

# General Plan Amendment No. 2015-002; Safety Element Update

From Mariposa County General Plan

(Proposed additions are shown in *italicized double underline* type;  
Proposed deletions are shown in ~~double strikethrough~~ type. )

## 16 Safety

The Safety Element identifies issues and delineates programs related to safety in the County.

### 16.1 SAFETY ISSUES AND SUMMARY OF FINDINGS

Fire, flood, seismic and geologic hazards, *winter storms*, as well as airport operations and use or transport of hazardous materials may create hazards for people and property in the County. It is the County's intent to reduce the risk of loss of life, injuries, damage to property, and economic and social dislocations from those hazards to the smallest amount or degree within practical limitations.

*This Safety Element incorporates by reference the Local Hazard Mitigation Plan (LHMP) dated February 2015 that was prepared in accordance with the federal Disaster Mitigation Act (DMA) of 2000 and adopted by the Board of Supervisors in November of 2012 and the update to the LHMP dated February 2015 that was adopted on June 23, 2015. This plan has been approved by the Federal Emergency Management Agency (FEMA). (Subsequent LHMPs are also incorporated into this Element.) This DMA amended the Robert T. Stafford Disaster Relief and Emergency Assistance Act of 1988 (Title 42 of the United States Code Section 5121 et seq.) by repealing the Act's previous mitigation planning section (409) and replacing it with a new mitigation planning section (322). This new section emphasizes the need for state, tribal, and local entities to closely coordinate mitigation planning and implementation efforts. This new section also provides the legal basis for FEMA's mitigation plan requirements for mitigation grant assistance. The provisions of this plan are summarized within the appropriate sections of this element.*<sup>1</sup>

*The LHMP and its incorporation into this Safety Element satisfies the requirements of state Senate Bill (SB) 1241, which went into effect on January 1, 2013. This legislation mandated that Safety Elements, upon the next revision of the Housing Element on or after by January 1 2014 cities and counties in the state must be reviewed and update their Safety Elements as necessary to address the risk of fire for State Responsibility Areas (SRAs) and very high fire hazard severity zones and conduct detailed surveying and mapping to determine areas of high fire danger including review of fire hazard severity zone maps. (Appendix C in the adopted LHMP contains such mapping.) SB 1241 requires that Safety Elements must*

<sup>1</sup> This paragraph is proposed for alteration by Planning staff to remove reference to the LHMP being an "update" that was shown in the version the Board reviewed in initiating the amendment. This plan replaces the prior LHMP. Subsequent references to "update" in the amendment text are also proposed for removal.

minimize fire risks and provide guidance on local decision-making to achieve this goal. The approval of tentative maps, or parcel maps for which a tentative map is not required by county legislative bodies must include three specific findings relating to the provision of adequate fire protection for projects in a SRA and/or an area of high fire danger.<sup>2</sup>

SB 1241 requires cities and counties with fire safety plans adopted separately from the General Plan to attach such plans to the General Plan or reference them in the General Plan. Mariposa County adopted a fire hazard plan in 2010. This plan, which is known as the Community Wildfire Protection Plan, contains protection plans for 15 communities or areas within Mariposa County. This plan is incorporated into the Safety Element of the General Plan by reference.

Mariposa County is served by the Madera-Mariposa-Merced Unit of CAL FIRE. A fire management plan for this area, which includes Battalions 1 and 2 covering Mariposa County, was adopted by CAL FIRE in 2015. CAL FIRE also adopted a Fire Hazard Severity Zone map for State Responsibility Areas in Mariposa County. The map, adopted on November 7, 2007, was prepared under CAL FIRE's Fire and Resource Assessment Program.

~~The original LHMP was approved by the Mariposa County Board of Supervisors in November 2012 and was subsequently approved by FEMA. The LHMP Update, dated February 2015, was deemed eligible for final approval by FEMA in February 2015 pending adoption by the board of supervisors, which occurred on June 23, 2015.<sup>3</sup>~~

The Safety Element addresses the safety of people and property in Mariposa County in coordination with other local, state, tribal and federal agencies. Issues addressed in this Element include:

- fire hazard,
- flood hazard,
- geologic hazards,
- seismic hazards,
- airport safety,
- hazardous materials and hazardous waste, and
- emergency management and evacuation plans, and
- winter storms

## 16.1.01 FIRE HAZARD

Uncontrolled wildfires damage life, property, and natural resources. The potential risk from wildfire depends upon the amount of flammable vegetation and other fuel sources in an area, combined with meteorological and topographic factors. The risk of wildfire is high in a large portion of Mariposa County because the County is covered by a combination of grasslands, chaparral, and forests that can

<sup>2</sup> This paragraph was altered for clarity by Planning staff after Board initiation of amendment.

<sup>3</sup> This paragraph, included in the Board's resolution to initiate the amendment, is proposed for removal by Planning staff. It's content has been updated and added to the first paragraph on page 1.

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become very flammable during dry weather. The wind and heat from June to September contribute to the fire danger. Even during the winter months the fire danger persists, because the drying effects of several days of wind can reduce the water content of brush to a level that makes it susceptible to burning. Various factors, including humidity, wind speed and direction, fuel load and fuel type, and topography, contribute to the intensity and spread of wildland fires.

Every community in Mariposa County has been threatened by major wildland fires within the past 200 years. Since 1954, the town of Mariposa has burned down several times. The original county seat, Agua Fria, was destroyed by fire in the 1800s and was not rebuilt. Structures that have survived for more than 100 years, except for the Mariposa County Courthouse, have steel roofs, steel shutters for doors and windows, and adobe, stone, or brick walls. Other structures that have survived are located in areas that were defensible from wildland fires and had some sort of defensible space such as pastures, orchards, or recent clearance around the structure.

The most notable fire in Mariposa's history is the Harlow Fire of July 1961. Its notability is due to the rapidity of its spread; in two hours it burned 20,000 acres making it one of the fastest burning fires recorded in the United States. The fire eventually burned 43,329 acres, destroyed 104 structures and claimed two lives. One of the most active and destructive fire seasons for Mariposa County occurred in 2008. The Telegraph Fire in July of that year, a 50-year fire event, consumed 18,000 acres in the first day and a half alone. It eventually burned 32,000 acres. The Carsten's Fire in June 2013 burned 1,708 acres.

There is a distinction between wildland fires and non-wildland fires involving homes, businesses, and other improvements. The Mariposa County Fire Department has the responsibility of determining the threat and mitigation measures needed for non-wildland fires. The California Department of Forestry and Fire Protection (CAL FIRE/CDF), the USDA Forest Service, the Department of Interior National Park Service, and Bureau of Land Management have responsibility for wildland fires within their jurisdictions. The threats, the mitigation, and the approaches are different.

While wildfires are caused by both natural and human means, human error has historically been the cause of most large fires in Mariposa County. The threat of wildfires is greatest in the central, northeast, and southeast portions of the County because these areas consist primarily of chaparral and conifer communities and are prone to high winds. These areas are the most developed in the County (Mariposa Town and Coulterville are located here) and are where the largest amount of future development is likely to occur. Topography, fuel and weather are three factors that contribute most significantly to wildland fire behavior and can be used to identify wildland fire hazard areas.

The LHMP ~~Update~~ displays the locations of past wildland fires throughout Mariposa County and illustrates the wildland fire hazard areas based upon fuel rank. As illustrated by both figures, the entire County is susceptible to wildland fires, but the central portion of the County is most susceptible, falling in the very high hazard zone.

