Staff Note: This version of the General Plan Public Safety Element applicable outside the Coastal Zone was approved by the Board of Supervisors on September 15, 2020. The Objectives, Policies, and Programs are applicable countywide. A separate version of the General Plan/Local Coastal Plan (LCP) Public Safety Element is applicable inside the Coastal Zone. Where any conflicts exist inside the Coastal Zone, the LCP Objectives, Policies, or Programs shall apply.

Chapter 6

PUBLIC SAFETY ELEMENT

- **SEISMIC HAZARDS: EARTHQUAKES, TSUNAMI, LIQUEFACTION**
- **CLIMATE CHANGE: RESILIENCE AND ADAPTATION**
- **SLOPE STABILITY, LANDSLIDES AND OTHER ADVERSE SOIL CONDITIONS**
- **COASTAL BLUFFS AND BEACHES**
- **GRADING AND EROSION**
- **FLOOD HAZARDS**
- **WILDLAND AND URBAN FIRE HAZARDS**
- **AIR QUALITY**
- **HAZARDOUS AND TOXIC MATERIALS**
- **HAZARDOUS WASTE MANAGEMENT**
- **ELECTRIC AND MAGNETIC ENERGY, AND NEW ELECTRIC FACILITIES**
- **ENVIRONMENTAL JUSTICE**

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1 ***Note: See the version of the Public Safety Element effective inside the Coastal Zone for current policies in effect regarding coastal bluffs and beaches.***

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AUTHORITY, REQUIREMENTS AND PURPOSE

The requirements for a Safety Element are established by State Planning law (Section 65302 (g)) as follows:

> "A safety element for the protection of the community from any unreasonable risks associated with the effects of seismically induced surface rupture, ground shaking, ground failure, tsunami, seiche, and dam failure; slope instability leading to mudslides and landslides; subsidence; liquefaction; and other geologic hazards known to the legislative body; flooding; and wildland and urban fires. The safety element shall include mapping of known seismic and other geologic hazards. It shall also address evacuation routes, peakload water supply requirements, and minimum road widths and clearances around structures, as those items relate to identified fire and geologic hazards.

Safety Elements revised after January 2009 must reference or incorporate: FEMA flood maps, information about flood hazards available from the Army Corp of Engineers, dam failure maps from the Department of Water Resources, maps of levee protection zones, identification of areas subject to inundation in the event of failure of levees or floodwalls, historical data on flooding including areas vulnerable to flooding after wildfires and areas of repetitive loss due to floods, and identify existing and planned development in flood hazard zones. Goals, policies, objectives and feasible implementation measures related to protecting the community from unreasonable risks of flooding are required to be established, with an emphasis on avoiding risks to new development, maintaining the structural and operational integrity of essential public facilities during flooding, locating new essential public facilities outside of flood hazard zone, and establishing cooperative working relationships among public agencies with responsibility for flood protection.

Safety Elements revised after January 2014 must address the risk of fire for land classified as state responsibility areas, and land classified as very high fire hazard severity zones. The Element must reference or incorporate: fire hazard severity zone maps available from the State Department of Forestry and Fire Protection, historical data about wildfire hazard areas from the US Geological Survey and local records, identification of the general location of existing and planned uses of land within very high fire hazard severity zones and in state responsibility areas, and identification of local, state and federal agencies with responsibility for fire protection, including special districts and local offices of emergency services. As with flood hazards, goals, policies, objectives and feasible implementation measures for protecting the community from unreasonable risks of fire are required to be established, for the same factors identified in the preceding paragraph.

Safety Elements revised after January 2017 must address climate change and resiliency strategies and must include a vulnerability assessment that identifies the risks that climate changes poses to the local jurisdiction and geographic areas at risk and include information from other agencies to assist with developing the vulnerability assessment. A set of adaptation and resilience goals, policies, objectives, and feasible strategies and implementation measures to avoid or minimize climate change impacts must be included, especially for new land uses, essential public facilities, and public infrastructure. "Natural infrastructure" that may feasibly be used in adaptation projects to increase resiliency, such as existing or restored natural features and ecosystem processes, are to be identified. Floodplain and wetlands restoration or preservation, combining levees with restored natural systems to reduce flood risk, and urban tree planting to mitigate high heat days and reduce greenhouse gas effects are examples.

Adopted Local Hazard Mitigation Plans and adopted floodplain management ordinances that have been approved by FEMA can be attached or referenced in the General Plan to comply with certain Safety Element requirements. California Government Code Section 65302(g)(4)(D)(ii) allows local governments to summarize and incorporate by reference a climate adaptation plan or document to meet Safety Element requirements if the material substantially complies or is substantially equivalent. Santa Cruz County

approved a Climate Action Strategy in February 2013 and adopted an updated Local Hazard Mitigation Plan in June 2016, and these documents substantially comply with the State's new climate change requirements for Safety Elements. These documents are hereby incorporated by reference into the General Plan. A summary showing how the requirements are met is provided within the Climate Change: Resilience and Adaptation section.

Note: Removed paragraph introducing updated coastal bluffs and beaches policies

In 2016, the State of California also adopted requirements for General Plans to address environmental justice for disadvantaged communities. Disadvantaged communities are defined as low-income areas (at or below 80% of area median household income) that are disproportionately affected by environmental pollution and other hazards that can lead to negative health effects, exposure or environmental degradation. While the unincorporated area of Santa Cruz County does not contain communities that meet the technical definition, certain sub-area of unincorporated Santa Cruz County can at times be of similar status as a disadvantaged community, depending upon how the geographic limits are defined and upon economic circumstances of the area population as the economy and housing market changes. This Safety Element therefore incorporates environmental justice requirements and generally addresses these unique or compounded health risks for these certain sub-areas that may at times qualify as disadvantaged communities, including policies regarding promotion of civil engagement in public decision making, and prioritization of improvements and programs that address the needs of disadvantaged communities.

SUMMARY OF GREATEST SHORT-TERM RISKS TO 2050, AND INTERMEDIATE- TO LONG-TERM RISKS TO 2100

The Climate Action Strategy (CAS) Vulnerability Assessment concluded that over the next 30+ years to 2050, it is expected that the highest risks to the County of Santa Cruz will come from:

- Potential water shortages due to the combination of increasing temperatures, changes in precipitation patterns increasing climatic water deficit, increased saltwater intrusion, decreased groundwater recharge, and higher demand. This has a very high probability of occurrence and also significant (high) consequences.
- Rising water table beneath the Rio Del Mar Esplanade is already an issue. As sea level continues to rise, the present problems will be exacerbated. The consequence of a continuing water table rise on commercial and residential structures and infrastructure, including the wastewater pump station is high, and the likelihood of this taking place in the immediate future is high.
- Potential increase in future coastal storm frequency and/or intensity will increase cliff retreat rates as well as cause potential damage to oceanfront property or public infrastructure. The coastlines of northern California, Oregon and Washington have experienced increasingly intense winter storms and greater wave heights over the last 25 years, both of which may be leading to more severe winter erosion (Allan and Komar, 2000). The consequence of coastal bluff erosion is high due to the extent of high-value public and private improvements (infrastructure, structures, etc.)
- Flooding in Santa Cruz County has occurred in each of the primary drainages and will continue to occur in the future given certain sets of meteorological conditions. Previous occurrences are well documented for all primary drainages with the exception of Aptos Creek, which is not gauged. In addition, low-lying areas such as Rio Del Mar Esplanade/Flats will experience more frequent flooding and inundation from sea level rise and increased wave heights. As a result, the consequence would be high in terms of structural and economic loss, with the probability of such an event occurring also being high.
- Groundwater extraction rates from the Pajaro River Valley groundwater basin have exceeded sustainable pumping rates for decades, causing groundwater levels to drop significantly, resulting in areas of saltwater intrusion and rendering some coastal groundwater wells unsuitable for use. With the rise in sea level in the coming decades, saltwater intrusion will be exacerbated. The probability of saltwater intrusion is high due to the current groundwater overdraft situation in the Pajaro Valley, and the consequence of this occurring is high due to the economic effects of fallowing large expanses of farmland to reduce groundwater pumping. However, efforts are being developed to reduce groundwater pumping and to stop saltwater intrusion. The success of these efforts will be challenged by the additional effects of climate change.
- Many of the wells located within the boundaries of the Soquel Creek Water District are also threatened with saltwater intrusion. A reduction in groundwater pumping will likely be necessary to meet the protective and target water levels necessary to avoid saltwater intrusion into the wells.
- Heat waves in Santa Cruz County are likely to become more frequent in the future due to climate change; however, due to the marine climate, temperature increases would be moderate. As a result, the consequence would be low while the probability of such an event occurring is high.
- Climate change is expected to result in additional risk of increased fire frequency, size, and severity beyond the historic range of natural wildfire variability due to increasing length of the fire season, drier fuels, and decreasing forest health. These changes are being driven by alterations in temperature and

precipitation regimes (generally, warmer and drier). As a result, the consequence would be high while the probability of such an event occurring is low.

The Local Hazard Mitigation Plan concluded that over the intermediate to long term (2050 to 2100), in addition to water shortages and a rise in the water table, it is expected that other climate change related events would increase to high and very high levels of risk within the County:

- Potential water shortages, as described for the period 2010-2050, shift from a high probability of occurrence to a very high probability of occurrence as climate change progresses.
- Even though many of the areas of highest vulnerability have already been armored with riprap or seawalls, coastal cliff erosion continues to take place. The value of property and infrastructure in this area is very high, and in the long-term, with a rising sea level and increased winter wave attack, this risk is expected to increase to a very high level.
- Rise in the water table beneath the Rio Del Mar Esplanade as described for the period 2010-2050 shifts from a high probability of occurrence to a very high probability of occurrence as sea level rise progresses.
- Shoreline inundation would affect a number of developed areas along the County shoreline, particularly at the maximum projected sea level values for 2050-2100. The potential for flooding of the Rio Del Mar Esplanade and Beach Drive, for example, has a very high probability of occurring with a high consequence if it were to happen. If winter precipitation increases in the longer-term future, although it is not clear from the models that have been run to date that this will occur, the probability will increase, raising the risk of flooding.
- Flooding, as described for the period 2010-2050, shifts from a high probability of occurrence to a very high probability of occurrence as climate change progresses.
- Saltwater intrusion of groundwater as described for the period 2010-2050 would continue as sea level rise progresses. The probability of saltwater intrusion increases to very high, and the consequence is very high due to the economic effects of fallowing large expanses of farmland to reduce groundwater pumping. Efforts are underway to reduce groundwater pumping to stop saltwater intrusion; however, the success of these efforts will be challenged by the additional effects of climate change.
- Heat waves as described for the period 2010-2050 shift from a high probability of occurrence to a very high probability of occurrence as climate change progresses.
- Climate change is expected to continue to contribute to increased wildfires as described for the period 2010-2050 with the probability of occurrence shifting from low to moderate as climate change progresses.

SAFETY ELEMENT GOALS REGARDING HAZARDS AND CLIMATE CHANGE

The goals, objectives, policies and implementation measures of this Public Safety Element are derived from the necessity to protect the community from natural hazards, as well as from hazards produced from the built environment. Primary goals of the Safety Element include:

SE-1: To protect human life, private property and the environment.

SE-2: To minimize public expenses by preventing inappropriate use and development or location of public facilities and infrastructure in those areas which, by virtue of natural dynamic processes or proximity to other activities, present a potential threat to the public health, safety and general welfare.

Santa Cruz strives to be a disaster-resistant county that can avoid, mitigate, survive, recover from, and thrive after a disaster while maintaining its unique character and way of life. County government should be able to provide critical services in the immediate aftermath of a devastating event of any kind. The people, buildings and infrastructure of Santa Cruz should be resilient to disasters. A key County objective stated in the Local Hazard Mitigation Plan (LHMP) is to have basic government services and commercial functions resume quickly after a damaging earthquake or other significant event. The LHMP has four primary goals for reducing disaster risk in Santa Cruz, which are incorporated into this Safety Element:

SE-3: Avoid or reduce the potential for loss of life, injury and economic damage to Santa Cruz residents from earthquakes, wildfires, floods, drought, tsunami, coastal erosion, landslide and dam failure.

SE-4: Increase the ability of the County government to serve the community during and after hazard events.

SE-5: Protect Santa Cruz's unique character, scenic beauty and values from being compromised by hazard events.

SE-6: Encourage mitigation activities to increase the disaster resilience of institutions, private companies and systems essential to a functioning Santa Cruz.

The projected increases in levels of fire, flood, and erosion hazards due to climate change require adjustments in preparation and responses, including flood and fire hazard reduction policies, and ensuring functionality of essential public facilities and infrastructure. Table 7.1 of the County's Climate Action Strategy presents a comprehensive series of strategies designed to respond to the following CAS climate adaptation goals, which are incorporated into this Safety Element as follows:2

SE-7: Protect the unique character, scenic beauty and culture in the natural and built environment from being compromised by climate change impacts.

SE-8: Support initiatives, legislation, and actions to respond to climate change.

SE-9: Encourage and support actions that reduce risks and vulnerabilities now, while recognizing the importance of identifying, making decisions about, and preparing for impacts and risks that may develop in the future.

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2 Removed references to coastal bluff and beaches hazards

SE-10: Support the reduction of risks from other environmental hazards, noting the strong interrelationships and benefits between reducing risk from climate change, non-climate change-related disasters, and most other environmental hazards.

SE-11: Build resilience into all programs, policies and infrastructure.

SE-12: Encourage climate change resilience planning and actions in private companies, institutions, and systems essential to a functioning County of Santa Cruz.

