department review areas in, or proposed for, restricted parking zones.

Program SE 2.1.3.4 Maintain and continually update an accident data base, and map those areas susceptible to accidents. Annually address problem areas in the Circulation Plan and Capital Improvements Program.

Program SE 2.1.3.5 Work with the primary and secondary schools in the City's

jurisdiction to further develop safety plans in the event of a violent incident on campus

Program SE 2.1.3.6 Continue to foster and maintain a positive relationship with the youth in our community through outreach programs including but not limited to the School Resource Officer program, as well as a the Youth Services Officer position.

Hazardous Material Release

Hazardous materials include hundreds of substances that can potentially pose a significant risk to the general population if released. These substances may be highly toxic, reactive, corrosive, flammable, radioactive or infectious. They are present in nearly every community in the U.S., where they may be manufactured, used, stored, transported, or disposed. Because of their nearly ubiquitous presence, there are hundreds of hazardous material release events annually in the U.S. that contaminate air, soil, and groundwater resources, potentially triggering millions of dollars in clean-up costs, human and wildlife injuries, and occasionally cause human deaths.

Accidents, which result in chemical clouds or release of hazardous materials into public water or sewer systems, may affect outlying neighborhoods or the community at large. Depending upon the scale of the release, large segments of the residential and the business populations may need to be evacuated quickly for extended periods of time. Effective emergency planning with regard to hazardous materials, therefore, requires the concentrated efforts of the Fire and Police Departments as well as other public safety officials and private organizations, such as the Red Cross. Hazardous material releases may occur from any of the following:

Types of Hazardous Material Incidents	
Fixed-Site	Includes all releases involving the production and manufacturing, handling, and storage of a hazardous product at a single facility as well as any releases that may occur at a designated hazardous waste disposal site.
Transportation	Includes all releases that occur while the product is in transit from one facility to another or en-route to be disposed of at a designated hazardous waste disposal site, of which the main concern for Lassen County and the City of Susanville is radioactive contamination.
Intentional Spills and Releases	Includes all criminal acts and acts of terrorism in which a hazardous material is used to intentionally cause injuries and/or fatalities, damage the environment and/or property, or advance a political or social agenda.

In response to concerns over the environmental and safety hazards posed by the storage

and handling of toxic chemicals in the U.S., Congress passed the Emergency Planning and Community Right to Know Act (EPCRA) in 1986. To reduce the likelihood of hazardous material releases, EPCRA established specific requirements on federal, state and local governments, Indian tribes, and industry to plan for hazardous materials emergencies. EPCRA's Community Right-to-Know provisions help increase the public's knowledge and access to information on chemicals at individual facilities, their uses, and releases into the environment. States and communities working with facilities can use the information to improve chemical safety and protect public health and the environment. Under EPCRA, hazardous materials must be reported to the Environmental Protection Agency (EPA), even if they do not result in human exposure. Hazardous material releases may include the following:

• Air emissions (e.g., pressure relief valves, smokestacks, broken pipes, water or ground emissions with vapors)

• Discharges into bodies of water (e.g., outflows to sewers, spills on land, water runoff, contaminated groundwater)

• Discharges onto land

• Solid waste disposals in onsite landfills

• Transfer of wastewater to public sewage plants

• Transfers of waste to offsite facilities for treatment or storage

In addition to accidental human-caused hazardous material events, natural hazards may cause the release of hazardous materials and complicate response activities. The impact of earthquakes on fixed facilities may be particularly damaging due to the impairment of the physical integrity or even failure of containment facilities. The threat of any hazardous material event may be magnified due to restricted access, reduced fire suppression and spill containment, and even complete cut-off of response personnel and equipment. In addition, the risk of terrorism involving hazardous materials is considered a major threat due to the location of hazardous material facilities and transport routes throughout communities and the frequently limited anti-terrorism security at these facilities.

In recognition of the dangers associated with keeping hazardous substances, the California State legislature has enacted several laws regulating the use and transport of identified hazardous materials. In particular, Chapter 6.95 of the Health and Safety Code requires all businesses using these materials to inform local government agencies of the types and quantities of materials stored on site. This disclosure enables emergency response agencies to respond quickly and appropriately to accidents involving dangerous substances. Chapter 6.95 of the California Health and Safety Code, and Title 19 of the California Code of Regulation, describes the requirements for chemical disclosure, business emergency plans, and community right to know programs.

According to these state requirements, a business that uses or handles hazardous materials in amounts equal to or greater than 55 gallons, 500 pounds or 200 cubic feet at any one time must prepare a business emergency plan and chemical inventory. The inventory must be updated annually and the business plan every two years. The chapter also has incorporated certain requirements from Federal SARA Title III for chemicals designated as acutely hazardous.

Prior to natural gas being available within the city as a public utility a significant number of residents had either propane tanks or heating oil tanks installed in their yards. A large number of these tanks are no longer in use but still remain in place, often times with significant amounts of fuel in them. These tanks, which number approximately 230, should be removed to reduce potential fire hazards.

Hazardous Material Release History

The California Office of Emergency Services maintains a hazardous materials spill database available at https://w3.calema.ca.gov/operational/malhaz.nsf/$defaultview. For the time period from 2010 through 2014 there were 45 reported hazmat spills within Lassen County, 20 of which were within the City limits. Most of the spills were petroleum products as a result of accidents. This number of spills, averaging 4.5 per year puts Lassen County in a category of being not highly susceptible for hazardous materials releases.