According to CAL FIRE, 443,891 acres in Mariposa County, the vast majority located in the central and western portion of the county, are located within the State Responsibility Area. The State Responsibility Area (SRA) is the area of the state where the State of California is financially responsible for the prevention and suppression of wildfires.

The LHMP provides information regarding the total acres burned and the perimeter of past wildland fires. The Plan illustrates fuel rank; this map is based on the California fires and Resources Assessment

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Program fuel rank model. This model ranks the fuel type, slope, brush density (ladder), and tree density (crown cover) present.

As the fuel loading increases in the County the potential for more firefighter and civilian fatalities also increases. There has been a significant improvement in prevention that has dramatically reduced the number of human caused fires. For instance, CAL FIRE/USDA Forest Service Team Teaching in elementary schools has reduced the number of children-caused fires to almost zero within the past 25 years. Lightning is the number one natural threat to Mariposa County and historically it is lightning-caused fires that have been the most costly.

Based on previous occurrences, Mariposa County can expect a wildland fire of over 3,000 acres to occur about every other year, a 60 percent chance per year (12 years out of 20 years have had large wildland fires of over 3,000 acres.)

According to ~~CalFire~~CAL FIRE, ~~CalFire~~CAL FIRE and the U.S. Forest Service responded to over 300 wildland fires in Mariposa County from 1950-2011.

The 2002 Standards of Coverage prepared by Mariposa County Fire Department create a system to increase fire prevention and protection opportunities for property owners. The Standards of Coverage ensure the County is able to maintain its Insurance Services Office ratings. As the ISO ratings number decreases (improvement to fire protection services), the cost of property insurance costs also decrease. Further implementation of the concentric development pattern policies of the General Plan implement the Standards.

Basically, residential development needs to occur in areas where fire protection can be supplied. The County has standards of response time and coverage for fire protection. There are ~~14-15~~ county fire stations countywide ~~and one fire station under construction~~; these include Co# 21 Midpines, Co# 22 MPUD Mariposa, Co# 23 Catheys Valley, Co# 24 Don Pedro, Co# 25 Mt. Bullion Airport, Co# 26 Coulterville, Co # 27 Mormon Bar, Co# 28 Bridgeport (~~planning for construction, 2005~~), Co# 29 Lushmeadows, Co# 31 Greeley Hill, Co# 32 Ponderosa Basin, Co# 33 Fish Camp, Co# 34 El Portal, Co# 36 Hunters Valley, and Co# 37 Bootjack.

To maintain quality fire protection and not lose ISO ratings, development potential is tempered by the available ISO rating. Communities with hydrant systems are classed as ISO Rural 5 or 6. Outlying rural areas are classified as ISO Rural 8, 9, or 10. ISO 8 is within the coverage response time of a fire station. ISO 9 areas have fire protection, but longer response times. Areas rated as ISO 10 are considered unprotected. Appendix ~~C~~B of the General Plan includes the 2005 Mariposa County ISO Rating map. In 2005, the County had an ISO rating of "5."

From ~~the CDF~~CAL FIRE's perspective, the ISO ratings assist with determining mitigation for structures, but the Fire Hazard Preplanning conducted by ~~CDF~~CAL FIRE provides the planning for wildfire. ~~CDF~~CAL FIRE needs to be able to manage fuel breaks through the wildland-urban interface. When new subdivisions are created, ~~CDF~~CAL FIRE's reviews of the project can result in mitigation measures requiring fuel breaks, fire roads, dead end road lengths, increased setback areas from property lines adjacent to USFS lands, and other methods of protecting property from wild fire. Establishing these fire management features requires long-term maintenance ~~and~~ efforts by property owners and CAL FIRE ~~CDF~~. Such requirements are incorporated into the development process.

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The Local Hazard Mitigation Plan, which is incorporated into this Safety Element by reference, contains potential mitigation actions to address potential hazards described within that document, including wildfire. This element contains the goal of implementing the mitigation actions contained in the LHMP.

## 16.1.02 FLOOD HAZARD

Flooding and resulting flood hazards to life and property have been relatively rare in Mariposa. Flooding can cover roads and makes transportation hazardous. Flood hazard areas have been defined by the Department of Housing and Urban Development in the populated areas of Mariposa, El Portal, Coulterville, Wawona, and Hornitos.

In Mariposa County two types of flooding occur; riverine flooding, also known as overbank flooding due to excessive rainfall, and localized flooding. Riverine floodplains range from narrow, confined channels in the steep valleys of mountainous and hill regions to wide, flat areas in plains and coastal regions. Flooding in steep, mountainous areas is usually confined, strikes with less warning time, and has a short duration. Localized flooding may occur outside of recognized drainage channels or delineated floodplains due to a combination of locally heavy precipitation, increased surface runoff, and inadequate facilities for drainage and storm water conveyance.

There have been two major floods within the County's limits since 1950. In January 1997, the largest flood in over 80 years occurred on the Merced River. The river ran over its banks and inundated most of Yosemite Valley; all roads within the valley were under several feet of water. All bridges on the Merced River were covered with water. The cost for damages due to this flood was in excess of \$194 million. In April 2006 floods were not as damaging, but were more widespread throughout the County. The floods caused significant damage to several small communities and led to a landslide that closed State Route 140. This incident had a cost of damage estimate of \$4.1 million.

According to the National Climatic Data Center's Storm Event Database, from 1995 to the present, there have been 28 different flooding events that affected Mariposa County. Damages for the County and additional affected counties was \$3 million.

Floodplains in Mariposa County encompass important resource values. These include natural moderation of floods; water quality maintenance; groundwater recharge; habitat and food for fish, wildlife and plants; open space and natural beauty; outdoor education and recreation; and economic value for agriculture, aquaculture, and forestry. Flooding is increased when obstructions such as sediment, vegetation, and constructed structures and facilities occur in the floodway.

The major areas of concern for flood hazards in Mariposa County are:

- damage to homes and other structures that already exist in floodplains,
- increasing development pressures within floodplains or along watershed drainage channels,
- erosion along established stream channels and sedimentation of instream channels caused by cut and fill activities,
- potential development below dams which might be subject to inundation caused by dam failure, and
- lack of adequate access for emergency equipment during periods of flooding.

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Floods are described in terms of their extent (including the horizontal area affected and the vertical depth of floodwaters) and the related probability of occurrence. Factors ranging from rainfall intensity to availability of sediment for transport contribute to the frequency and severity of riverine flooding.

The magnitude of flood used as the standard for floodplain management in the U.S. is a flood having a probability of occurrence of 1 percent in any given year, also known as the 100-year flood or base flood. The most readily available source of information regarding the 100-year flood is the system of Flood Insurance Rate Maps (FIRM) prepared by FEMA. The FIRMs show 100-year floodplain boundaries for identified flood hazards. These areas are also referred to as Special Flood Hazard Areas and are the basis for flood insurance and floodplain management requirements. FEMA has prepared a FIRM for Mariposa County and prepared a digital FIRM (DFIRM), effective September 25, 2009. Figure C-2 in Appendix C of the LHMP shows the locations of the 100-year floodplains in Mariposa County; per the FEMA Flood Insurance Rate Maps (FIRMs) there are no 500-year floodplains in Mariposa County.