SE-13: Encourage community involvement and public-private partnerships to respond to potential climate impacts, particularly for those most vulnerable.

SE-14: Ensure that the County of Santa Cruz remains a safe, healthy and attractive place with a high quality of life for its residents, businesses and visitors.

This Safety Element incorporates these goals of the LHMP and CAS in order to recognize climate change projections and to support adaptation approaches that improve the resilience of essential facilities, public infrastructure, coastal natural resources, and human communities to the impacts of climate change and sea level rise; and to ensure informed acceptance of risk and liability releases by private property owners who elect to develop or make improvements in areas subject to hazards.

Note: Removed Goals regarding coastal hazards. See the version of the Public Safety Element effective inside the Coastal Zone for current policies in effect regarding coastal bluffs and beaches.

This Safety Element is divided into sections based on the particular hazards that exist in Santa Cruz County and related topics. Information and discussion about each of these hazards or topics is presented at the start of each section, followed by the relevant objectives, policies and implementation measures for the hazard or topic. The hazards and topics are presented in the following order:

1. Seismic and Soil Hazards: Earthquakes, Tsunami, Liquefaction
2. Climate Change: Resilience and Adaptation
3. Slope Stability, Landslides and Other Adverse Soil Conditions
4. Coastal Bluffs and Beaches (*Not Included*)
5. Grading and Erosion
6. Flood Hazards
7. Wildland and Urban Fire Hazards
8. Air Quality
9. Hazardous and Toxic Materials
10. Hazardous Waste Management
11. Electric and Magnetic Energy, and New Electrical Facilities
12. Environmental Justice

SEISMIC HAZARDS: EARTHQUAKES, TSUNAMI, LIQUEFACTION

EARTHQUAKES. An earthquake is a sudden release of energy in the earth's crust. Caused by movement along fault lines, earthquakes vary in size and severity. The focus of an earthquake is found at the first point of movement along the fault line, and the epicenter is the corresponding point above the focus at the earth's surface. Damage from earthquakes varies with the local geologic conditions, the quality of construction, the energy released by the earthquake, the distance from the earthquake's focus, and the type of faulting that generates the earthquake. Ground motion is the primary cause of damage and injury during earthquakes and can result in surface rupture, liquefaction, landslides, lateral spreading, differential settlement, tsunamis, building failure and broken utility lines, leading to fire and other collateral damage. Typically, areas underlain by thick, water-saturated, unconsolidated material will experience greater shaking motion than areas underlain by firm bedrock, but in some cases, relief may intensify shaking along ridge tops. Fires and structural failure are the most hazardous results of ground shaking. Most earthquake-induced fires start because of ruptured power lines and gas or electrically powered stoves and equipment, while structural failure is generally the result of age and type of building construction. Fault rupture and earthquake related Ground Cracking could occur in several locations within the County of Santa Cruz. Several fault zones cross Santa Cruz County, and movement along these faults can cause fault-related surface deformation (e.g., surface fault rupture) where the fault reaches the surface of the ground. Both the County of Santa Cruz and the State of California have identified zones where the San Andreas and other active faults have and can cause fault-related surface deformation. Within these zones it is likely that movement along these faults will damage structures, roads, utilities, and other fixed facilities. In addition to these zones, other ground cracking was observed during the Loma Prieta earthquake and the San Francisco earthquake of 1906. Many of these ground cracks can be attributed to movement or consolidation of large and moderate sized landslides while other ground cracks were most likely related to ridge spreading. Although much of the ground cracking was found near the fault zones and in the Summit area of the county, other ground cracking was found on ridge tops throughout the County of Santa Cruz.

In geologic time, Santa Cruz County was very recently the epicenter of a very significant earthquake. At 5:04 PM on October 17, 1989, a magnitude 7.1 event rocked the Monterey Bay and San Francisco Bay regions. The initial quake lasted only 22 seconds, although in the two weeks that followed, more than 4,000 aftershocks were recorded, with 20 of these greater than magnitude 5 on the on the Richter Scale. The epicenter of the Loma Prieta earthquake was about 10 miles east-northeast of the City of Santa Cruz in the Aptos planning area on the San Andreas fault. In Santa Cruz County, 674 dwellings, 32 mobile homes and 310 businesses were destroyed in the earthquake. Replacement of un-reinforced masonry chimneys made up the majority of subsequent residential repairs, followed by foundation replacement on older wood frame houses which predated current building codes and lacked basic seismic safety features such as foundation bolts and sufficient structural bracing. Significant damage to streets, water systems, sewer systems and other public infrastructure was related to liquefaction and subsidence. Due to the County's susceptibility to earthquakes and other natural hazards, disaster response planning is an on-going process.

TSUNAMI. A tsunami is a series of waves generated by an impulsive disturbance in a large body of water such as an ocean or large lake. Tsunamis are produced when movement occurs on faults in the ocean floor, usually during very large earthquakes. Sudden vertical movement of the ocean or lake floor by a fault, landslide or similar movement displaces the overlying water, creating a wave that travels outward from the source. The waves can travel across oceans and maintain enough energy to damage distant shorelines. The most recent tsunami in Santa Cruz County occurred as a result of the magnitude 9.0 earthquake in Japan on March 11, 2011. In Japan nearly 16,000 deaths occurred as a result of the earthquake and tsunami, which generated a wave of water up to 113 feet in height travelling inland up to six miles, and which also caused meltdown of a nuclear energy plant. This 2011 tsunami hit the Santa Cruz Harbor with waves estimated to be several feet, combined with swift and chaotic currents causing approximately $20 million in damage. Santa Cruz County is at risk from both local and distant source tsunamis.

LIQUEFACTION. Liquefaction is the transformation of loose, water-saturated granular materials (such as sand or silt) from a solid to a liquid state. Liquefaction commonly, but not always, leads to ground failure such as subsidence. Liquefaction potential varies significantly, and site-specific analysis is needed to accurately determine liquefaction potential in earthquake prone areas.

Objective 6.1-1 Seismic Hazards: Earthquakes

To reduce the potential for loss of life, injury, and property damage resulting from earthquakes by: regulating the siting and design of development in seismic hazard areas; encouraging open space, agricultural or low-density land use in the fault zones; and increasing public information and awareness of seismic hazards.

Objective 6.1-2 Seismic Hazards: Tsunami

To reduce the potential for loss of life, injury, and property damage resulting from tsunamis by: providing signage and warning systems in tsunami hazard areas to increase public awareness of hazard and actions to take in event of tsunami, publicizing evacuation routes, and designing structures as feasible to withstand tsunamis or to minimize damage that may occur due to tsunamis.

Objective 6.1-3 Seismic Hazards: Liquefaction and Subsidence

To reduce the potential for loss of life, injury, and property damage resulting from location of improvements in areas that contain soils subject to liquefaction and subsidence by: avoiding location of critical and essential facilities in areas subject to these conditions, and adopting building codes that, for areas where development is allowable, requires site-specific analysis and adequate mitigations to be incorporated into project designs.

Policies

6.1.1 Geologic Review for Development in Designated Fault Zones

Require a review of geologic hazards for all discretionary development projects, including the creation of new lots, in designated fault zones. Fault zones designated for review include the Butano, Sargent, Zayante, and Corralitos complexes, as well as the State designated Seismic Review Zones. Required geologic reviews shall examine all potential seismic hazards and may consist of a Geologic Hazards Assessment and/or a more complete geologic investigation report where required by the County. An assessment may be prepared by County staff under supervision of the County Geologist, or registered geologist at the applicant's choice and expense. Any Geologic Hazards Assessment or Geologic Investigation Report must be accepted by the County Geologist in order to use its findings and/or incorporate its mitigations into a proposed development project.

6.1.2 Geologic Reports for Development in Alquist-Priolo Zones

Require a preliminary geologic report or full engineering geology report for development on parcels within Alquist-Priolo State-designated seismic review zones.

6.1.3 Engineering Geology Report for Public Facilities in Fault Zones

Require a full engineering geology report by a registered geologist whenever a significant potential hazard is identified by a Geologic Hazards Assessment or Preliminary Geologic Report, and prior to the approval of any new public facility or critical structure within the designated fault zones.

6.1.4 Site Assessment or Investigation Regarding Liquefaction Hazard

Require site-specific hazards assessment and/or investigation by a registered geologist and/or civil engineer of all development proposals in areas designated as having a moderate, high or very high liquefaction potential, and require mitigations identified by reports to be incorporated into project designs in order to meet building codes.

6.1.5 Location of New Development Away From Potentially Hazardous Areas

Require the location and/or clustering of development away from potentially hazardous areas where feasible, in order to avoid or minimize exposure to hazards. Review, revise, and/or condition project development permits as warranted, based on the recommendations of the site's Hazard Assessment or other technical reports.

6.1.6 Siting of New Water Supply Reservoirs and Small Water Retention Facilities

Require a full engineering geologic investigation prior to the construction of new water supply reservoirs, and if an unmitigable hazard exists, deny the proposed reservoir. Require smaller water retention facilities to be sited and engineered in a manner that will avoid or mitigate potential hazards that could arise from failure of the facilities, especially to habitable structures and public and private access roads.

6.1.7 Dam Safety Act

New dams shall be constructed according to high seismic design standards of the Dam Safety Act and as specified by structural engineering studies. Smaller reservoirs will be reviewed for potential seismic hazards as a part of the environmental review and/or building/grading permit review processes.

6.1.8 Design Standards for New Public Facilities

Require all new public facilities and critical structures to be designed to withstand the expected ground shaking during the design earthquake on the San Andreas Fault, as well as projected hazards due to climate change and sea level rise.

6.1.9 Recordation of Notice of Geologic Hazards, Acceptance of Risk, Liability Release, and Indemnification

As a condition of development approval and/or prior to the issuance of a building/grading permit for development/development activities and new and substantially improved structures in geologic hazard areas, require the owner of a parcel in an area of potential geologic hazards to record on the property/title deed, with the County Recorder, a Notice of Geologic Hazards, Acceptance of Risk, Liability Release, and Indemnification in a form approved by the County. The Notice shall include information about the nature of the hazard(s) as determined by the geologic and/or geotechnical investigation, provide that the current and all future owners and successors in interest accept the risks to people and property, and includes a release of liability of and waiver of claims against the County of Santa Cruz for any damages or injury in connection with the permitted development.

6.1.10 Siting, Design and Density Review of Proposed Development for Acceptable Risk Levels

Approve the final density and design of a development or building/grading proposal, and location of proposed development on a site, only as consistent with the recommendations of the technical reports. Deny the location or design of the proposed development if it is found that the hazards on the site cannot be mitigated to within acceptable risk levels for the nature of the development, as established by industry standards and as evidenced by property owner willingness to record on title a Notice of Geologic Hazards, Acceptance of Risk, and Liability Release.

6.1.11 Setbacks from Faults

Exclude from density calculations for land divisions, land within 50 feet of the edge of the area of fault induced offset and distortion of an active or potentially active fault trace. In addition, all new habitable structures on existing lots of record shall be set back a minimum of fifty (50) feet from the edge of the area of fault induced offset and distortion of an active or potentially active fault trace. This setback may be reduced to a minimum of twenty-five (25) feet based upon paleoseismic studies that include observation trenches. Reduction of the setback may only occur when both the consulting registered geologist preparing the study and the County Geologist observe the trench and concur that the reduction is appropriate. Critical structures and facilities shall be set back a minimum of one hundred (100) feet from the edge of the area of fault induced offset and distortion of an active or potentially active fault traces.

6.1.12 Minimum Parcel Size in Fault Zones

Outside the Urban Services Line and Rural Services Line, require a minimum parcel of 20 gross acres for the creation of new parcels within state and County designated seismic review zones if proposed building sites lie within the fault zone. Require a minimum parcel of 10 gross acres for the creation of new parcels within the portions of the County designated seismic review zones that are not part of a State Alquist-Priolo Earthquake Fault Zone, and which lie outside the Urban and Rural Services Lines and Coastal Zone, if 25% or more of the parcel perimeter is bounded by parcels 1-acre or less in size. Inside the Urban Services Line and Rural Services Line, allow density consistent with the General Plan and LCP Land Use designation if all structures are to be set back at least 50 feet from fault traces and meet all other conditions of technical reports and of applicable provisions of the County Code.

Programs

a. Periodically update seismic design and soil hazards design_criteria and the Building and Grading regulations, with the advice of qualified professionals and consistent with State law, as information becomes available in order to support construction of safe structures in areas of seismic hazards, liquefaction hazards and other soil conditions subject to ground failure or cracking during seismic events. (Responsibility: Planning Department)

b. Continue to evaluate existing public facilities to determine whether they can maintain structural integrity during the design earthquake, and fund and carry out retrofits, retirements and/or replacements as may be needed to ensure public safety at public facilities during such earthquake events, with priority given to critical facilities. (Responsibility: Public Works, Board of Supervisors, California Department of Forestry)

c. Target the following structures to meet California Building Code seismic safety standards for existing buildings:
   (1) Critical facilities:
   - Essential facilities: buildings whose use is necessary during an emergency;
   - Buildings whose occupancy is involuntary;
   - High occupancy buildings.