Hazardous Material Release Probability, Frequency, and Magnitude

There are no fixed facility sites that process highly hazardous chemicals within Lassen County, the City of Susanville, or the Susanville Indian Rancheria. Thus, the highest potential for a hazardous material incident is through transportation. Hazardous materials, as well as radioactive materials, are transported across Lassen County, which poses a hazard should there be loss of containment. The major routes through the County are State route 36 which runs directly through the City and Interstate 395 which skirts the city to the east.

The California Department of Toxic Substances Control (DTSC) maintains a Hazardous Waste and Substance Sites List. There are currently no sites within the City of Susanville.

Regulatory Framework

The California OPR General Plan Guidelines do not outline specific recommendations, policies, or hazard reduction measures in regards to hazardous materials. The State Health and Safety Code establishes the regulatory framework for hazardous material storage. Hazardous materials are defined by Title 22 of the California Code of Regulations and are governed by the Federal Hazardous Materials Transportation Act (42 USC Section 1801 et seq.) and the Resource Conservation and Recovery Act (42 USC Sections 6901 et seq.).

The transportation, storage and disposal of hazardous materials are subject to a variety of Federal, State and local regulations. The Federal Hazardous Materials Transportation Act (49 USC Section 1801 et seq.) aims to ensure the safe transport of hazardous materials via water, rail, highway, air or pipeline transport. Subtitle C addresses hazardous waste

generation, storage, treatment, and disposal. Subtitle I requires monitoring and containment systems for underground storage tanks that hold hazardous materials.

The State Health and Safety Code (Chapter 6.5), regulates the transport, treatment, and disposal of hazardous wastes. Chapters 6.67 and 6.75, respectively, deal with above ground and underground petroleum storage tanks, while Chapter 6.7 regulates underground storage of other hazardous substances. The Department of Toxic Substances Control issues policies and regulations concerning hazardous materials (State Water Resources Control Board, 2012). The Lassen County Environmental Health Department is responsible for enforcing the above health and safety code section within Lassen County and the City of Susanville.

Lassen Operational Area Hazardous Materials Emergency Response Plan addresses procedures for responding to hazardous materials releases within the County and is adopted by reference as part of the Safety Element.

Hazard Mitigation/ Emergency Response

Loss of life and property damage can be reduced during an emergency caused by a natural hazard if development is kept out of hazardous areas and an up-to-date Emergency Response Plan is implemented. The City along with Lassen County and the Susanville Indian Rancheria prepared and adopted a Hazard Mitigation Plan in 2010 in accordance with FEMA requirements. The document assesses 14 hazards that could occur in the region. Each hazard was scored and ranked on a numerical scale from 0 to 100 based on the potential for occurrence, severity and vulnerability for three local entities the City, Lassen County and the Susanville Indian Rancheria. A number of the hazards have been discussed in detail in prior sections of this document and this section focuses on hazard mitigation planning in general. FEMA requires that the Hazard Mitigation Plan be updated every 5 years. The City along with Lassen County and the Susanville Indian Rancheria are in the process of beginning that update. For the City of Susanville the rankings (0 to 100) are listed after the hazard.

The Hazard Mitigation Plan covers the following topics:

1. Wildfire - 60
2. Power Failure - 100
3. Wind Hazards - 36
4. Severe Storm Hazards - 75
5. Drought Hazard - 30
6. Flood hazard - 36
7. Reservoir Failure - 25
8. Hazardous Release - 50
9. Earthquake Hazard - 30
10. Pandemic Hazard - 25
11. Volcano Hazard - 25
12. Extreme Heat Hazard - 16

13. Terrorism hazard - 12
14. Avalanche Hazard - 0

An important part of a disaster response plan is the identification of those facilities that must be relied upon in the event of catastrophe. Critical facilities are hospitals, fire stations, police stations, gas, electric, and water lines, ambulance services, emergency broadcast services, and power plants. Bridges should be evaluated for structural ability to withstand a major disaster. Public facilities such as schools, auditoriums, and stadiums may be designated as alternative facilities. The Hazard Mitigation Plan is hereby incorporated into the Safety Element by reference.

The following are critical facilities which are assigned a very low level of acceptable risk: structures with high or involuntary occupancy; utilities; communication lines; transportation, police, fire, and medical facilities; and structures whose failure may be hazardous to large areas.

Policy SE 3.1.1. The City shall increase public awareness of seismic and other natural hazards, and of methods to avoid or mitigate their effects.

> Program SE3.1.1.1 The City shall maintain an updated Hazard Mitigation Plan, In conjunction with Lassen County and the Susanville Indian Rancheria which shall identify essential emergency facilities and make provisions for them to function in the event of a disaster.

Policy SE 3.1.2. The City shall strive to educate the community about environmental hazards, measures which can be taken to protect lives and property, and methods for responding to various disasters.

> Program 3.1.2.1 Develop a standardized operational area evacuation plan to streamline emergency response efforts.

Policy SE 3.1.3. The City shall avoid locating structures critical structures where there is high risk that threaten public safety and/or that may result in property damage unless proper mitigation is incorporated. Critical facilities and structures should not be placed in high risk areas.

> Program SE 3.1.3.1 Identify specific facilities and “lifelines” critical to effective disaster response, and evaluate their ability to survive and operate after a major disaster. Designate alternative facilities for post-disaster assistance in the event that primary facilities become unusable.

> Program SE 3.1.3.2 Review and revise General Plan designations and/or the Zoning Ordinance as necessary to change high density land use designation and zoning districts to a density no greater than 6 dwelling units per acre for lands within high risk zones.

Program SE 3.1.3.3 Adopt regulations to require the removal of unused or abandoned above ground propane and fuel tanks.