Almost 80 percent of the total annual precipitation for Mariposa County occurs between November and March. The mean annual precipitation for the County is just under 34 inches. In the last 19 years Mariposa County has experienced seven flood events that have caused more than \$10K in damage (a 7 in 19 years chance of occurring.); therefore, the probability of future flooding in Mariposa County is roughly a 37 percent chance per year.

The Local Hazard Mitigation Plan, which is incorporated into this Safety Element by reference, contains potential mitigation actions to address potential hazards described within that document, including flood. This element contains the goal of implementing the mitigation actions contained in the LHMP.

### 16.1.03 GEOLOGIC HAZARDS

The most common geologic hazards in Mariposa County are landslides and rock falls. Much of the landslide activity in Mariposa County is associated with the process of liquefaction, which occurs when very wet sediment behaves like a liquid. Landslide is a general term for the dislodgement and fall of a mass of soil or rocks along a sloped surface or for the dislodged mass itself. The term is used for varying phenomena, including mudflows, mudslides, debris flows, rock falls, rockslides, debris avalanches, debris slides, and slump-earth flows. Landslides may result from a wide range of combinations of natural rock, soil, or artificial fill. The susceptibility of hillside and mountainous areas to landslides depends on variations in geology, topography, vegetation, and weather. Landslides may also occur because of indiscriminate development of sloping ground or the creation of cut-and-fill slopes in areas of unstable or inadequately stable geologic conditions. Landslides can also occur together with other natural hazards, such as seismic activity and wildfires.

In April 2006 one of the most costly landslides in the County occurred on State Route 140; 7.6 miles west of El Portal in the Merced River canyon. Known as the Ferguson Rock Slide, this event completely buried the highway necessitating rerouting of the roadway to the opposite side of the canyon.

Each year small landslides/rockslides affect Mariposa County, though few impact communities or the infrastructure. Historically, landslide/significant soil movement has occurred in the Merced River drainage or along steep cut banks on roads in the central southwest areas of the County.

In 2011 the California Geological Survey developed a landslide map for the State of California which illustrates the susceptibility to deep-seated landslides. The map shows the relative likelihood of deep landsliding based on regional estimates of rock strength and steepness of slopes. Based upon this study,

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much of Mariposa, specifically the western portion of the County, falls into the low landslide susceptibility range. However, the mountainous areas in the eastern portion of the County, along the Merced River canyon and the Yosemite Valley reach the high landslide susceptibility range.

The extent of size of a landslide will vary depending on the proportion of and type of material it carries, the geology of the area, and the initial cause of the slide. Landslides triggered by rainfall are smaller (usually 100-5,000 cubic yards) than those resulting from earthquakes. The hazard potential is greatest in areas with steep slopes and certain geologic and soils conditions, such as expansive soils. The risk of injury or property damage increases when houses and roads are constructed in these areas. ~~These~~ Such hazards can directly injure people and damage property can also block evacuation and emergency response routes (see the discussion of Emergency Management and Evacuation Plans below), or damage structures, such as septic systems, causing them to release pathogens or other hazardous substances to the environment. The hazard potential is greatest in areas with steep slopes and certain geologic and soil conditions, such as expansive soils (clay soils that expand when wet). The risk of injury or property damage increases when houses and roads are constructed in these areas. Human activities may further increase the risk by removing or disturbing soil-stabilizing vegetation to construct building pads and roads.

The County addresses old mine shafts, vents, and adits when new subdivisions are created. Part of the California Environmental Quality Act (CEQA) process is to identify such hazards and incorporate appropriate mitigation measures. Landslides in the foothill and mountain areas of Mariposa County, such as in the steep slopes of the Sierra Nevada, are typically deep-seated landslides which are hundreds to thousands of feet in length or width and only move fractions of an inch per year. However, during heavy rainfall events, a landslide can move several yards a minute or faster.

In 1974 a Five County Seismic Safety Element was developed for the general plans for Fresno, Kings, Madera, Mariposa and Tulare counties. This effort involved a generalized landslide risk appraisal and found that there was minimal risk of landslides caused by earthquakes in areas of low relief. The study found moderate to high risk in the remaining mountainous areas of the County. Most of the soils found in the County have minimal amounts of clay and low shrink-swell potential and do not result in landslide hazards. However, the soils found in the hills along Highway 49 North (HaG-Henneke extremely rock clay loam) have a high risk of sliding and are a special concern. The middle and eastern portions of Yosemite National Park are closer to the Owens Valley Fault and were also found to be at a greater risk of landslide hazards.

Landslides in Mariposa County are generally a secondary hazard resulting from winter storms and heavy rain. Every landslide event reported in Mariposa County has followed a winter storm/rain event, therefore, it is assumed that probability of a future landslide event will be highly tied to winter/rain events. Based upon history of events (7 occurrences in the last 10 years) the probability of a future winter storm/rain induced landslide is a 70 percent chance per year.

Landslides are also a secondary hazard resulting from an earthquake. However, Mariposa has a low susceptibility to earthquake damage and historically there have been no reported earthquake induced landslides in Mariposa County. Therefore, the probability of an earthquake induced landslide is less than 10 percent per year.

The Local Hazard Mitigation Plan, which is incorporated into this Safety Element by reference, contains potential mitigation actions to address potential hazards described within that document, including landslide. This element contains the goal of implementing the mitigation actions contained in the LHMP.

*The County addresses old mine shafts, vents, and adits when new subdivisions are created. Part of the California Environmental Quality Act (CEQA) process is to identify such hazards and incorporate appropriate mitigation measures.*

## 16.1.04 SEISMIC HAZARDS

Historic earthquake activity in Mariposa County has been low. Secondary seismic hazards are listed in Table 16-1 of this Element; no significant damage related to seismic activity has been recorded. Nevertheless, the Foothills Fault System, which terminates in mid-County, is seismically active. This system includes the Bear Mountain fault and the Melones fault. The system is bound on the east by the northward trending Melones fault zone and on the west by the northwestward trending Bear Mountain fault zone. The Foothills Fault system is 360km long and the maximum magnitude earthquake from the system is assumed to be 6.5 on the Richter magnitude scale. The northern portion of the system produced a magnitude 5.7 earthquake near Oroville in 1975. A few days after the Oroville earthquake, a magnitude 4.1 earthquake was centered south of Catheys Valley. This smaller earthquake reportedly caused no damage.

The Five-County Seismic Safety Study considered Mariposa County only in light of its distance from the San Andreas Fault to the west and the Owens Valley Fault System to the east. Based on information known at the time of that study, the major part of Mariposa County was shown in Seismic Zone S-1. Zone S-1 is described as having general features of hard rock, alluvium on valley floors, and weathered bedrock in mountain meadows. The zonal characteristics of Seismic Zone S-1 indicate that there is a low damage potential from generalized ground shaking.

**Table 16-1: Secondary Seismic Hazards**

Hazard	Damage potential
Landslide	Moderate to high
Subsidence/settlement	Minimal
Liquefaction	Minimal
Seiches	Low

Source: Mariposa County, 2005.

Only the mid to eastern portions of Yosemite National Park were shown in Seismic Zones S-2 and S-3, both of which are subject to more severe primary and secondary hazards due to the area's proximity to the Owens Valley Fault Zone.

The LHMP shows the level of ground motion that has an annual probability of being exceeded in 50 years. As such, this map shows that Mariposa County is susceptible to strong shaking, but does not reach the severe to violent shaking that most counties within the state are susceptible to.