   (Responsibility: Planning Department, Public Works, Board of Supervisors, State of California)

d. Support seismic retrofit projects, including through priority permit processing and through special financing programs such as housing rehabilitation loans for qualified low-income homeowners from State and local funding programs as may be available. (Responsibility: Planning Department, Santa Cruz County Housing Authority, Board of Supervisors)

e. Comprehensively map the Geologic Hazard Combining Zone District to include areas having a high, moderate or uncertain surface rupture potential, as well as known areas subject to high liquefaction hazards, and make the Geologic Hazards map(s) and related technical information available to the public on the county website. (Responsibility: Board of Supervisors, Planning Commission, Planning Department, Information Services Department/GIS)

f. Comprehensively map the Geologic Hazard Combining Zone District to include areas subject to high liquefaction hazard when precise technical information regarding the extent and activity of liquefiable materials is available. (Responsibility: Board of Supervisors, Planning Commission, Planning Department, Information Services Department/GIS)

g. Revise existing seismic and geologic hazard maps as new, reliable information becomes available. (Responsibility: Planning Department, Information Services Department/GIS)

h. Evaluate the probable response of community service agencies and emergency facilities to a damaging earthquake, and develop contingency plans for post-disaster emergency operations, including evacuation procedures. (Responsibility: County Office of Emergency Services, Human Services Department, Health Services Agency and Department of Public Works)

i. Develop public education programs to increase public awareness of seismic and geologic hazards, and to inform the public of proper procedures before, during and after an earthquake that can help to minimize injury and property loss. (Responsibility: Planning Department, County Office of Emergency Services)

CLIMATE CHANGE: RESILIENCE AND ADAPTATION

Santa Cruz County approved a Climate Action Strategy CAS) in February 2013 and adopted an updated Local Hazard Mitigation Plan (LHMP) in June 2016. Materials in those documents provide substantial compliance with California Government Code requirements to address climate change, including but not limited to a vulnerability assessment, and adaptation and resilience goals, policies, objectives, and feasible strategies and implementation measures to avoid or minimize climate change impacts, especially for new land uses, essential public facilities, and public infrastructure.

The CAS Executive Summary summarizes the content of the document, including material that meets requirements for Safety Elements, as presented below.

Californians are already experiencing impacts from climate change (California Natural Resources Agency, 2009), and a wide variety of impacts are likely to be felt with increasing magnitude as the concentration of greenhouse gases (GHGs) in the atmosphere continues to rise (City of Santa Cruz, 2011). The first portion of the County's Climate Action Strategy (CAS) reports the results of the GHG emissions inventory for Santa Cruz County, proposes targets for GHG reduction, and outlines strategies and implementing actions to achieve the targets. The second portion focuses on vulnerability assessment and strategies for adapting to the types of impacts that are likely to occur in Santa Cruz County. The CAS incorporates input from the local community and non- governmental agencies that are working to mitigate and respond to climate change.

GHG emissions inventories were prepared for County government operations and for community activities for 2005 and updated for 2009. Total emissions for government operations in 2009 were approximately 34,000 metric tons of CO2 equivalent (CO2e), a decrease of 12 percent from 2005. T total emissions for community activities were approximately 1,030,000 metric tons in 2009, a decrease of more than 50 percent from 2005. The dramatic decrease in community emissions reflects the closure of the Davenport cement plant, which accounted for approximately 90 percent of the commercial/industrial emissions in 2005. The inventories indicate that 70 percent of the community emissions in 2009 were generated by the transportation sector. A separate, simplified inventory of GHG emissions from agricultural activity was prepared for 2011. Agricultural emissions other than electricity emissions were in the range of 17,000 metric tons of CO2e. This represents, at most, two percent of GHG emissions countywide (2009 data).

State legislation requires California to reduce GHG emissions to 1990 levels by 2020. Based on the 2005 community emissions inventory, 1990 emissions levels for Santa Cruz County were estimated. Santa Cruz County has already met the target for 2020 due to the closing of the Davenport cement plant. The State has also set a long-term reduction target for 2050, which is 80 percent below 1990 levels. The CAS incorporates the two state targets and sets an interim target for 2035. A "business as usual" estimate of future emissions is used to gauge the amount of effort required to meet the reduction targets.

GHG reduction strategies are proposed for the three sectors with the highest emissions: transportation, energy, and solid waste. The amount of emissions reductions that can be expected from each strategy is estimated. Calculations indicate that the emissions targets for 2035 and 2050 can be met, but that a sustained commitment to full implementation of the strategies will be required. The largest reduction will come from state and federal standards for fuel efficiency and vehicle emissions and from the California renewable energy portfolio standard (58 percent), followed by a cleaner energy supply from Community Choice Energy (CCE) if that type of regional energy authority is formed (22 percent), energy efficiency (9 percent), transportation and land use planning (5 percent), green business (3 percent), and electric vehicles (3 percent). The CAS finds that if a CCE is not feasible the gap may be closed with greater reductions from other strategies, including a method to provide incentives for local renewable power and

energy conservation similar to what a CCE would provide. However, a feasibility study was subsequently completed which has determined that it is feasible, and a collection of local governments are pursuing formation. Priority for implementation of GHG reduction efforts will be a function of the estimated potential for emissions reduction, cost to implement, and co-benefits of efforts.

A plan for monitoring the implementation of emissions reduction is included in the CAS, which includes identifying the group with responsibility for implementation, periodic reporting, and a recommendation for updating the GHG emissions inventories every five years.

A vulnerability assessment was prepared to identify the conditions that may occur in Santa Cruz County as a result of the various components of climate change (increasing temperature, rising sea level, and shifts in the precipitation regime) and the locations, infrastructure and economic sectors that are particularly vulnerable to negative impacts.

The assessment identifies the coastal areas that are most susceptible to increased flooding, storm surge, beach and coastal bluff erosion from winter storms. Winter storm damage may become more frequent than in the past as a result of heightened sea levels persisting longer as sea level rises (Cayan et al., 2008; Cloern et al., 2011), and precipitation that is concentrated in fewer months each year (Flint, L.E., and Flint, A.L., 2012). The analysis is based on 16–66 inches (42–167 cm.) of sea level rise by 2100, as forecast by the National Academy of Sciences (National Research Council, 2012). Inundation, rising groundwater, and increased saltwater intrusion into groundwater will also affect low-lying areas. The systems that will be most affected are residential coastal property, wastewater treatment infrastructure, coastal roads and bridges, beaches, coastal and wetland ecosystems, and water supply from coastal wells. The vulnerability assessment also identifies potential effects of precipitation changes and increased temperature of between 3.6–7.2 degrees Fahrenheit (2–4 degrees Celsius) (Flint, L.E., and Flint, A.L., 2012) on water supply, wildfire, biodiversity, and public health. Particular attention is given to the significant decrease in redwood habitat that may occur, especially if the current trend of decreasing coastal fog continues (Flint, L.E., and Flint, A.L., 2012).

Tourism and agriculture, two top revenue producing and job generating sectors of the local economy, are closely tied to the climate and are therefore vulnerable to climate change. Tourism relies on beaches, coastal attractions, redwoods, and vulnerable infrastructure for access to and around the coast. Agriculture will be affected by increases in temperature, changing pest patterns, changing fog dynamics, and increased potential for both flood and drought.

A risk analysis was performed to determine which impacts from climate change present the greatest risk to people and to the natural and built environments. In the short to intermediate term (2010–2050) water shortage was identified as the largest risk. In the intermediate to long term (2050–2100) rising water table, coastal bluff erosion, and increased flooding and landslides join water shortage as greatest risks.

Climate adaptation goals are established as a guide for evaluating adaptation strategies. Specific adaptation strategies include new actions as well as acknowledgement of existing plans and programs, which such as the adopted Local Hazard Mitigation Plan (LHMP), while not explicitly about climate change, address the salient issues. Some proposed strategies emphasize avoidance of hazards while others focus on future planning efforts and specific engineering solutions to protect existing development. However, all emphasize building connections among people and among organizations to accomplish the climate adaptation goals in a framework of partnership.

It is expected that the County's Climate Action Strategy will be modified periodically as scientific research progresses, new information becomes available and new ideas and priorities are brought forward as more people become involved in responding to climate change in Santa Cruz County. Such CAS updates will

not be considered to be formal amendments to the General Plan, but as updates to implementation materials, as consistent with key goals and objectives of the CAS and General Plan.

The June 2016 update of the Local Hazard Mitigation Plan (LHMP) includes a great deal of the information, assessments and mitigation strategies that required to be included in a General Plan Safety Element. The first two parts of the LHMP address the planning process used and present a Community Profile, including key transportation routes and critical infrastructure locations. The third part identifies the hazards, presents risk and vulnerability assessments, estimates hazard loss estimates for existing and planned development, and outlines mitigation goals, strategies and actions, for the following types of hazards: earthquakes and liquefaction, wildfires, floods and coastal storms, drought, tsunami, coastal erosion, dam failure, landslide, expansive soils, and climate change. The LHMP contains an extensive number of maps further illustrating hazard types, including maps of levee flood gates, fault rupture zones, liquefaction areas, earthquake intensities, critical fire hazard areas, recent fires, flood zones, repetitive loss properties, Pajaro River flood risk, water agency service areas, tsunami inundation areas, coastal erosion areas, Newell Creek dam inundation area, slides and earthflows, landslide hazard areas, and expansive soils.

The fourth part of the LHMP presents the Mitigation Strategy, and the fifth part addresses the plan maintenance process. It is expected that the County's LHMP will be updated every five years or as required by law. Such LHMP updates will not be considered to be formal amendments to the General Plan, but as updates to implementation materials, as consistent with key goals and objectives of the LHMP and General Plan.

Objective 6.2.1 Climate Change: Resilience and Adaptation

Implement the Climate Action Strategy approved in February 2013, as well as the Local Hazard Mitigation Plan approved in June 2016, in order to increase resilience and adapt to the effects of climate change. Update the CAS and LHMP as new science and approaches are available. Updates to the CAS and LHMP shall not require amendment of the General Plan as long as the updates are in substantial conformance with the goals of this Safety Element and those documents, and further improve hazard information, resiliency and adaptation strategies.

Objective 6.2.2 Local Hazard Mitigation Plan and Climate Action Strategy

Comply with Government Code 65302(g)(4) and incorporate by reference and implement the County's Local Hazard Mitigation Plan (LHMP) and updates approved by the Federal Emergency Management Agency (FEMA) and the Governor's Office of Emergency Services. The LHMP has been updated to address climate change adaptation consistent with the County's Climate Action Strategy (CAS) and updates. The LHMP identifies the risks that climate change poses to the County and the geographic areas at risk from climate change impacts. The LHMP creates a set of adaptation and resilience goals, policies, and objectives for the protection of the community. The LHMP creates a set of feasible implementation measures designed to minimize impacts of climate change, avoid at-risk areas, and utilize natural infrastructure where feasible to increase resiliency to climate change.

SLOPE STABILITY, LANDSLIDES AND OTHER ADVERSE SOIL CONDITIONS

LANDSLIDES. Landslides are the rapid downward movement of rock, earth, or artificial fill on a slope. Factors causing landsliding include the rock strength and orientation of elements on the slope, erosion, weathering, high rainfall, steepness of slopes, and human activities such as the removal of vegetation and inappropriate grading. Severe rainstorms in January 1982 caused multiple landslides throughout the Bay Area and especially in the Santa Cruz Mountains. One very large composite landslide along Love Creek, west of Loch Lomond Reservoir, killed ten people. This landslide was and continues to be an indicator of the potential severity of landslide activity and the need for observation and/or mitigation. Other landslides, including debris flows, destroyed homes killing several other people. In addition to damage to homes, widespread landslide damage occurred to roadways, driveways, and stream channels.

OTHER ADVERSE SOIL CONDITIONS. A variety of other adverse soil conditions result in a need for site-specific geotechnical/soils reports to ensure that appropriate specifications are incorporated into the design of proposed improvements. Expansive soils are generally clays or sedimentary rocks derived from clays, which experience volume changes as a result of moisture variation. The hazard that expansive soils create can be significant. Many of the expansive soils do not create large areas of destruction; however, they can disrupt supply lines (i.e., roads, power lines, railways, and bridges) and damage structures. The effects on structures can be dramatic if expansive soils supporting structures are allowed to become too wet or too dry. Lightly loaded one-story or two-story buildings, warehouses, residences, and pavements are especially vulnerable to damage because these structures are less able to suppress the differential heave of the swelling foundation soil than heavy, multistory structures. Patios, driveways and walkways may also crack and heave as the underlying expansive soils become wet and swell. Other adverse soil conditions can include but not be limited to areas of unconsolidated fill due to historic or improper grading, undermined slopes, roads or structures, and areas of low soil strength.

Objective 6.3 Slope Stability, Landslides and Other Adverse Soil Conditions

To reduce life safety hazards and property damage caused by landslides, debris flow, adverse soil conditions, and other ground movements affecting land use activities in areas of unstable geologic formations, potentially unstable slopes and adverse soil conditions.

Policies

6.3.1 Geologic Hazards Assessments, Soils/Geotechnical Report or Geologic Report for Development on and Near Slopes

Require a geologic hazards assessment, soils/geotechnical report or geologic report for proposed development, including grading and building permits, that is potentially affected by slope instability hazards that exist on or near the site, regardless of the slope gradient on which the development itself is proposed. Such assessment or reports may be prepared by County staff under supervision of the County Geologist, or by a registered geologist or civil engineer, as required by the County and at the applicant's choice and expense. Any Geologic Hazards Assessment, Soils/ Geotechnical Report or Geologic Report must be accepted by the County Geologist in order to use its findings and/or incorporate its mitigations into a proposed development, grading or building project.

6.3.2 Engineering Geology Report or Soils/Geotechnical Report

Require an engineering geology report by a registered geologist and/or a soils/geotechnical engineering report prepared by a qualified professional when the hazard assessment identifies potentially unsafe geologic conditions in an area of proposed development.