Over past years a group called the Working Group on California Earthquake Probabilities (WGCEP), a multi-disciplinary collaboration of scientists and engineers developed earthquake forecasts for California. In 2007, the WGCEP was commissioned to develop the Uniform California Earthquake Rupture Forecast (UCERF) – the first comprehensive framework for comparing earthquake likelihoods throughout all of California. UCERF provided important new information for improving seismic safety engineering, revising building codes, setting insurance rates, and helping communities prepare for inevitable future earthquakes.

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Taking into account the earthquake histories and relative rates of motion on many faults, the UCERF study concluded that there is a probability of more than 99 percent that in the next 30 years California will experience one or more magnitude 6.7 or greater quakes, as illustrated by Figure 4-1 in the LHMP.

This study, however, also illustrates that for Mariposa County the probability is significantly less. For Mariposa County the probability of having a nearby earthquake rupture (within 3 to 4 miles) of 6.7 or greater in the next 30 years is less than .1 percent and in most areas of the County closer to .01 percent.

The Local Hazard Mitigation Plan, which is incorporated into this Safety Element by reference, contains potential mitigation actions to address potential hazards described within that document, including earthquake. This element contains the goal of implementing the mitigation actions contained in the LHMP.

## 16.1.05 AIRPORT SAFETY

The Mariposa-Yosemite Airport, located on Highway 49 North approximately four miles northwest of Mariposa, is the only public airport in Mariposa County. It serves Mariposa County and the eastern half of Madera County. It is classified as a General Aviation Basic Utility Airport and has one runway with an adjacent full-length taxiway. The most common types of aircraft using the airport are single engine fixed-wing general aviation with some use by twin-engine aircraft and helicopters.

The principal concerns associated with the Mariposa-Yosemite Airport are the safety of the general public in over flight areas during take-off and landing and noise compatibility. To reduce the safety risk, the Federal Aviation Administration requires runway protection zones and height limits on structures near airports. In addition, airport planning boundaries define areas near airports within which safety or noise restrictions are imposed. Development around the airport must comply with the Mariposa-Yosemite Airport Comprehensive Land Use Plan and Airport Overlay Zone regulations (Chapter 17.64, Mariposa County Code).

Land use compatibility standards have been established by the Mariposa-Yosemite Airport Comprehensive Land Use Plan to provide consistency with the requirements of the County General Plan and the Mount Bullion Town Planning Area, within which the airport is located. Land uses have been classified into three safety zones surrounding the Airport. These safety zones are intended to protect people from hazards and prevent property damage. They restrict building height and ensure compatible uses in areas surrounding the airport.

To be consistent with the County standard, a 55-Community Noise Equivalent Level (CNEL) noise contour has been established extending approximately 3,200 feet east and 5,700 feet west of State Highway 49. This contour is intended to protect residents from potential harm of excessive noise. There are 250 acres zoned Mountain Home (MH) located between the 55 and 60 CNEL (between Old Toll Road and Mt. Bullion Town Planning Area).

Airport safety issues are critical in order to attain the facility's maximum economic development potential. Mariposa-Yosemite airport is a major component of the County's economic diversity opportunities if its uses are allowed to continue and expand.

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## 16.1.06 NATURALLY-OCCURRING ASBESTOS<sup>4</sup>

Asbestos is a term used for several types of naturally-occurring fibrous minerals found in many parts of California. The most common type of asbestos is chrysotile, but other types are also found in California. Serpentine rock often contains chrysotile asbestos. Serpentine rock, and its parent material, ultramafic rock, is abundant in the Sierra foothills, the Klamath Mountains, and Coast Ranges. Serpentine rock is typically grayish-green to bluish-black in color and may have a shiny appearance.

Asbestos is commonly found in ultramafic rock, including serpentine, and near fault zones. The amount of asbestos that is typically present in these rocks range from less than 1% up to about 25%, and sometimes more. Asbestos is released from ultramafic and serpentine rock when it is broken or crushed. This can happen when cars drive over unpaved roads or driveways which are surfaced with these rocks, when land is graded for building purposes, or at quarrying operations. It is also released naturally through weathering and erosion. Once released from the rock, asbestos can become airborne and may stay in the air for long periods of time.

All types of asbestos are hazardous and may cause lung disease and cancer. Health risks to people are dependent upon their exposure to asbestos. The longer a person is exposed to asbestos and the greater the intensity of the exposure, the greater the chances for a health problem. Asbestos-related disease, such as lung cancer, may not occur for decades after breathing asbestos fibers. Cigarette smoking increases the risk of lung cancer from asbestos exposure.

There are many laws pertaining to asbestos. The California Air Resources Board adopted two statewide control measures which prohibits the use of serpentine or ultramafic rock for unpaved surfacing and controls dust emissions from construction, grading, and surface mining in areas with these rocks.

## 16.1.07 HAZARDOUS MATERIALS AND HAZARDOUS WASTE

Hazardous materials and hazardous waste are a potential hazard to County residents primarily through upsets or accidental releases to the environment. The risk of exposure increases when hazardous materials or waste facilities are located near where people live; when facilities are located in areas that contain other hazards (e.g., floodplains, landslide areas, and wildland fire areas); or when hazardous materials or waste are transported. For these reasons, the State and Federal governments closely regulate the storage, handling, and transport of hazardous materials and waste.

Hazardous materials are generally classified by their primary health effects on humans. Some common types include the following:

- Asphyxiants, substances that interfere with normal breathing and can cause suffocation.
- Flammables, combustibles and explosives.
- Corrosives and irritants causing burns or irritation to body tissues such as eyes, nose, throat, lungs, or skin.

The County Health Department is responsible for enforcing State and Federal hazardous waste regulations and for implementing the County's Comprehensive Hazardous Waste Management Plan is the Certified Unified Program Agency (CUPA) for the County. The CUPA is responsible for implementing six hazardous materials related programs; Hazardous Materials Business Plans, Hazardous Waste Generators, Underground storage tanks, Above Ground Storage Tanks, California Accidental Release

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<sup>4</sup> California Environmental Protection Agency, Air Resources Board, January 2002.

Prevention, and for maintaining the County's Area Plan for Emergency Response to Hazardous Materials Incidents. The Management Plan is a guide for the reduction, treatment, recycling, and disposal of hazardous waste generated in Mariposa County. Mariposa County has a County Landfill and four transfer stations, although none of these sites accept hazardous waste emergency response to hazardous materials related incidents within the County. Because there are no commercial or public hazardous waste treatment, storage, disposal, or recycling facilities within Mariposa County, all hazardous waste is exported out of the County. Much of the hazardous waste produced in Mariposa County is waste oil. The County collects waste oil at the Mariposa County Airport, the Mariposa County Landfill, and the Don Pedro transfer station for recycling. Since there are no hazardous waste treatment facilities in the County, all other waste was exported to the Merced County Landfill.<sup>5</sup>

There are several sites within the County where there have been reported releases of hazardous materials or wastes to the environment. The most common among these are leaking underground storage tanks (USTs) at former or active service stations. The County Health Department has an underground storage tanks program, which is responsible for ensuring that all USTs meet current state regulations and are inspected and permitted on an annual basis.

The County has taken steps to reduce the generation of hazardous waste by businesses and homeowners in the County. Household waste reduction has been addressed through public information and education about conservation and re-use. There are also bi-annual household hazardous waste collection days that have yielded positive results and will continue to be implemented.

#### **Mobile Incident**

Mobile incidents include those that occur on a roadway or a rail facility. For the years 1993-2012, 12 mobile incidents were reported by the County Health Department. In Mariposa County, a mobile hazardous material event is most likely to occur along highways 140 and 49. Trucks and cars that use these transportation corridors commonly carry a variety of hazardous materials, including gasoline, other petroleum products, and other chemicals known to cause human health problems, including fertilizers, pesticides, and industrial chemicals. Sections of State Route 132, State Route 120, and State Route 41 also run through Mariposa County. A hazardous material event could potentially occur on one of these routes, but highways 140 and 49 are of greatest concern to the County.

Comprehensive information on the probability and magnitude of a hazardous material event along transportation corridors is not available. Wide variations among the characteristics of hazardous material sources and among the materials themselves make such an evaluation difficult. As such, the potential extent of a hazardous material mobile incident is unknown.

Based on previous occurrences, mobile hazardous material events are relatively common, and occur almost every year (12 occurrences in 11 years). While incidents do not occur every year, the average number of events by year led to a probability of 100 percent likely per year.

#### **Fixed Incident**

The release of hazardous substances from stationary sources can be caused by human error, equipment failure, intentional dumping, acts of terrorism, or natural phenomena. Earthquakes pose a particular risk, because they can damage or destroy facilities containing hazardous substances. The threat posed by a hazardous-material event can be amplified by restricted access, reduced fire suppression and spill containment capability, and even complete cutoff of response personnel and equipment.

<sup>5</sup> This paragraph was altered for clarity on recommendation of the Health Department after Board initiation of amendment.

Mariposa County is home to many businesses that use and store hazardous materials and generate hazardous wastes. Most of them are small to mid-sized operations such as automotive shops and maintenance yards. Gas stations, public facilities, fire stations, and water and wastewater treatment operations also comprise a large portion of regulated facilities with the potential for hazardous material releases. Much of the hazardous waste produced in Mariposa County is waste oil. The County collects waste oil at the Mariposa County Airport, the Mariposa County Landfill, and the Don Pedro transfer station for recycling.

There are no hazardous waste treatment facilities in the County, therefore all other hazardous materials must be disposed of through a licensed hazardous waste hauler or through a County Household Hazardous Waste Collection event. The County has two Permanent Household Hazardous Waste Collection Facilities, one at the County landfill and one at the Don Pedro transfer station. These facilities are severely limited by funding and therefore there is still a large unmet need for household hazardous waste disposal in Mariposa County.

According to the Mariposa County Health Department, 68 fixed site incidents occurred between 1993-2012.

Comprehensive information on magnitude of a hazardous material event at fixed locations is not available due to unpredictable factors such as equipment maintenance, operator training, natural phenomena, and weather. As such, the extent of a potential hazardous material fixed incident is unknown.

Since 2002 Mariposa County has experienced 47 hazardous material spills at a fixed location. Based on previous occurrences, fixed hazardous material events are very common and are expected to continue to occur yearly (47 occurrences in 11 years). The potential for a hazardous material spill is greater than 100 percent likely per year.

The Local Hazard Mitigation Plan, which is incorporated into this Safety Element by reference, contains potential mitigation actions to address potential hazards described within that document, including hazardous material. This element contains the goal of implementing the mitigation actions contained in the LHMP.

## 16.1.08 EMERGENCY MANAGEMENT AND EVACUATION PLANS

Mariposa County manages and coordinates its emergency response activities in conjunction with the California State Standardized Emergency Management System (SEMS). The State Office of Emergency Services administers the SEMS, which provides a framework for coordinating multi-agency emergency response. Among other things, SEMS incorporates mutual aid agreements, establishes lines of communication during emergencies, and standardizes incident command structures. By participating in SEMS, Mariposa County is eligible for reimbursement of response costs under disaster assistance programs.

The Draft Evacuation Plan of Mariposa County, which is part of the County's Draft Emergency Plan (August 2003), which and also includes initial response operations, extended response operations, and recovery operations, and provides guidance for field responders for initial response to emergencies. The Evacuation Plan is updated annually by the local Office of Emergency Services and Sheriff's Department. In depth evacuation staging areas and sheltering locations were updated in 2012 in a cooperative effort

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with the American Red Cross. The Plan includes a general response checklist for the initial response operations at the field level in order to standardize emergency response procedures. The field response level is where emergency response personnel and resources, under the command of an appropriate authority, carry out tactical decisions and activities in direct response to an incident or threat. SEMS requires the use of an Incident Command System (ICS) and the Incident Commander to coordinate with the Emergency Operations Center.

In addition, the Evacuation Plan provides an evacuation procedure including the establishment of evacuation staging areas. Evacuation is a short-term method to gather evacuees in the case of a fire, flood, or other disaster. The need for an evacuation shall be determined by an authority having jurisdiction. Predetermined sites will be used as staging areas for evacuees and citizens seeking information.

The Evacuation Plan provides for emergency response agencies, such as the Sheriff's Office, County Fire/OES, Human Services, Red Cross, and others as appropriate, to set up a public information center at the sites and continue the operation until the particular incident is under control. If an actual shelter operation becomes necessary, the Evacuation Plan provides for the Department of Human Services to request and coordinate the opening of congregate care facilities with the Merced/Mariposa Chapter of the American Red Cross. The County Department of Human Services Staff would also contact the Salvation Army and other organizations involved in disaster services.

The Mariposa County Fairgrounds has been determined to be the main shelter site for large-scale disasters. If that location is utilized by emergency operations, it may not be available for shelter use. In that instance, other safe locations will need to be found. The *Draft Evacuation Plan* provides Emergency Alert System (EAS) Guidelines, which include the procedures from Emergency Communications Areas (EC Areas) that cover the Mariposa Operational Area. They are intended to standardize the format for communicating basic information needed by the public in an emergency.

### **Mapping**

*On July 7 2015, the Board of Supervisors authorized the distribution (and regular updating) of the Mariposa County Road Atlas for First Responders. This Atlas was prepared to provide first responders with current, accurate and comprehensive information for use in responding to emergencies as quickly as possible and in planning for emergency evacuations. The value of this Atlas is unprecedented as there was previously no other single data source available in the county which contains all of the information potentially needed by a first responder during an emergency. It is intended that the Atlas information be available to local first responders as well as to strike teams from out of the county, assisting during fire season.*

*This atlas is available in hard copy, and georeferenced PDFs of the Atlas are also available for use on tablets and smartphones.*

*Preparation of the Atlas was a cooperative effort and included input and data from many sources, including Madera County, Merced County, Stanislaus County, Tuolumne County, the Mariposa County Agricultural Commissioner, the Mariposa County Health Department, the Mariposa County Planning Department, the Mariposa County Public Works Department, the Mariposa County Sheriff's Department, the Mariposa County Surveyor, the Mariposa County SCOPE Program, the Mariposa County Technical Services, the Bureau of Land Management (BLM), CalFire CAL FIRE, the National Park Service (NPS), the United States Forest Service (USFS) Sierra National Forest, the United States Forest Service (USFS) Stanislaus National Forest and the United States Army Corps of Engineers.*

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The Atlas contains locational information regarding all county parcels, all roads in county (regardless of maintenance) and road names, parcel addresses (if assigned), drainages, named rapids on the Merced River, landmarks, fire hydrants, structures, locked gates, bridges with weight limits, narrow roads, boundaries of USNPS, USFS and BLM lands and other topographic features. The Atlas also contains an index, mileage table and emergency water source information.