6.3.3 Conditions and Design Specifications for Development, Building and Grading Permits

Condition development permits and ensure design/mitigation specifications have been incorporated into building and grading plans based on the recommendations of the Hazard assessment and other technical reports.

6.3.4 Mitigation of Geologic Hazards and Density, Design and Location Considerations

Deny the location of a proposed development or permit for a grading or building project if it is found that geologic hazards cannot be mitigated to within acceptable risk levels for the nature of the proposed project; and approve development proposals or permits only if the project's density, design, and location reflects consideration of the degree of hazard on the site, as determined by technical information.

6.3.5 Slope Considerations for Land Division Calculations

Exclude land with slopes exceeding 30 percent in urban areas and 50 percent in rural areas and land with recent or active landslides from density calculations for land divisions.

6.3.6 Location of Structures and Drainage Considerations in Unstable Areas

Require location and/or clustering of structures away from potentially unstable slopes whenever a feasible building site exists away from the unstable areas. Require drainage plans that direct runoff and drainage away from unstable slopes.

6.3.7 Location of Septic Leachfields

Prohibit the location of septic leachfields in areas subject to landsliding, unless investigation by a registered geologist and soils engineer demonstrates that such placement will not adversely affect slope stability.

6.3.8 Recordation of Notice of Geologic Hazards, Acceptance of Risk, Liability Release, and Indemnification

As a condition of development approval and/or prior to the issuance of a building/grading permit for development/development activities and new and substantially improved structures in geologic and/or coastal hazard areas, require the owner of a parcel in an area of potential geologic hazards to record on property title/deed, with the County Recorder, a Notice of Geologic Hazards, Acceptance of Risk, Liability Release, and Indemnification in a form approved by the County. The Notice shall include information about the nature of the hazard(s) as determined by the geologic and/or geotechnical investigation, provides that the current and all future owners and successors in interest accept the risks to people and property, and includes a release of liability of and waiver of claims against the County of Santa Cruz for damages or injury in connection with the approved development.

Programs

a. Require property owners and public agencies to control or mitigate landslide conditions which threaten structures or roads, including improper or unauthorized drainage affecting county roads and/or drainage facilities through applicable Notice and Order and/or abatement processes. (Responsibility: Planning Department, Public Works Department)

b. Maintain and periodically update public information brochures and information available on the county website concerning landslide hazards and guidelines for hillside development, as new information becomes available. (Responsibility: Planning Department)

COASTAL BLUFFS AND BEACHES:

Note: See the version of the Public Safety Element effective inside the Coastal Zone for current policies in effect regarding coastal bluffs and beaches.

GRADING AND EROSION HAZARDS

Erosion is closely related to slope stability and this section of the Safety Element addresses the need for drainage and erosion control plans for certain grading and development projects. It also sets forth standards for the prevention of erosion and siltation on properties irrespective of whether permits are being sought for property improvements.

Thresholds for when discretionary grading permits, exception permits, winter grading permits (consistent with both the grading and erosion control regulations), and land clearing permits are required for development projects are also established in this section.

Land Clearing Permits are required for any land clearing of existing natural areas of one-quarter acre or more. The threshold for when this permit is required has been lowered in response to increasing erosion and damage to habitats that has resulted from increased intensity of certain special agricultural activities, including but not limited to cannabis cultivation.

Agricultural grading on less than twenty percent slopes, as well as vineyards and associated terracing (regardless of slope), does not require a regular grading permit and is instead subject to agricultural grading regulations. However, defined "specialized agricultural activities" such as greenhouses, indoor growing, aquaculture and any cannabis cultivation activities involving more than 100 cubic yards is not considered agricultural grading and requires a regular grading permit, and grading on twenty percent slopes or more also requires a regular grading permit.

Objectives 6.5 Erosion

To control erosion and siltation originating from existing conditions, grading activities, current land-use activities, from new developments, and new and existing cannabis activity and related development, to reduce damage to soil, water, and biotic resources.

Policies

6.5.1 Slope Restrictions

Prohibit structures in discretionary projects on slopes in excess of 30 percent. A single-family dwelling on an existing lot of record may apply for an Exception Permit to be excepted from the prohibition where siting on greater slopes would result in less land disturbance, or siting on lesser slopes is infeasible.

6.5.2 Grading Projects to Comply with Codes and Engineer's Recommendations, and Incorporate Mitigation Measures

Grading permits involving less than 1,000 cubic yards of earth material on less than 20 percent slopes which are processed as ministerial building permits, must comply with the standards of applicable county codes and the recommendations of a soils or geotechnical report in order to be approved and issued. Discretionary grading permits above this threshold may be processed concurrently with a building permit and are processed administratively. Discretionary grading permits for grading of 8,000 cubic yards or more, or for grading of 1,000 cubic yards or more if the grading area is visible to the public from a designated scenic public road or visible to the public within a designated scenic area, are subject to approval of the Planning Commission and conditions of approval may be imposed. Standards for exemptions from a requirement for a discretionary grading permit are established by the County Code Grading Regulations. Deny any grading project where a potentially significant danger to soil or water resources has been identified and adequate mitigation measures cannot be undertaken.

6.5.3 Abatement of Grading and Drainage Problems

Require, as a condition of development approval for new development on a site, or for grading subject to a requirement for a discretionary grading permit, that any grading or drainage condition on the property which gives rise to existing or potential erosion problems be abated.

6.5.4 Erosion Control Measures and/or Erosion Control Plan Approval Required for Development

Require that all grading permits processed as ministerial building permits include erosion control measures within the grading plan that meet county and professional standards. Require approval of an Erosion Control Plan in conjunction with a Winter Grading Permit for all proposed winter grading or other development that is subject to the Erosion Control regulations such as a Land Clearing Permit, as specified in the Erosion Control and Grading ordinances. Vegetation removal shall be minimized and limited to that amount indicated on the approved plans but shall be consistent with fire safety requirements.

6.5.5 Installation of Erosion Control Measures

Require the installation of the required erosion control plan for winter grading activities subject to the Erosion Control ordinance, by either October 15, or the advent of significant rain, or project completion, whichever occurs first and depending upon the nature of the project and the time that grading will occur. Prior to October 15, require adequate erosion control measures to be implemented during grading activities to prevent erosion from early storms, and that the area of grading be free of loose and erodible soils upon completion of grading activities. For permitted discretionary grading and development activities, require protection of exposed soil from erosion between October 15 and April 15 and require vegetation and stabilization of disturbed areas prior to completion of the project. For agricultural activities, require that adequate measures are taken to prevent excessive sediment from leaving the property.

6.5.6 Earthmoving in Least Disturbed or Water Supply Watersheds

Prohibit earthmoving operations in areas of very high or high erosion hazard potential and in Least Disturbed or Water-Supply Watersheds between October 15 and April 15, unless preauthorized by the Planning Director through issuance of a Winter Grading Permit in compliance with the Grading and Erosion Control Ordinances. If such activities take place, measures to control erosion must be in place at the end of each day's work.

6.5.7 Reuse of Topsoil and Native Vegetation Upon Grading Completion

Require topsoil to be stockpiled and reapplied upon completion of grading to promote regrowth of vegetation, including revegetation to be established from seeds of native plant species and grasses that are retained within the topsoil and nearby undisturbed native plant species and grasses; native vegetation should be used in replanting disturbed areas to enhance long-term stability.

6.5.8 On-Site Sediment Containment

Require containment of all sediment on the site during construction and require drainage improvements for the completed development that will provide runoff control to, at a minimum, not exceed pre-development levels in compliance with applicable standards, including onsite retention or detention where downstream drainage facilities have limited capacity. Runoff control systems or Best Management Practices shall be adequate to prevent any significant increase in site runoff over pre-existing volumes and velocities and to maximize on-site collection of non-point source pollutants.

6.5.9 Site Design to Minimize Grading

Require site design in all areas to minimize grading activities and reduce vegetation removal based on the following guidelines:
(a) Structures should be clustered;
(b) Access roads and driveways shall not cross slopes greater than 30 percent unless a Slope Exception Permit has been approved by the County in accordance with the Grading Ordinance and Policy 6.5.1 of the Safety Element; and cuts and fills should not exceed 10 feet unless they are wholly underneath the footprint and adequately retained;
(c) Foundation designs should minimize excavation or fill;
(d) Building and access envelopes should be designated on the basis of site inspection by the applicant's qualified soils professional and approved by County staff to avoid particularly erodable areas;
(e) Require all fill and sidecast material to be recompacted to engineered standards, reseeded, and mulched and/or covered with erosion control fabric.

6.5.10 Land Clearing Permit

Require an administrative discretionary Land Clearing Permit and an erosion control plan for clearing one-quarter or more acres, except when clearing is for existing agricultural uses. Clearing grazing lands of existing native grasses or other existing vegetation, for the purpose of establishing more intensive agriculture such as row crops, wine grapes, greenhouses or cannabis cultivation, requires a Land Clearing Permit. Require that any erosion control and land clearing activities be consistent with all General Plan and LCP Land Use Plan policies and implementing regulations of the County Code.

6.5.11 Sensitive Habitat Considerations for Land Clearing Permits

Require a Land Clearing Permit for any amount of land clearing in a sensitive habitat area and for clearing more than one quarter acre in Water Supply Watershed, Least Disturbed Watershed, very high and high erosion hazard areas no matter what the parcel size. Require that any land clearing be consistent with all General Plan and LCP Land Use policies and implementing regulations of the County Code.

6.5.12 Cannabis Industry: Avoid Excessive Grading

In order to protect public health and safety and prevent negative environmental impacts from grading and land disturbance, avoid excessive grading and disturbance associated with cannabis activities. This includes grading for access roads and other site improvements such as pads, structures, terracing and other infrastructure, including grading which may be required to meet fire code or other standards. Carefully evaluate grading that would significantly alter topography, visual character of an area or coastal resources, and avoid or minimize such alteration. Consider or favor alternate locations that would require less disturbance. Deny licenses and land use permits where necessary to implement this policy.

6.5.13 Cannabis Industry: Site Restoration

Ensure that sites used for cannabis activities are restored to pre-graded condition, as appropriate, when cannabis activities are relocated, activity has ceased, or a cannabis license is no longer valid.

6.5.14 Ensure Property Owners Comply with Regulations to Prevent Runoff, Erosion and Pollution

Ensure that all property owners, whether or not they are involved with pursuing or implementing development or grading/building permits, are aware of County Code Title 7 provisions prohibiting activities that generate water and other pollution, such as that produced by improper conditions that allow accelerated erosion to affect waterways and habitats.

6.5.15 Regular Grading Permits required for Specialized Agricultural Activities and Grading on Slopes of Twenty Percent or More

Agricultural grading on less than twenty percent slopes, as well as vineyards and associated terracing (regardless of slope), does not require a regular grading permit and is instead subject to agricultural grading regulations. However, defined "specialized agricultural activities" such as greenhouses, indoor growing, aquaculture and any cannabis cultivation activities involving more than 100 cubic yards is not considered agricultural grading and requires a regular grading permit, and grading on twenty percent slopes or more for any crop other than vineyards also requires a regular grading permit.

Programs

a. Establish an active erosion control education program for the general public, builders, and staff, in cooperation with the Resource Conservation District and the Soil Conservation Service. (Responsibility: Environmental Health, Public Works and Planning Department)

b. Enforce the comprehensive Erosion Control and Runoff and Pollution Control ordinances requiring control of existing erosion problems as well as the installation of erosion, sediment, and runoff control measures in new developments. (Responsibility: Environmental Health, Public Works and Planning Department)

c. Pursue grants or other cost-sharing programs with outside and/or private or non-profit funding to assist property owners with control of existing problems that are too large to be effectively controlled by the owner. (Responsibility: Planning Department)

d. Encourage use of Resource Conservation District programs to control existing erosion problems. (Responsibility: Planning Department)

FLOOD HAZARDS

Note: Policy language related to coastal flood hazards has been removed from this section. See the version of the Public Safety Element effective inside the Coastal Zone for current policies in effect regarding coastal bluffs and beaches.

Flooding and coastal storms present similar risks and are usually related types of hazards in the County of Santa Cruz. Coastal storms can cause increases in tidal elevations (called storm surge), wind speed, coastal erosion, and debris flows, as well as flooding. During a flood, excess water from rainfall or storm surge accumulates and overflows onto the banks, beaches, and adjacent floodplains. Floodplains are lowlands adjacent to rivers, lakes and oceans that are subject to recurring floods. Several factors determine the severity of floods, including rainfall intensity and duration, creek and storm drain system capacity, and the infiltration rate of the ground.

A flood occurs when a waterway receives a discharge greater than its conveyance capacity. Floods may result from intense rainfall, localized drainage problems, tsunamis or failure of flood control or water supply structures such as levees, dams or reservoirs. Floodwaters can carry large objects downstream with a force strong enough to destroy stationary structures such as homes and bridges and can break utility lines. Floodwaters also saturate materials and earth resulting in the instability, collapse and destruction of structures as well as the loss of human life.

Floods usually occur in relation to precipitation. Flood severity is determined by the quantity and rate at which water enters the waterway, increasing volume and velocity of water flow. The rate of surface runoff, the major component to flood severity, is influenced by the topography of the region as well as the extent to which ground soil allows for infiltration in addition to the percent of impervious surfaces. It is important to note that a stream can crest long after the precipitation has stopped.

As storms arrive onto land from the Pacific and rise over the mountains and ridges that border the eastern boundaries of the County, the air associated with those storms cools and that cooling results in large amounts of precipitation. The topography provides fairly steep and well-defined watershed areas to funnel the falling rain into runoff tributaries. Periods of very heavy rainfall are common throughout fall and winter months and the two rivers in the County, along with several creeks and streams, can rise to flood stage in a short period of time. Settlement and habitation in the County, from the Ohlone through the founding of the Santa Cruz Mission in 1791, and subsequent logging communities throughout the 1800's, tended to acknowledge the floodplain areas of the rivers and streams, building on the higher ground. However, as the population grew, particularly in the middle 1900's, low lying areas near virtually every waterway were encroached upon for housing, business, or agricultural development.

Climatologists point out that the period between 1920 and 1970, the years of most significant growth in Santa Cruz County, was a "dry cycle" for most of central California. Only one or two instances of serious winter weather in the 1950's highlighted the consequence of development in low-lying areas. Over time, land that had previously been avoided was developed for both commercial and residential use in the floodplains of the San Lorenzo and Pajaro Rivers, Soquel and Aptos Creeks, and along the beaches. As a consequence, substantial portions of the City of Santa Cruz and the City of Watsonville have been flooded, houses and businesses in the San Lorenzo Valley have been damaged or destroyed by floodwaters, and there have been losses along Soquel Creek, Aptos Creek, and in beach areas on multiple occasions over the past half-century.

Future projections of climate change impacts indicate that flood hazards will increase in coastal areas due to sea level rise, and in inland areas due to hydrologic changes in watersheds that may include more frequent

and more intense rain events and consequent increases in flood hazards. Policies are updated to provide additional flood protection to plan for future increases in flood hazards.

The policies of the Flood Hazards section require new development to be located outside of the flood hazard area, wherever possible, and to incorporate floodproofing measures as required by FEMA and local flood regulations in areas subject to flood hazards.

Objective 6.6 Flood Hazards

To reasonably protect new, replacement, reconstructed, modified, and existing structures from flood hazards in order to minimize economic damages within the expected lifespans of such structures; and to address threats to public health and safety, prevent adverse impacts on floodplains, and maintain their beneficial function for flood water storage and transport and for biotic resource protection.

Policies

6.6.1 Geologic/Flood Hazards Assessments and Reports Required in Flood Hazard Areas

Require an assessment of geologic and flood hazards for all development, and building/grading proposals within the County's flood hazard areas in order to identify flood hazards and development constraints. Any Hazards Assessment or Investigation Report must be accepted by the County Geologist in order to use its findings and/or incorporate its mitigations into a proposed development project.

6.6.2 Development Proposals Protected from Flood Hazard

Approve only those grading applications and development proposals that are adequately protected from flood hazards and which do not add to flooding damage or potential within applicable regulatory or expected lifespans of structures. This may include the requirement for foundation design which minimizes displacement of flood waters, as well as other mitigation measures. Require all developments to be sited and designed to avoid or minimize flood hazards for the expected lifespans of principal structures associated with the development.

6.6.3 *[Policy language related to coastal flood hazards has been removed from this section. See the version of the Public Safety Element effective inside the Coastal Zone for current policies in effect regarding coastal bluffs and beaches.]*

6.6.4 Locate New Public Facilities Outside Flood Hazard Areas

Require new utilities, critical facilities and non-essential public structures to be located outside the flood hazard areas, unless such facilities are necessary to serve existing uses, there is no other feasible location, and construction of these structures will not increase hazards to life or property within or adjacent to the flood hazard area.

6.6.5 New Parcels in Flood Hazard Areas

Allow the creation of new parcels, including those created by minor land division or subdivision, in the flood hazard areas only under the following circumstances:

(a) A full hydrologic report and any other appropriate technical report(s) must demonstrate that each proposed parcel contains at least one building site, including as applicable a septic system and leach field site, which is not subject to flood hazard within the expected lifespan of the development, and that public utilities and facilities such as sewer, gas, electrical and water systems can be located and constructed to minimize flood damage and not cause a health hazard.

(b) The final recorded map shall indicate the limits and elevations of the flood hazard area as certified by a registered professional engineer or surveyor.
(c) Adequate drainage to reduce exposure to flood hazards must be provided.
(d) Preliminary land division proposals shall identify all flood hazard areas and the elevation of the base flood. (Revised by Res. 81-99)

6.6.6 Density Calculations

In all areas exclude the portion of the property designated within the flood hazard area from density calculations. Require clustering of allowable units to minimize flood hazards, as warranted and feasible given the location of the development.

6.6.7 New Construction to be Outside Flood Hazard Areas

Restrict new construction to the area outside the flood hazard areas if a buildable portion of the parcel exists outside such areas.

6.6.8 Elevation of Residential Structures

Require elevation of the habitable portions of residential structures above the base flood elevation where constructed within a flood hazard area. Require floodproofing or elevation of non-residential structures. Require that foundations do not cause floodwater displacement except where necessary for floodproofing.

6.6.9 *[Policy language related to coastal flood hazards has been removed from this section. See the version of the Public Safety Element effective inside the Coastal Zone for current policies in effect regarding coastal bluffs and beaches.]*

6.6.10 Septic Systems and Leach Fields

Septic systems and leach fields to serve previously undeveloped parcels shall not be located within the flood hazard area. The capacity of existing systems in the flood hazard area shall not be increased. Septic systems shall be located and designed to avoid impairment or contamination in accordance with County Sewage Disposal Regulations.

6.6.11 Fill Placement

Allow grading within the 100-year floodplain only if there is no net increase in fill, or if it can be demonstrated through analysis by a qualified engineer's report that is reviewed and accepted by the County, and by FEMA if applicable, that the grading will not have cumulative adverse impacts on or off site. No fill is allowed in the floodway.

6.6.12 Flood Control Structures

Allow flood control structures only to protect existing development (including agricultural operations) where no other alternative is feasible and where such protection is necessary for public safety. The structures must be designed or must incorporate mitigations/conditions of approval to ensure that they do not adversely affect sand supply, increase erosion or flooding on adjacent properties, or restrict stream flows below minimum levels necessary for the maintenance of fish and wildlife habitats.

6.6.13 Required Recordation on Deed of Notice of Geologic Hazard, Acceptance of Risk, Liability Release, and Indemnification Prior to Permit Approval

Prior to issuance of a building or grading permit for substantial improvement on sites subject to flood hazards, require the applicant to record on title/deed to the property a Notice of Geologic Hazard, Acceptance of Risk, and Liability Release. The Notice shall be in a form

approved by the County of Santa Cruz, and shall include, but not be limited to, the following acknowledgements and agreements, as applicable to the specific project:

Assume and Accept Risks. To assume and accept the risks to the Applicant and the properties that are the subject of a building or grading permit of injury and damage from such geologic/flood hazards in connection with the permitted development;
Waive Liability. To unconditionally waive any claim of damage or liability against the County of Santa Cruz and its officers, agents, and employees, for injury or damage to the permitted development, occupants of the site, or the general public in connection with the permitted development as related to geologic hazards;
Indemnification. To indemnify and hold harmless the County and its officers, agents, and employees, with respect to the County's approval of the development against any and all liability, claims, demands, damages, costs (including costs and fees incurred in defense of such claims), expenses, and amounts paid in settlement to the extent arising from any injury or damage in connection with the permitted development;
Property Owner Responsible. That any adverse effects to property caused by the permitted development shall be fully the responsibility of the property owner. That cost of abatement and/or future removal of structures shall be the responsibility of the property owner;
Flood Insurance. If the structure is built so that it does not comply with an effective BFE data as may be shown on future final Flood Insurance Rate Maps (FIRM), acknowledging that the structure may be subject to a higher flood insurance rating, likely resulting in higher-risk annual flood insurance premium if the property owner purchases flood insurance (voluntarily, or as required by mortgage lenders). If a program is created in the future that removes the subject location from being eligible for FEMA flood insurance, agree not to protest and to abide with the terms of such a program.
Formation of GHAD or CSA. The property owner and / or any future heirs or assigns, by accepting this permit, acknowledge that a Geologic Hazard Abatement District (GHAD) or County Service Area (CSA) may be formed in the future by the County or other private entity to address geologic/flood hazards, and assessments may be proposed for the abatement of geologic hazards.
Public Funds. That public funds may not be available in the future to repair or continue to provide services to the site (e.g., maintenance of roadways or utilities) and under such circumstances the County does not guarantee essential services to the site will continue to be provided, especially to sites that have or will soon become public trust lands as the mean high tide line migrates inland due to sea-level rise;
Occupancy. That the occupancy of structures where sewage disposal or water systems are rendered inoperable may be prohibited;
Public Trust Lands. That the structure may eventually be located on public trust lands; and
Removal or Relocation. In accordance with County regulations and Orders of the Chief Building Official, County Geologist, or Civil Engineer, that all development on the site, including shoreline and coastal bluff armoring, may be required to be removed or relocated and the site restored at the owners expense if it becomes unsafe, it is no longer located on private property, or if essential services to the site can no longer feasibly be maintained consistent with Policies 6.4.32 through 6.4.35.

Programs

a. Continue the Floodplain Management Program in accordance with the Federal Flood Insurance Program. (Responsibility: Planning Department)

b. Revise County floodplain maps as updated adopted FEMA Maps are published. (Responsibility: Planning Department, FEMA)

c. Comprehensively map the Geologic Hazards Combining District in order to place all existing regulations into one concise and consistent ordinance and to notify future buyers of the policies as they pertain to affected parcels. (Responsibility: Planning Commission, Planning Department)

d. Maintain culverts and drainage facilities on County roads and seek to eliminate logjams and other obstructions from stream courses. (Responsibility: Public Works, Environmental Health Department).

e. Continue to provide information to property owners located in flood hazard ~~f~~ areas to encourage participation in the Federal Flood Insurance Program. (Responsibility: Planning Department).

f. Maintain the Automated Local Evaluation in Real Time (ALERT) Systems along the San Lorenzo River, Soquel Creek, Pajaro River, and Corralitos Creek. Implement a floodplain warning system for Aptos Creek and Valencia Creek. The Pajaro River Basin continues to be monitored by the National Weather Service. (Responsibility: Public Works Department, County Office of Emergency Services)

g. Maintain detailed tsunami evacuation plans for coastal areas subject to the tsunami hazard. (Responsibility: County Office of Emergency Services)

h. Consider incorporating more detailed information on tsunami inundation levels into the existing flood hazard program when this information is available. Existing development regulations would then apply to areas subject to this hazard. (Responsibility: County Office of Emergency Services, Planning)

i. Prepare and adopt an emergency warning system and detailed evacuation plans for areas subject to inundation in the event of failure of the Newell Creek Dam. (Responsibility: County Office of Emergency Services)

j. Work with relevant state and federal agencies to continue to monitor potential rise in sea level due to climate change and refine regulations and develop long term programs to address the impacts. (Responsibility: Planning Department, Board of Supervisors)

k. Continue to work with the Joint Powers Authority to relocate the Santa Cruz County Emergency Operations Center from the basement of the County Government Center, where it is vulnerable to flooding. (Responsibility: Board of Supervisors, Office of Emergency Services, County Administrative Office.

WILDLAND AND URBAN FIRE HAZARDS

Introduction

A wildland fire may be defined as any unwanted fire involving outdoor vegetation. This may be perceived as only occurring in forests, rangelands or agricultural fields, but it might also occur in vacant lots, highway medians, parks, golf courses and rural residential areas. The term Wildland Urban Interface (WUI) describes many of these areas. The nature of wildland fire has changed with incidents in the WUI. The potential for both life and property losses in the WUI is exponentially higher than non-populated wildlands. In addition, human influence has greatly increased the number and variety of potential sources of ignition. Wildland fires are influenced by three factors: fuel, weather and topography. Wildfire spread depends on the type of fuel involved (grass, brush and trees). Weather influences wildland fire behavior with factors such as wind, relative humidity, temperature, fuel moisture and possibly lightning. Several of these factors can modify the rate the fire will burn. Topography is the biggest influence on fire severity. While normal weather conditions in the Santa Cruz Mountains can be categorized as cold and damp with extensive marine influence (fog), several times each year conditions are created where fuel moisture levels have been measured below 5% with temperatures above 90o, and north winds greater than 45 mph.

Large areas of the County have been mapped as Critical Wildfire Hazard Areas due to accumulations of wildfire prone vegetation, steep and dry slopes and the presence of structures vulnerable to wildland fires. These areas are generally situated in the steeper higher elevations of the county. Most of these areas are along the border of Santa Clara County or in the Coastal ridges between Highway 9 and Highway 1. While the map of Critical Fire Hazard Areas remains relevant for areas of increased wildfire risk, it should be noted that wildland fires may occur anywhere within the County.

The potential magnitude or severity of future fires could be predicted from experience gained from the recent fires of 2008/2009. In those fires, spotting exceeding 1 mile, torching of conifers, flame lengths exceeding 100', area ignition and sheeting were all observed. In 2008, over 75 structures were destroyed on 3 fires alone. Similar fuels (Manzanita/Knobcone, Eucalyptus, chaparral, and mixed conifer forestland), topography and weather conditions are expected to be encountered in future fires creating a repeat of extreme fire behavior exhibited in recent large local fires.

Santa Cruz County is ranked 9th among 413 western state counties for percentage of homes along the WUI and 14th in California for fire risk. During the preparation of the countywide Community Wildfire Protection Plan (CWPP), numerous assets at risk were identified. These include thousands of residences, several schools including a State University, several youth camps, and numerous commercial facilities. There are 5 local public water systems with extensive infrastructure situated within high hazard areas. Three state highways and 3 major power transmission Rights of Way cross through vulnerable areas. Due to topography and limited access, both the protection plus potential reconstruction of these assets will be hampered.