## 16.1.09 WINTER STORMS

The time period between mid-autumn to mid-spring comprises the rainy season for California's Central Valley (roughly October to April). During these months winter storms, characterized by freezing temperatures, snowfall and high winds, may occur. Winter storms can lead to high winds. Winter storm events from 2000 to the present (2015), as identified by the National Climatic Data Base, were characterized by heavy snowfall. However, strong winds have caused damage. There are six events that resulted in property damage (one even included crop damage as well); five were wind events and the sixth was a winter storm event that included wind.

The LHMP ~~Update~~ shows that the entire County is susceptible to the hazards of winter storms. The areas, however, that are most susceptible to all aspects of winter storm, including freezing temperatures, snowfall and high winds, are the higher elevations in the eastern half of the County.

All of Mariposa County experiences temperatures of 32 degrees F or below. The coldest portions of the County, on average, experience more than 121 days per year of freeze, while the warmest portions of the County experience less than 30 days of freeze per year. Areas in the County most susceptible to snowfall can average over 72 inches per year, while the areas least susceptible average less than 3 inches per year.

The areas in the County most susceptible to wind experience between 41 and 51 days of high wind per year; the less windy areas experience between 31 and 41 days of high wind per year.

Power disruption is a sub-hazard of a winter storm. Minor power outages from time to time are inevitable; more significant incidents are typically caused by winter storms. Disruptions that have affected Mariposa County have been caused by winter storm events. An event in January 2010 left 10,000 residents without power blacking out over 50% of the County and a March 2011 snow storm forced a closure of Yosemite National Park. Nine-thousand residents in Mariposa and Madera counties were left without power, some for hours and some for days.

The probability of a major winter storm is roughly 71 percent per year. Since every winter storm does not lead to a major power disruption the probability of future events is unknown, but it is less than a 71 percent chance per year.

The Local Hazard Mitigation Plan, which is incorporated into this Safety Element by reference, contains potential mitigation actions to address potential hazards described within that document, including winter storms. This element contains the goal of implementing the mitigation actions contained in the LHMP.

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## 16.1.10 LOCAL HAZARD MITIGATION PLAN MITIGATION STRATEGY

The LHMP includes a mitigation strategy which identifies four steps to be taken in accordance with the federal Disaster Mitigation Act. They are identifying local mitigation goals; identification and analysis of mitigation actions; implementation of mitigation actions; and identification and analysis of mitigation actions for National Flood Insurance Program (NFIP) compliance. Mariposa County does not currently participate in the NFIP.

### Local Mitigation Goals:

The LHMP shows the mitigation goals designed to reduce or avoid long-term vulnerability to each hazard included in the vulnerability analysis of the LHMP, including flood, hazardous material event, landslide (including earthquake), wildlife, and winter storm (including power disruption). (Note: These issues identified in the LHMP are in addition to, or augment discussion of, the issues identified and discussed in other sections of the Safety Element.) The LHMP identifies five broad-based public policy statements upon which the mitigation goals are based:

- Represent basic desires of the community;
- Encompass all aspects of community, public and private;
- Are nonspecific, in that they refer to the quality (not the quantity) of the outcome;
- Are future-oriented, in that they are achievable in the future; and
- Are time independent, in that they are not scheduled events

### Mitigation Goals:

Goal No.1: Reduce the possibility of damages and losses due to seismic hazards, landslide and ground shaking.

Goal No. 2 Reduce the possibility of damages and losses due to weather-related hazards, including flood and winter storms.

Goal No. 3 Reduce the possibility of damages and losses due to other hazards, including wildfire, power disruption and hazardous material event.

Goal No. 4 Reduce the possibility of damages and losses due to public health emergencies.

### Mitigation Actions:

Mitigation actions are activities, measures, or projects that help achieve the goals of the mitigation plan. Mitigation actions are usually grouped into five broad categories: prevention, property protection, public education and awareness, natural resource protection, and structural projects.

The LHMP includes potential mitigation actions that used the following criteria:

- 2011 Hazard Mitigation Assistance project criteria eligibility
- Disaster Mitigation Act 2000 requirements for the identification and analysis of mitigations actions
- Results of the 2014 LHMP vulnerability analysis

For each potential mitigation action, the following information is listed in the adopted LHMP: mitigation action description; mitigation action category; hazard(s) addressed; and type of development affected by mitigation action.

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**Implementation of Mitigation Actions:**

Five criterion were considered to determine which mitigation actions should become part of the County's Mitigation Plan. They are as follows:

- A. A local jurisdiction department or responsible agency currently exists or can be identified
- B. The action can be implemented during the 5-year lifespan of the LHMP
- C. The action may reduce expected future damages and losses (a positive cost-benefit analysis appears likely)
- D. The action mitigates a high-risk hazard
- E. The action mitigates multiple hazards

The Mitigation Action Plan consists of a description of each mitigation action; prioritization criteria for selecting each action; the potential facility or facilities to be mitigated by the action (if known); the department or agency responsible for implementing the action; and the implementation time frame for the action. Each of the mitigation actions met prioritizing criteria shown in B, C, and E above. Timeframes for implementation range from 12 months to 72 months from the adoption date of the LHMP.

Identification and Analysis of Mitigation Actions: NFIP Compliance:

Mariposa County does not participate in the National Flood Insurance Program (NFIP). The County is mapped by FEMA for flood involvement though it has never participated in NFIP. The governing body, departments, and identified communities have not shown repetitive loss nor have they shown significant damage due to rising water. Severe flooding has been documented along the Merced River, though due to its status as a Wild and Scenic River very little development can take place.

**Monitoring, Evaluating, and Updating the LHMP:**

**Monitoring the Plan**

The Mariposa Office of Emergency Services (OES), or an identified point of contact will continue to coordinate all local efforts to monitor, evaluate and update the LHMP. This Safety Element will be reviewed in conjunction with the LHMP and updated and amended accordingly and if necessary, at five-year intervals.

The local Planning Committee for the LHMP will have the opportunity to evaluate the Plan through an Annual Review Questionnaire every 12 months under the auspices of the Mariposa OES, or a point of contact. Responses to questionnaires will help determine if the LHMP needs updating to address new or more threatening hazards, new technical reports or findings, and new or better-defined mitigation projects.

**Evaluating the Plan**

Evaluation of progress can be achieved by monitoring changes in vulnerabilities identified in the Plan. Changes in vulnerability can be identified by noting:

- Decreased vulnerability as a result of implementing recommended actions;
- Increased vulnerability as a result of failed or ineffective mitigation actions; and/or
- Increased vulnerability as a result of new development (and/or annexation).

Additionally, mitigation actions will be monitored and evaluated through the use of the Mitigation Project Progress Report. During each annual review, each department or agency currently administering a mitigation project will submit a progress report to Mariposa County OES to review and evaluate. For

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projects that are being funded by a FEMA mitigation grant, FEMA quarterly reports may be used as the preferred reporting tool. The progress report will discuss the current status of the mitigation project, including any changes made to the project, identify implementation problems, and describe appropriate strategies to overcome them. After considering the findings of the submitted progress reports, Mariposa County OES may request that the implementing department or agency meet to discuss project conditions.

**Updating the Plan**

In addition to the Annual Review Questionnaire, Mitigation Project Progress Report or FEMA quarterly report, and any annual meetings, the Planning Committee will meet to update the LHMP every five years.