The impact of wildfire on a community is far-reaching. The most significant impacts would be loss of life, environmental damage and loss of property. Air quality is also a major issue, which can force the closure of schools and businesses as well as limit human activity. Damage to infrastructure such as culverts, roads and bridges can be difficult to locate and repair in a timely manner. During the rainy season, burned-over areas are subject to mudslides and debris torrents which can be exacerbated by infrastructure damage. Sedimentation due to winter rains can destroy fish habitats, which can have a catastrophic effect on the eco-system.

A fire threat will always exist in the WUI. There will always be flammable vegetation, structures and human activities creating a situation where it is not "if" but "when" the next large fire occurs in the county.

This Wildland and Urban Fire Hazards section addresses natural fire hazards as well as fire hazards from human activity and increased hazard levels projected to occur as a result of climate change. In compliance with State law, this section establishes road standards and development requirements for fire prevention and response.

Fire History

Prior to about 1950 information on wildfire in Santa Cruz County was limited to verbal history and newspaper accounts. After the Division of Forestry began gathering data in the 1950's, significant wildfires in Santa Cruz and adjacent counties were documented in the early 1960's and again in the 1980's (Lexington fire). The devastating wildfires that occurred in Santa Cruz County in 2008 (Summit, Martin and Trabing fires) and 2009 (Lockheed and Loma fires) burned a combined area of nearly 14,000 acres and numerous homes and structures. What makes wildfire different today as compared to the early part of the last century is the number of people living in the rural area, or the Wildland Urban Interface (WUI). According to the United States Census, the population of Santa Cruz County has increased by nearly 200,000 people since the middle of the last century, from 66,534 in 1950 to 262,340 in 2010. Much of the increase occurred in urban areas, but rural areas have experienced significant population increases, as well. This has caused the fire agencies to change approaches to fire hazards from focusing primarily on the fire to dealing with increasing demands for protecting roads, structures, and people. Because there are not enough firefighters or fire apparatus to protect each and every home during a wildfire, the community and government must take greater responsibility for preventative measures to make homes, neighborhoods, and the community more defensible from wildfire. (Source: San Mateo - Santa Cruz Unit Strategic Fire Plan)

Fire Plans

The San Mateo - Santa Cruz Unit Strategic Fire Plan identifies and prioritizes pre-fire and post-fire management strategies and tactics meant to reduce losses within the Unit. There is a history of collaborative efforts between fire agencies and communities including Las Cumbres, Olive Springs and Bonny Doon. Efforts such as these have resulted in numerous fuel reduction projects and community education. More recently, the Unit has seen an unprecedented level of pre-fire "grass roots" organization, including the formation of the Soquel, South Skyline, and Bonny Doon Fire Safe Councils. Also, with the assistance of the Resource Conservation District (RCD) through a grant from the United States Fish and Wildlife Service, a Community Wildfire Protection Plan (CWPP) was developed with input from stakeholders throughout Santa Cruz County. In 2010, the Board of Supervisors for Santa Cruz County adopted the 2010 San Mateo County – Santa Cruz County CWPP. The Unit Strategic Fire Plan is meant to work in collaboration with the CWPP.

The CWPP attempts to identify fire hazards, as seen across the landscape, and provide strategies to mitigate wildfire risk and restore healthier, more resilient ecosystems while protecting life and property. A CWPP also serves as a tool for the accrual of grant funding to aid in the implementation of wildfire prevention projects. The CWPP is a guidance document that recommends both general and specific projects in priority fuel reduction areas and provides recommendations to reduce the ignitability of structures. Local projects are subject to appropriate permitting and environmental review processes. The CWPP was developed collaboratively by CAL FIRE, Resource Conservation District of Santa Cruz and San Mateo Counties, the United State Fish and Wildlife Service, other agencies, and members of the community.

The San Mateo – Santa Cruz Unit Strategic Fire Plan and the CWPP address areas with inadequate access and evacuation routes and identify risk to life and property from wildland fire and provide information on firefighter safety, community evacuation and recommended actions by first responders. The plans also Address post-fire responsibilities for natural resource recovery, including watershed protection reforestation, and ecosystem restoration.

State and Local Responsibility Areas

Wildland fire protection in California is the responsibility of the State, local government, or the federal government depending on location. The State Responsibility Area (SRA) is the area of the state where financial responsibility for the prevention and suppression of wildfires is primarily the responsibility of the state. Of course, the partnership of private property owners is essential for implementing fire prevention strategies. In general, SRA includes forest-covered lands, whether of commercial value or not, or brush or grass-covered lands. SRA does not include lands within city boundaries or in federal ownership. Fire protection in SRA is typically provided by CAL FIRE. However, in Santa Cruz County, autonomous fire protection districts provide fire protection in large parts of the SRA. Local responsibility areas (LRA) include incorporated cities and other urbanized areas, and cultivated agriculture lands. Local responsibility area fire protection is typically provided by city fire departments, fire protection districts, and by CAL FIRE under contract to local government.

CAL FIRE is the County Fire Department for the unincorporated areas of Santa Cruz County that are not included in an autonomous fire protection district. In addition, the County contracts with CAL FIRE to provide fire protection for Pajaro Dunes, and to provide administrative and staffing needs for the Pajaro Valley Fire Protection District.

Because the majority of wildland fires occur in the SRA, there is potential for many different agencies in the county to be affected. In many cases, fires occur in Mutual Threat Zones (MTZ's) or in areas near adjoining jurisdictions and also in the LRAs. It is through mutual relationships with local government agencies where initial attack resources become larger and more effective. The following Santa Cruz County local government agencies are typically available and involved in suppressing wildland fires:

Aptos/La Selva Fire Protection District
Scotts Valley Fire Protection District
Boulder Creek Fire Protection District
Central Fire Protection District of Santa Cruz County
Felton Fire Protection District
Santa Cruz City Fire Department
Watsonville Fire Department
Zayante Fire Protection District
Ben Lomond Fire Protection District
Branciforte Fire Protection District
Pajaro Valley Fire Protection District

A person who owns, leases, controls, operates, or maintains a building or structure in, upon, or adjoining SRAs are required by Public Resource Code (PRC) 4291 to maintain defensible space around structures on their property. Defensible space means the area adjacent to a structure or dwelling where wildfire prevention or protection practices are implemented to provide defense from an approaching wildfire or to minimize the spread of a structure fire to wildlands or surrounding areas. Responsibility for maintaining defensible space is limited to 100 feet from structure(s) or to the property line, whichever is closer. Defensible space inspections are completed by inspectors from CAL FIRE, engine companies, and fire protection districts (Central and Aptos/La Selva). Educational materials are distributed to residents during inspections, through direct mailing, and at public events including a brief pamphlet focusing on defensible space and a document called "Living With Fire in Santa Cruz County".

The Santa Cruz County Code requires new projects and construction to meet fire safety standards consistent with State law (PRC 4290). Chapter 7.92 of the County Code establishes requirements for fuel modification and emergency water supply, as well as minimum fire safe driveway and road standards. New structures built in Santa Cruz County must also comply with fire safety building regulations. These building codes

require the use of ignition-resistant building materials in higher risk areas and establish design standards to improve the ability of a building to survive a wildfire.

CAL FIRE has mapped areas of very high fire hazard within LRA and SRA. Mapping of the areas, referred to as Very High Fire Hazard Severity Zones (VHFHSZ), is based on relevant factors such as fuels, terrain, and weather. The Fire Code of Santa Cruz County (County Code Chapter 7.92) includes provisions to improve the ignition resistance of buildings, especially from firebrands. The updated fire hazard severity zones will be used by the Building Official to determine appropriate construction materials for new buildings in the Wildland-Urban Interface. In addition, pursuant to State law, the updated zones will also be used by property owners to comply with natural hazards disclosure requirements at time of the property sale, and with the 100-foot defensible space clearance requirements. The County's GIS mapping information system has been updated to incorporate the FHSZ maps for Santa Cruz County. These maps complement the existing General Plan Resources and Constraints maps designating Critical Fire Hazard Areas.

Objective 6.7 Fire Hazards

To protect the public from the hazards of fire through citizen awareness, prevention measures for mitigating the risks of fire, responsible fire protection planning, and built-in systems for fire detection and suppression.

Policies

6.7.1 Defensible Space

In the State Responsibility Area and Very High Fire Hazard Severity Zones within the Local Responsibility Area maintain defensible space around structures in compliance with State law, County Fire Code, and local fire district ordinances. The amount of fuel modification necessary shall take into account the flammability of the structure as affected by building material, building standards, location, and type of vegetation. Fuels shall be maintained in a condition so that a wildfire burning under average weather conditions would be unlikely to ignite the structure. This does not apply to single specimens of trees or other vegetation that are well-pruned and maintained so as to effectively manage fuels and not form a means of rapidly transmitting fire from other nearby vegetation to a structure or from a structure to other nearby vegetation. The intensity of fuels management may vary in the vicinity of the structure, with the most intense management being immediately around the structure. Consistent with fuels management objectives, steps should be taken to minimize erosion. For the purposes of this policy, "fuel" means any combustible material, including petroleum-based products and wildland fuels.

6.7.2 Defensible Space in Environmental Resource Areas

Fuel reduction activities that remove or dispose of vegetation are required to comply with all federal, state or local environmental protection laws, including, but not limited to, laws protecting threatened and endangered species, sensitive habitats, water quality, air quality, and cultural/archeological resources, and must obtain any and all required permits.

6.7.3 Exception in Sensitive Habitat for Defensible Space

Establishment and maintenance of defensible space in order to comply with state law may qualify for an exception to the Sensitive Habitat Protection Ordinance if the following findings can be made: 1) That adequate measures will be taken to ensure consistency with the purpose of Chapter 16.32 to minimize the disturbance of sensitive habitats; and 2) It can be

demonstrated by biotic assessment, biotic report, or other technical information that the exception is necessary to protect public health, safety, and welfare.

6.7.4 Access Standards

Require all new structures, including additions and Accessory Dwelling Units of more than 500 new square feet (not including Conversion ADUs), added to single-family dwellings on existing parcels of record, to provide and maintain an adequate driveway or road for fire protection in conformance with the adopted standards of State law, County Fire Code, and local fire district ordinances.

6.7.5 Exceptions to Access Road Standards

Exceptions to these standards and requirements that apply to all new structures (except Conversion Accessory Dwelling Units or ADUs 500 square feet or less), including additions or ADUs of more than 500 new square feet to single-family dwellings on existing parcels of record, may be granted at the discretion of the fire code official for single-family dwellings on existing parcels of record as follows:

(a) When the existing access road is acceptable to the Fire Department having jurisdiction.

(b) In addition, any of the following mitigation methods may be required prior to issuance of a building permit and/or as a condition of discretionary development approval:

  (1) Participation in an existing or formation of a new road maintenance group or association.

  (2) Completion of certain road improvements such as fill potholes, resurface access road, provide turnouts, cut back brush, etc. are made, as determined by the fire officials, and provided that the fire department determines that adequate fire protection can still be provided.

  (3) Provision of approved fire protection systems as determined by the fire code official.

(c) The level of road improvement required shall bear a reasonable relationship to the magnitude of development proposed.

6.7.6 Conditions and Requirements for Approval of Discretionary Development Permits and/or Ministerial Building Permits

Impose requirements on new development through the building permit review process, and/or condition approval of all discretionary development permits for new structures and additions, including for additions of 500 square feet or more, and to new single-family dwellings on existing parcels of record, to meet and maintain at all times fire protection standards in conformance with adopted standards of State law, County Fire Code, and local fire district ordinances.

6.7.7 Fire Protection Standards for Land Divisions Outside the Urban Services Line

Require all new minor land divisions and subdivisions outside the Urban Services Line to meet the following fire protection standards:

(a) If a proposed building site is located on a dead-end access road and is more than one-half mile from the nearest intersection with a through road, then secondary access must be provided. (See section 6.8.8, Standards for Dead-End Roads.). If building site is located within a 5-minute response time from the fire department and within 500 feet of a county-maintained road, then secondary access will not be required. Secondary access is defined as a 12-foot-wide all-weather surface roadway with a recorded right of access and maintenance agreement. The secondary access may be provided with a gate or other barrier on the approval of the fire code official. If these conditions cannot be met, development may take place only at the lowest density allowed for the area by the General Plan and LCP Land Use Plan.

(b) All primary and secondary roads shall meet the requirements of this section and shall be maintained through a County Service Area or a joint road maintenance agreement with all property owners of record.

(c) Location within the response time of 20 minutes from the fire station which is responsible for serving the parcel. Response time is defined as the length of time between the dispatch of ground fire vehicles from the fire station to their arrival at the location of the proposed structure(s). In areas exceeding 20 minutes response time, development may take place only at the lowest density allowed by the General Plan and LCP Land Use Plan.

(d) Locate the building site outside any designated Critical Fire Hazard Area and Very High Fire Hazard Severity Zone (VHFHSZ). If building sites cannot be located outside a Critical Fire Hazard Area and VHFHSZ, the following criteria shall be met:

(1) If the building site is served by a through access road or by secondary access, development may be approved only at the lowest density allowed by the General Plan and LCP Land Use Plan.

(2) If the parcel is on a dead-end access road and cannot develop secondary access, development may consist of only one single-family residence on the existing parcel of record; all land divisions must be denied.

(e) The project can meet the vegetation modification requirements called for by the fire code official, based upon an on-site inspection, including appropriate erosion control facilities. The homeowner must maintain this vegetation modification in order to assure long-term protection. Land clearing of one-quarter acre or more, or other vegetation modification within a Sensitive Habitat Area, shall be in conformance with the Erosion Control Ordinance and/or Sensitive Habitats Ordinance of the Santa Cruz County Code, including obtaining a Land Clearing Permit and/or Biotic Permit if required, and state timberland conversion regulations if applicable.

(f) The project can meet and maintain the standards established by the fire code official for water supply and/or water storage for fire-fighting purposes.

6.7.8 Standards for New Dead-End Roads

Prohibit newly constructed dead-end roads without secondary access serving more than one parcel in new minor land divisions or subdivisions which exceed the following distances from an adequate through road unless approved by the applicable fire protection agency, the Department of Public Works, and by the Planning Commission; in no case shall a new dead-end road exceed ½ mile in length.

Urban & Suburban General Plan and LCP Land Use Plan designation	500’
Rural General Plan and LCP Land Use Plan designation	1000’
Mountain General Plan and LCP Land Use Plan designation	1500’

The standard for new subdivisions of 5 or more lots shall not exceed 500’ from a through road unless acceptable to and recommended by the applicable fire protection agencies and the Department of Public Works and approved by the Planning Commission.

6.7.9 Maintenance for Private Roads

Require the creation or expansion of County Service Areas (to provide road maintenance), road maintenance agreements or associations (deemed adequate to provide appropriate road maintenance) for all new private roads, and for land divisions in rural areas served by private roads.

6.7.10 Certification of Adequate Fire Protection Prior to Permit Approval

Require all land divisions, multi-unit residential complexes, commercial and industrial complexes, public facilities and critical utilities to obtain certification from the appropriate fire protection agency that adequate fire protection is available, prior to permit approval.

6.7.11 Public Facilities Within Critical Fire Hazard Areas

Discourage location of public facilities and critical utilities in Critical Fire Hazard Areas and Very High Fire Hazard Severity Zones. When unavoidable, special precautions shall be taken to ensure the safety and uninterrupted operation of these facilities.

6.7.12 Consistency with Adopted Codes Required for New Development

Require all new development to be consistent with the California Fire Code, California Building Code, and other adopted County and local fire agency ordinances.

6.7.13 Land Divisions Access Requirements

(a) Require all private roads used for either primary or secondary access to be maintained through road maintenance agreements and/or associations or through a County Service Area.
(b) Prohibit land divisions where any new building site is located more than ½ mile from a through road unless secondary access is provided.
(c) In the North Coast and Bonny Doon planning areas, prohibit new land divisions where any new building site is located more than ½ mile from a publicly maintained road even where secondary access is provided.

6.7.14 Fire Protection Standards for Land Divisions Inside the Urban Services Line

Require all new land divisions within the Urban Services Line to be consistent with the California Fire Code, California Building Code, and other adopted County and local fire agency ordinances.

6.7.15 Local Ordinances

Adopt and have certified by the Board of Forestry and Fire Protection local ordinances which meet or exceed the minimum statewide standards in the SRA Fire Safe Regulations.

Programs

a. Encourage fire protection agencies to enter into first alarm response and initiate contractual agreements in order to assure that the fire unit nearest the fire will respond on first alarm to a fire emergency. (Responsibility: County Fire Marshal, Board of Supervisors, local fire protection agencies)

b. Newly constructed or approved public and private roads and streets must be identified by a name or number through a consistent countywide system, which provides for sequenced or patterned numbers and/or non-duplicating naming within the County. All signs shall be mounted and oriented in a uniform manner. This program does not require any entity to rename or renumber existing roads or streets, unless a threshold established by the County Code has been exceeded. A roadway providing access only to a single commercial or industrial occupancy shall not require naming or numbering. (Responsibility: Planning Department, County Fire Marshal)

c. Define levels of fire protection services using criteria relating to distance from fire stations, density of development and magnitude of fire risk. (Responsibility: Board of Supervisors, local fire protection agencies)

d. Develop fuel break standards for new development to separate communities or clusters of structures from native vegetation. (Responsibility: County Fire Marshal, Board of Supervisors, State Department of Forestry, and local fire protection agencies)

e. Develop an overall fuel break plan in Critical Fire Hazard Areas and implement the plan in conjunction with CAL FIRE and fire protection agencies. (Responsibility: CAL FIRE, County Fire Marshal, local fire protection agencies, Office of Emergency Services)

f. Provide, to the maximum extent feasible, two emergency access routes for all communities, with at least one developed to County standards. (Responsibility: Board of Supervisors, Planning Department, Public Works)

g. Upgrade water distribution systems where deficient to ensure adequate peak load water supply requirements for fire protection within the service areas of recognized water purveyors. Priority shall be given to areas within the Urban Services Line. (Responsibility: Water Purveyors, County Fire Department, local fire protection agencies, County Office of Emergency Services)

h. Give priority to areas within the Urban Services Line when planning expansion of fire protection facilities and equipment. (Responsibility: fire protection agencies, Board of Supervisors)

i. Maintain a joint communications center. (Responsibility: Board of Supervisors, Communications Director, County Fire Department, California Department of Forestry and Fire Protection, local fire protection agencies, County Office of Emergency Services)

j. Periodically review the "Santa Cruz County Master Fire Plan" and the "Santa Cruz County Community Wildfire Protection Plan" and update the plans, as necessary. (Responsibility: CAL FIRE, Resource Conservation District, County Fire Marshal, local fire protection agencies, County Office of Emergency Services)

k. Encourage CAL FIRE to provide land and air fire-fighting facilities and equipment adequate to meet estimated peak fire demands. (Responsibility: Board of Supervisors, County Fire Marshal)

l. Encourage fire protection agencies to establish educational fire prevention programs in order to have the public recognize its responsibility in preventing fires. (Responsibility: County Fire Marshal, local fire protection agencies, County Office of Emergency Services)

m. Review and update on a periodic basis the countywide Emergency Management Plan. Include the appropriate County agencies in all phases of disaster contingency planning. (Responsibility: Board of Supervisors, Office of Emergency Services)

n. Update the Critical Fire Hazard Map and fire hazard severity zone maps as new site-specific information becomes available which more precisely defines these areas. (Responsibility: Planning Department, County Fire Department, CAL FIRE, local fire protection agencies)

o. Identify fire hazard severity zones within the Urban Services Line and rural areas with topography, hazardous fuels, structures, density similar to those found in the Oakland Hills fire of 1991. (Responsibility: County Fire Marshal, local fire protection agencies)

p. In cooperation with fire protection agencies, develop coordinated action programs to reduce the hazard to existing development in critical fire hazard areas and fire hazard severity zones such as the following:
(1) Assessment districts to finance road improvements and secondary access; water storage, distribution and hydrant facilities; purchase of pumper trucks and/or vegetation clearance and fuel break construction.
(2) Fire hazard inspection and code enforcement.
(3) Public education programs on fire prevention.
(Responsibility: Planning Department, County Fire Marshal, local fire protection agencies, Board of Supervisors)

q. Amend and update the Santa Cruz County General Plan Safety Element Wildland and Urban Fire Hazards section as needed, to reflect fire code amendments. (Responsibility: Board of Supervisors, County Fire Marshal, local fire protection agencies, Planning Department)

r. Encourage fire protection agencies to maintain ongoing emergency service trainings

AIR QUALITY

This new section of the Safety Element shifts and amends policies from the Conservation and Open Space Element of the county's 1994 General Plan. This section also overlaps with many policies and programs found in the Circulation Element. Location of the Air Quality section within the Public Safety Element reflects importance of air quality and greenhouse gas emissions as related to climate change, as well as public health and safety impacts on the population caused by air pollution.

Atmospheric pollution is determined by the amount of pollutant emitted and the atmosphere's ability to transport and dilute it. In Santa Cruz County, coastal mountains exert strong influence on atmospheric circulation, creating a breezy coastal environment with generally good ambient air quality. However, in the San Lorenzo Valley and certain small inland valley areas, air quality can be poor at times due to wood smoke generated by fireplaces used for heating and other purposes. Also, localized sources can cause odors or create dust or other air quality problems. Fuels and solvents used for vehicles, space and water heating, industrial processes, and commercial uses; and incineration processes, fires, and pesticides are typical pollutant sources. Autos are the largest source of pollutants.

Air Quality Management Plans (AQMPs) are developed for regions throughout the state to meet the air quality requirements and standards for specific pollutants, including ozone, nitrogen oxide and dioxide, sulfur dioxide, carbon monoxide, and suspended particles, as outlined in the federal and State Clean Air Acts. The North Central Coast Air Basin (Monterey, Santa Cruz, and San Benito counties) has been designated as a moderate, transitional non-attainment area because it exceeds air quality standards for ozone and inhaled particulate matter. The region's AQMP prescribes methods for attaining ozone and particulate matter standards and for maintaining air quality in the region.

Attainment of air quality standards is achieved through measures to control emissions from stationary sources (factories, commercial activities, etc.) and mobile sources (cars and trucks). The County of Santa Cruz offers low-cost permits for change-outs of woodstoves and fireplaces from wood-burning to gas. Transportation control measures (TCMs) and land use programs also contribute to improving air quality. In addition to attaining air quality standards for ozone and particulate matter, the Monterey Bay Unified Air Pollution Control District, the County, and regional and local agencies are concerned with reducing stratospheric ozone depletion and regulating the emission of chlorofluorocarbons (CFCs), carbon dioxide, and other "greenhouse gases" (GHGs).

GOAL: Take actions consistent with the region's air quality management plan, and focus special attention on assisting with efforts to reduce wood smoke pollution in San Lorenzo Valley

Objective 6.8-1

To improve the air quality of Santa Cruz County by meeting or exceeding state and federal ambient air quality standards, protect County residents from the health hazards of air pollution, protect agriculture from air pollution induced crop losses and prevent degradation of the scenic character of the area.

Objective 6.8-2

Address localized air quality issues, including indoor air quality.

Objective 6.8-3

Implement incentive programs to assist homeowners with replacement of wood-burning fireplaces and woodstoves with gas-fired appliances.

Policies

6.8.1 New Development
Require future development projects to implement applicable Monterey Bay Unified Air Pollution Control District (MBUAPCD) control measures and/ or air quality mitigations in the design of new projects as set forth in the District's "CEQA Guidelines." Cf. M3.3.4.

6.8.2 Non-Attainment Pollutants
Prohibit any net increase in emissions of non-attainment pollutants or their precursors above the thresholds established by the MBUAPCD from new or modified stationary sources.

6.8.3 Air Quality Mitigations
Require land use projects generating high levels of air pollutants (i.e., manufacturing facilities, hazardous waste handling operations) to incorporate air quality mitigations in their design.

6.8.4(a) Offshore Oil Development
Prohibit development, construction, or installation of any onshore facility necessary for or intended to support offshore oil or gas exploration and development unless a General Plan and Local Coastal Program amendment is approved by the voters of the County which allows such development. (See policies in sections 5.3 and 5.4.) *Revised by Res. 142-2014*

6.8.4(b) Onshore Oil and Gas Development
Prohibit development, construction, installation, or use of any facility necessary for or intended to support oil or gas exploration or development from any surface location within the unincorporated area of the County of Santa Cruz, whether the subsurface portion(s) of such facility is within or outside the unincorporated area of the County of Santa Cruz, and prohibit development, construction, installation or use of any facility necessary for or intended to support oil or gas exploration or development from surface locations outside the unincorporated area of the County of Santa Cruz which may begin, pass through or terminate below the surface of land located within the unincorporated area of the County of Santa Cruz. This prohibition applies to facilities directly involved in oil and gas exploration, production, and refinement such as wells, pipelines and pumps. *Revised by Res. 142-2014*

6.8.5 Sensitive Land Uses
Locate air pollution-sensitive land uses away from major sources of air pollution or require mitigation measures to protect residential and sensitive land uses from freeways, arterials, point source polluters, and hazardous material locations.

6.8.6 Plan for Transit Use
Encourage commercial development and higher density residential development to be located in designated centers or other areas that can be easily served by transit.

6.8.7 Alternatives to the Automobile
Emphasize transit, bicycles and pedestrian modes of transportation rather than automobiles, as well as telecommuting and alternative work schedules.

6.8.8 Encouraging Landscaping
Maintain vegetated and forested areas and encourage cultivation of street trees and yard trees for their contributions to improved air quality.

5.18.9 Greenhouse Gas Reduction

Support and implement local actions and County, State and federal plans and legislation promoting the reduced emission of carbon dioxide and other greenhouse gases, and actions to achieve reduction goals and standards.

6.8.10 Elimination of Ozone Depleting Chemicals

Support and implement local actions to achieve the most rapid possible international, national, state, and local elimination of the emission of ozone-depleting chemicals.