## 16.2 GENERAL PLAN IMPLEMENTATION

**Goal 16-1: Enforce development standards lessening fire hazard danger.**

*Policy 16-1a:* Non-residential development activity shall be within acceptable fire department response time limits and coverage areas; or a development project shall provide its own on-site fire protection facilities and firefighters as approved by the County Fire Department.<sup>6</sup>

*Implementation Measure 16-1a(1):* Establish appropriate standards for development projects wishing to provide alternative, on-site fire protection services.

Timing: Intermediate-term.  
Responsibility: Fire Department.  
Fiscal Impact: Staff time and preparation costs to develop appropriate fire safety standards.  
Consequences: Alternative means for developers to satisfy fire protection safety.

*Policy 16-1b:* Establish attainable standards for new subdivisions and development for fire safety.

*Implementation Measure 16-1b(1):* Enact amendments to the Mariposa County Code to implement fire safe standards. The ordinance(s) shall include the following requirements:

- Minimum construction standards or template (width, grade, and surfacing) for public roads, private roads, and private driveways sufficient for emergency vehicles access.
- Requirements for ~~a~~-connecting and maintaining a circulation system within a road system using roads connecting through other parcels or developed secondary routes dedicated for emergency access.

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<sup>6</sup> Russ Marks, County Surveyor (Public Works Department) proposes amending the concluding text in Policy 16-1a to read as follows (deletion shown in ~~double strikethrough~~ type; addition shown in double underline type "...as approved by the ~~County Fire Department~~ local agency fire department." Mr. Marks proposes this because he states that County Fire does not have authority within MPUD unless asked. Staff finds this is a minor correction to text and is not a significant departure from the mandate given by the Board in its resolution to initiate the amendment to the Safety Element. OPTIONS FOR CONSIDERATION:

1. Do not change text as recommended by the County Surveyor.
2. Amend text as described above.

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- ~~Minimum standards for~~ emergency water supply standards for firefighting purposes.
  - Standards for siting of flammables.
  - Signage and address standards providing easy identification of roads, driveways and buildings.
  - Site design specifications for buildings in locations of extremely high fire danger.

Timing: Short-term.

Responsibility: Fire Department.

Fiscal Impact: Staff resource cost and possible outside costs for ordinance preparation and hearing process.

Consequences: Fire protection.

*Implementation Measure 16-1b(2):* Implement the countywide ~~Wildfire Hazard Safety Plan~~ Community Wildfire Protection Plan, which includes standards for fire prevention, fuel management, and fire suppression, including but not limited to the following:

- Requirements for development in areas with high and very high fuel hazards, including adequate emergency access and water supply; “defensible space” standards; and the use of fire-resistant exterior construction materials, such as fire safe roofing and fire-resistant plants.
- Wildland fire management activities such as controlled burning, fuel removal, vegetation management, and firebreaks.
- Specific fire protection and prevention requirements for hillside, open space, and rural area development.
- Public wildfire safety education through the Mariposa County Fire Safe Council (MFSC).
- Standards specific to geographic areas in the County based on fire hazard potential.

Timing: Intermediate-term.

Responsibility: Fire Department.

Fiscal Impact: Staff resource cost and possible outside costs .

Consequences: Fire protection

*Policy 16-1c:* All subdivisions and development projects shall conform to adopted fire code and other fire prevention regulations.

*Implementation Measure 16-1c(1):* Amend, if necessary, the County Subdivision code to ensure formal review of subdivisions by the Fire Agencies.

Timing: Short-term.

Responsibility: Mariposa County Planning Department, Fire Department.

Fiscal Impact: Initial Staff time and ongoing review time; to be incorporated into the update of Title 17, Zoning.

Consequences: Fire protection.

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**Goal 16-2: Utilize the most efficient multi-level fire prevention and protection system.**

*Policy 16-2a:* Develop and maintain cooperative arrangements with ~~CDF-CAL FIRE~~ to maximize the efficient deployment of fire prevention and protection resources.

*Implementation Measure 16-2a(1):* Cooperate with ~~the CDF-CAL FIRE~~ in providing advice to landowners on vegetation management programs keeping forest fuel values at acceptable levels.

Timing: Ongoing.  
Responsibility: Fire Department.  
Fiscal Impact: Ongoing.  
Consequences: Fire protection.

*Policy 16-2b:* Support programs to involve and educate County residents in fire prevention.

*Implementation Measure 16-2b(1):* Continue to work with the Mariposa County Fire Safe Council or other appropriate agency or group as a major avenue for educating residents and coordinating citizen efforts in fire prevention.

Timing: Ongoing.  
Responsibility: Fire Department.  
Fiscal Impact: Staff time and incidental costs.  
Consequences: Fire protection.

**Goal 16-3: Sustain adequate fire protection service levels.**

*Policy 16-3a:* Adopt a strategic plan for fire safety.

*Implementation Measure 16-3a(1):* Adopt a strategic plan for fire safety incorporating the Standards of Cover for the Mariposa County Fire Department identifying current and future fire service areas and standards.

Timing: Short-term.  
Responsibility: Fire Department.  
Fiscal Impact: Staff time and preparation costs.  
Consequences: Fire protection.

*Implementation Measure 16-3a(2):* The strategic plan shall identify the long term capital improvements, rolling stock, equipment and supplies, and other major purchase items needed to maintain and improve fire safety.

Timing: Short-term.  
Responsibility: Fire Department.  
Fiscal Impact: Staff time and preparation costs.  
Consequences: Fire protection.

*Implementation Measure 16-3a(3):* The strategic plan shall identify thresholds and capital facility needs for each of the existing and future service areas.

Timing: Short-term.  
Responsibility: Fire Department.  
Fiscal Impact: Staff time and preparation costs.  
Consequences: Fire protection.

*Implementation Measure 16-3a(4):* Revise and update the “Standards of Cover” and its service area maps.

Timing: Short-term.  
Responsibility: Fire Department.  
Fiscal Impact: Staff time and preparation costs.  
Consequences: Fire protection.

*Policy 16-3b:* Increase emergency response personnel training opportunities.

*Implementation Measure 16-3b(1):* Enable facilities for “heavy” fire suppression helicopter operations at the Mariposa Yosemite Airport.

Timing: Short-term.  
Responsibility: Fire Department and Public Works.  
Fiscal Impact: Capital improvement—potential construction costs; ongoing operating costs.  
Consequences: Fire protection.

**Goal 16-4: Reduce the risk of flood loss to preserve property and save lives.**

*Policy 16-4a:* Control development in flood hazard areas.

*Policy 16-4b:* All new construction in a flood hazard area shall be flood proofed.

*Implementation Measure 16-4a and b(1):* Adopt a comprehensive County Flood Protection Ordinance that includes at a minimum the following requirements:

- All structures in flood hazard areas are constructed with materials and equipment resistant to flood damage.
- All mobile homes shall be anchored by providing over-the-top and frame ties to ground anchors.
- All new and replacement water systems shall be designed to prevent infiltration of floodwaters into the system.
- On-site sewage disposal systems shall be located to avoid impairment to them or contamination from them during flooding.

Timing: Short-term.

Responsibility: Mariposa County Planning Department, Public Works Department.

Fiscal Impact: Cost of ordinance preparation.

Consequences: Increased preparation and protection from flood event.

*Policy 16-4c:* Control development in dam inundation areas.

*Implementation Measure 16-4c(1):* The update to Title 17, Mariposa County Code, Zoning shall include a dam inundation overlay district.

Timing: Intermediate-term.

Responsibility: Mariposa County Planning Department.

Fiscal Impact: Part of the development of updates to Title 17, Mariposa County Code, Zoning.

Consequences: Increased preparation and protection from flood event.

**Goal 16-5: Minimize the impact of floods on the people and businesses of Mariposa County.**

*Policy 16-5a:* Ensure adequate capacity is maintained in flood plains and drainage channels to handle flood flows.

*Implementation Measure 16-5a(1):* Enact an ordinance to require a hydrologic evaluation for subdivisions and development projects located within flood plains and drainage channels to ensure potential flood hazard is minimized.

Timing: Short-term.

Responsibility: Public Works Department.

Fiscal Impact: Ordinance development costs.

Consequences: Increased preparation and protection from flood event.

*Implementation Measure 16-5a(2):* Subdivision parcel and final maps and building permit site plans shall provide for on-site detention for normal storm water flows in excess of the capacity of natural drainage courses receiving runoff from the development.

Timing: Ongoing review standard.

Responsibility: Building Department.

Fiscal Impact: Has the potential to add cost to project review and site development.

Consequences: Minimized flooding impacts from increased development.

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*Policy 16-5b:* Minimize the loss of access across floodways and in flood hazard areas.

*Implementation Measure 16-5b(1):* Amend Title 16 of the Mariposa County Code, Subdivisions, to require subdivision parcels and development projects to provide at least one means of vehicular access not crossing a flood hazard area, or be constructed above the maximum flood elevation.

Timing: Short-term.  
Responsibility: Mariposa County Planning Department.  
Fiscal Impact: Incorporated into the costs of updating Title 17.  
Consequences: Increased preparation and protection from flood event.

*Policy 16-5c:* Water retention facilities shall be constructed to prevent flooding and to ensure that pre-development off- and on-site surface flows are maintained with no net increase.

*Implementation Measure 16-5c(1):* Enact an ordinance requiring ponds and facilities for retaining water to be designed to prevent downstream flooding.

Timing: Short-term.  
Responsibility: Building Department and Director of Public Works.  
Fiscal Impact: Ordinance development.  
Consequences: Increased preparation and protection from flood event.

**Goal 16-6: Preserve the values of floodplains as natural features.**

*Policy 16-6a:* Retain flood plains within project design in such a way as to ensure that no net change occurs upstream or downstream.

*Implementation Measure 16-6a(1):* Amend Title 17 of the Mariposa County Code, Zoning, to require flood and drainage channels to be designed into landscaping plans.

Timing: Short-term.  
Responsibility: Mariposa County Planning Department.  
Fiscal Impact: Incorporated into the update of Mariposa County Code Title 17.  
Consequences: Minimized flooding impacts from increased development.

*Implementation Measure 16-6a(2):* Land use maps shall maintain low intensity zoning in floodplain areas.

Timing: Short-term.  
Responsibility: Mariposa County Planning Department.  
Fiscal Impact: Ongoing.  
Consequences: Minimized flooding impacts from increased development.

**Goal 16-7: Protect life and property endangered by landslides and rockfalls.**

*Policy 16-7a:* Reduce risk of injury or property damage by landslides and rockfalls.

*Policy 16-7b:* Avoid development in geologic hazard areas.

*Implementation Measure 16-7a and b(1):* Site inspections and maps (topographic, soils and geologic) will be used to identify geologic hazard areas (e.g., landslide-prone areas) in the County. The maps will be retained and available in the County Planning Department.

Timing: Ongoing review standard.  
Responsibility: Mariposa County Planning Department.  
Fiscal Impact: Staff time and administrative costs.  
Consequences: Public safety.

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*Implementation Measure 16-7a and b(2):* The County Building Official will review plans for new construction in geologic hazard areas and will determine whether engineering studies, including structural and soils analyses, are required prior to issuing permits for construction in these areas.

Timing: Ongoing review standard.  
Responsibility: Mariposa County Planning Department, Building Department.  
Fiscal Impact: Staff time and administrative costs.  
Consequences: Public safety.

**Goal 16-8: Protect life and property endangered by seismic activity.**

*Policy 16-8a:* Develop and enforce standards to reduce risk of injury or property damage by seismic activity.

*Implementation Measure 16-8a(1):* New development projects in or near a seismic risk area (fault zone) or geologic hazard area shall be discouraged or designed to such standards as to minimize or eliminate such risk.

Timing: Ongoing review standard.  
Responsibility: Mariposa County Planning Department, Building Department.  
Fiscal Impact: Staff time and administrative costs.  
Consequences: Public safety.

*Policy 16-8b:* Avoid seismic dangers for public facility construction.

*Implementation Measure 16-8b(1):* Public facilities shall be sited to avoid known seismic dangers and shall be constructed to meet seismic safety requirements of ~~the Uniform Building Code~~ Title 24, California Code of Regulations.

Timing: Ongoing review standard.  
Responsibility: Building Department.  
Fiscal Impact: Staff time and administrative costs.  
Consequences: Public safety.

**Goal 16-9: Engineer and locate development in areas not endangered by secondary seismic effect to protect life and property.**

*Policy 16-9a:* Develop and enforce standards to reduce risk of injury or property damage by secondary effects of seismic activity.

*Implementation Measure 16-9a(1):* Review development and subdivision proposals to avoid building sites in areas subject to secondary seismic effects.

Timing: Ongoing review standard.  
Responsibility: Mariposa County Planning Department.  
Fiscal Impact: Staff time and administrative costs.  
Consequences: Public safety.

**Goal 16-10: Provide a safe airport environment to ensure its success and expansion.**

*Policy 16-10a:* Implement the Mariposa-Yosemite Airport Comprehensive Land Use Plan.

*Implementation Measure 16-10a(1):* No land development incompatible with the airport land use plan shall be permitted in the airport's area of influence.

Timing: Ongoing review standard.  
Responsibility: Mariposa County Planning Department; Planning Commission.  
Fiscal Impact: Staff time and administrative costs.

Consequences: Airport protection.

**Goal 16-11: Manage hazardous materials and hazardous waste to prevent unnecessary exposure and risk.**

*Policy 16-11a:* Maintain the effectiveness of the Comprehensive Hazardous Waste Management Plan.

*Implementation Measure 16-11a(1):* Enforce the requirements of the County’s Comprehensive Hazardous Waste Management Plan.

Timing: Ongoing review standard.  
Responsibility: Mariposa County Health Department.  
Fiscal Impact: Staff time and administrative costs.  
Consequences: Public safety.

**Goal 16-12: Minimize risks to people and property during emergencies through pre-planning.**

*Policy 16-12a:* Coordinate local and State emergency response efforts.

*Implementation Measure 16-12a(1):* Review and update the Mariposa County Emergency Management Plan every five years.

Timing: Ongoing.  
Responsibility: Emergency Services.  
Fiscal Impact: Staff time, administrative costs, training costs.  
Consequences: Enhanced emergency preparation.

*Implementation Measure 16-12a(2):* Undertake full operation emergency situation drills and training periodically.

Timing: Ongoing.  
Responsibility: Emergency services.  
Fiscal Impact: Creates a mandated program with higher than normal training costs.  
Consequences: Enhanced emergency preparation