Programs

a. Implement the Urban Forestry Master Plan to increase the urban tree canopy. (Responsibility: Board of Supervisors, County Departments)

b. Support air quality monitoring, air pollution control strategies, and enforcement by the Monterey Bay Unified Air Pollution Control District. (Responsibility: Board of Supervisors)

c. Control aerial spraying of pesticides and fertilizers, to the degree possible, to prevent contamination of areas adjacent to sprayed areas. (Responsibility: Agricultural Commissioner)

d. Ensure that agricultural burning practices are in accordance with state and regional laws and permit open burning of debris only in instances where other disposal methods are not feasible. (Responsibility: State Department of Forestry, Regional Air Quality Control District, Agricultural Commissioner)

e. Encourage public education programs promoting reduced emissions from transportation-generated pollutants and area-wide sources and encourage lesser polluting transportation alternatives through the construction of bikeways and the provision of public transit. (Responsibility: Board of Supervisors, Santa Cruz Metropolitan Transit District, Transportation Commission)

f. Ensure that forestry and agricultural wastes are chipped rather than burned where feasible and permissible considering disease control and other land use compatibility factors. (Responsibility: State Department of Forestry, Regional Air Quality Control District, Agricultural Commissioner)

g. Closely monitor industrial processes and require them to utilize the best available procedures to protect air quality. (Responsibility: Planning Commission, Regional Air Quality Control District)

h. Update and implement a Trip Reduction Ordinance. (Responsibility: Planning Department, Planning Commission, Board of Supervisors)

i. Replace County-owned and encourage replacement of privately-owned fire extinguishers with models that do not use ozone depleting compounds. (Responsibility: General Services, Board of Supervisors)

j. Encourage and support tree planting programs by governmental agencies, private business, individuals and non-profit organizations with a goal of planting at least one tree in Santa Cruz

County each year for every person born in the County during such year. (Responsibility: County Administrative Office, Board of Supervisors)

k. Investigate methods for developing a carbon dioxide budget for the County that limits carbon dioxide emissions.

l. Implement chlorofluorocarbon (CFC) recycling and elimination regulations.

n. Strive to eliminate the use of polystyrene foam (PSF) packaging products throughout the county.

o. Permit major indirect sources of air pollution only if they provide transportation measures to reduce their impacts to a less-than-significant level, consistent with applicable MBUAPCD recommended mitigation and control measures as set forth in the District's "CEQA Guidelines." Cf. LU1.2.

p. Implement and enforce a Smoking Pollution Control Ordinance.

HAZARDOUS AND TOXIC MATERIALS

Santa Cruz County government has played a leadership role in helping to minimize toxic hazards to the citizens and residents of Santa Cruz County. In 1984, the Board of Supervisors adopted as a statement of basic policy that it should be a statewide goal completely to eliminate the toxic contamination of any portion of the State's environment, including the land, water, and air resources of the State.

In June 1990, by adopting Measure C, the people of Santa Cruz County made a specific finding that "the introduction of toxic chemicals into all parts of the environment, in increasing quantities, has led to the pollution of the ocean, and of fresh water supplies, and to the presence of toxic chemicals in the tissues of virtually every living thing, placing the future of life on this planet in jeopardy." Measure C requires Santa Cruz County government to attempt to eliminate the use of toxic materials within Santa Cruz County where possible, and requires the reduction, recycling, and reuse of such materials, to the greatest extent possible, where complete elimination of their use is not feasible.

This section of the General Plan and LCP Land Use Plan states the basic objectives of Santa Cruz County with respect to hazardous and toxic materials, and also includes provisions relating to hazardous waste management. The provisions relating to hazardous waste management are a summary of the facilities siting provisions of the Santa Cruz County Hazardous Waste Management Plan (CHWMP), required by State law. Additional background information and more detailed policies, programs, and technical data are included in the County's Hazardous Waste Management Plan.

Objective 6.9 Hazardous and Toxic Materials

To eliminate, to the greatest degree possible, the use of hazardous and toxic materials, and where it is not feasible completely to eliminate the use of such materials, then to maximize the reduction in the use of such materials, so as to ensure that such materials will not contaminate any portion of the County's environment, including the land, water, and air resources of the County.

Policies

6.9.1 Hazardous Materials Ordinance

Maintain the County's Hazardous Materials ordinance, placing on users of hazardous and toxic materials the obligation to eliminate or minimize the use of such materials whenever possible, and in all cases to minimize the release, emission, or discharge of hazardous materials to the environment, and properly to handle all hazardous materials and to disclose their whereabouts. Further, maintain the County's ordinance relating to ozone-depleting compounds. Ensure that any amendment of existing ordinance provisions is based on a finding that the amendments will provide protection to the environment and the community against toxic hazards that is equal to or stronger than the existing provisions.

6.9.2 County Use of Toxic/Hazardous Materials

Eliminate wherever possible, and minimize where elimination is not feasible, the use of hazardous and toxic materials in the operations and programs of County government.

6.9.3 Maintenance of Standards for Use and Control

Ensure that Santa Cruz County maintains standards for the use and control of hazardous materials which are at least equal in their protection for the environment and the community to measures imposed by other local governments within Santa Cruz County, and in adjoining counties.

Programs

a. Enact an ordinance regulating the storage, transportation, and use of toxic gases, with standards at least as protective as those found in comparable ordinances adopted by local governments within Santa Clara County. (Responsibility: Environmental Health, Planning Department, County Office of Emergency Services, Board of Supervisors)

b. Implement, where funding can be made available, programs to provide assistance to businesses, farmers, and homeowners, to assist them in eliminating and reducing the use of toxic materials. (Responsibility: Environmental Health, Planning Department, Agricultural Commissioner, County Administrative Office)

c. Continue County programs facilitating the safe disposal of household hazardous wastes. (Responsibility: Public Works)

HAZARDOUS WASTE MANAGEMENT

The Hazardous Waste Management section is a summary of the facilities siting provisions of the Santa Cruz County Hazardous Waste Management Plan (CHWMP), required by state law. Additional background information and more detailed policies, programs and technical data are included in the CHWMP. The intent of this section is to restate the substantive provision, relating to hazardous waste management facilities siting of the CHWMP. If any portion of this section appears to conflict with the County Hazardous Waste Management Plan, the County Hazardous Waste Management Plan shall prevail.

Objective 6.10 Hazardous Waste Management

To ensure that hazardous waste management facilities will be safely sited to protect public health and the environment, and to ensure the general management of hazardous waste occurs in accordance with the implementation policies specified in the Santa Cruz County Hazardous Waste Management Plan, and any applicable state and federal regulations.

ALL FACILITIES WHICH COLLECT, HANDLE, TRANSPORT, TREAT, STORE OR DISPOSE OF HAZARDOUS WASTE

Policies

6.10.1 Managing the County's Fair Share of Hazardous Waste

Any proposed facility shall be consistent with the fair share principle, and with any inter-jurisdictional agreements on hazardous waste management entered into by Santa Cruz County.

6.10.2 Sizing Facilities

Facilities shall be designed and sized primarily to meet the hazardous waste management needs of this County, or to meet any broader future commitments made as part of an inter-jurisdictional agreement, or upon a determination of the local body that the project meets local planning criteria and serves public needs.

6.10.3 Location of Facilities

Require any proposed hazardous waste management facility to be located only in those general areas identified in the Hazardous Waste Management Plan.

6.10.4 Conformance to Federal, State and Local Siting Standards

Require all hazardous waste land disposal facilities to conform to the siting standards contained in state statues as well as conform to the General Plan and LCP Land Use Plan and Zoning ordinances of the County of Santa Cruz.

6.10.5 Floodplains and Sensitive Habitats

Prohibit any facility to be located within a floodplain or area which could adversely impact any sensitive habitat.

6.10.6 Depth to Groundwater

Require a minimum 20-foot distance between any hazardous waste facility and the highest anticipated elevation of the underlying groundwater. Proposed sites must be evaluated for consistency with this criteria by a registered geologist before permitting.

6.10.7 Mineral Resources Areas

Allow facilities to be sited only where they will not preclude extraction of minerals necessary to sustain the economy of the state.

6.10.8 Non-Attainment Air Areas (Federal Clean Air Act)

Allow facilities to be sited within federally designated Non-Attainment Air Areas only under the following conditions:

(a) A risk assessment must be completed and shall consider physical and chemical characteristics of the specific types of wastes that will be handled and design features of the facility. The assessment must show that emissions will not significantly contribute to non-attainment of standards;
(b) The emissions generated must be mitigated; and
(c) The emissions generated from such facilities shall not be greater than those associated with the transportation of hazardous waste outside of the non-attainment area.

6.10.9 Prime Agricultural Land

Demonstrate an overriding public service need before approving the siting of hazardous waste management facilities in commercial agricultural lands.

6.10.10 Distance From Residences

(a) Require a Risk Assessment for the siting of a hazardous waste management facility and a 500-foot minimum buffer zone from the nearest urban and suburban density residentially zoned areas. The risk assessment shall consider the physical and chemical characteristics of the specific type of waste(s) that will be handled and any design feature necessary for the facility.
(b) Require any facility handling ignitable, volatile or reactive wastes to be sited a minimum of 2000 feet from the nearest residence unless the developer can show that the public is sufficiently safeguarded in the event of an accident.

6.10.11 Distance from Immobile Populations

(a) Require a Risk Assessment for the siting of a hazardous waste management facility and a 500-foot minimum buffer zone from an immobile population, which includes places where large numbers of people may gather and also includes schools, hospitals, convalescent homes, prisons, facilities for the mentally ill, or similar places. The risk assessment shall consider the physical and chemical characteristics of the specific type of waste(s) that will be handled and any design feature necessary for the facility.
(b) Require any facility handling ignitable, volatile or reactive wastes proposed to be sited within one mile of an immobile population, to prepare, at the developer's expense, a study detailing the maximum credible accident from a facility's operation.

6.10.12 Emergency Response/Safe Transportation Routes

Locate facilities of any type so as to minimize distances to major transportation services. Locate all facilities in areas where the fire departments are trained to respond to hazardous materials accidents. Road networks leading to major transportation routes should not pass through residential neighborhoods, should minimize residential frontages in other areas, and shall be demonstrated to be safe with regard to road design and construction, weight allowances, accident rates, excess traffic, etc.

6.10.13 Public Services

Limit all facility types to sites where public water and sewer and emergency facilities are available, except for existing landfill sites.

TRANSFER STATIONS FOR HOUSEHOLD AND SMALL QUANTITY BUSINESS GENERATORS

Existing and projected hazardous waste generation rates identified in the Santa Cruz County Hazardous Waste Management Plan indicate a need only for local collection and temporary storage (transfer) facilities to receive hazardous waste from household and small quantity (business) generators. Any and all such facilities sited in the unincorporated area of Santa Cruz County shall be subject to the following siting policies.

Policies

6.10.14 Require Environmental Review

Require proposed facilities to comply with the California Environmental Quality Act prior to approval of any permit or commitment of funding for construction of the facility. At a minimum, projects shall be reviewed for their susceptibility to natural hazards, including seismic and slope stability; and reviewed for their impacts to natural resources including groundwater and Water Supply Watersheds. Consider approval of such facilities only when a risk assessment is performed which indicates that the risks can be made acceptable through proper engineering and appropriate conditions are included as part of the design and construction of the facility.

6.10.15 Permeable Stratas and Soils

Require all above-ground facilities to have engineered structural design features, common to other types of industrial facilities, including spill containment and monitoring devices.

6.10.16 PSD Area (Prevention of Significant Deterioration Areas)

Permit these facilities to be sited in PSD Areas, as defined in the Hazardous Waste Management Plan, only if they are necessary to handle potentially hazardous wastes generated by visitors or residents in recreational or cultural facility areas which are in the PSD zone. PSD areas meet the ambient air standards of the Clean Air Act, and thus should be prevented from significant deterioration.

6.10.17 Proximity to Waste Generators

Locate household hazardous waste collection facilities close to residential and/or commercial zoned areas to encourage their use.

6.10.18 Recreational, Historic, Cultural and Scenic Areas

Allow household hazardous waste management facilities to be located in areas of recreational, historic, cultural or scenic resources only to the extent that they are necessary to handle hazardous wastes generated by visitors, workers or residents in these areas.

TREATMENT /STORAGE DISPOSAL FACILITIES FOR INDUSTRIAL GENERATORS

Existing and projected hazardous waste generation rates identified in the Santa Cruz County Hazardous Waste Management Plan do not indicate a need for local treatment, storage or disposal facilities for industrial generators within Santa Cruz County. The existing and projected needs for treatment, storage and disposal of hazardous wastes can continue to be met by out-of-County facilities. Therefore, no industrial treatment, storage or disposal facility will be allowed within Santa Cruz County, unless at some future time a need can be demonstrated as determined by the Board of Supervisors. Upon such determination, then the following siting policies shall apply.

Policies

6.10.19 Seismic Hazards

Prohibit facilities of any type to be built in zones of potential surface rupture faulting, areas of high liquefaction potential, and areas most susceptible to landslides (slopes greater than 15%).

6.10.20 Slope Stability

Prohibit facilities of any type to be built in zones of slope instability. These areas include slopes greater than 30% and areas subject to liquefaction and subsidence due to natural and man-made causes.

6.10.21 Groundwater Resources

Prohibit facilities of any type to be built in areas which are known or suspected to be a sole source aquifer or principal aquifer recharge area for a region.

6.10.22 Water Supply Watersheds

Prohibit facilities of any type to be built in areas which are known or suspected to be a Water Supply Watershed area.

6.10.23 Permeable Stratums and Soils

Exclude these facilities unless they are immediately underlain by geologic materials with a permeability of not more than 1 x 10 to the seventh power cm/second, and thick enough to prevent vertical movement of fluid to groundwater.

6.10.24 Prevention of Significant Deterioration (PSD) Areas

Consider and, if appropriate, conditionally approve, facilities in PSD areas, unless an analysis shows that air emissions cannot be adequately mitigated. These are areas which meet the ambient air standards of the Clean Air Act, and thus should be prevented from significant deterioration.

6.10.25 Coastal Zone

Prohibit hazardous waste treatment/storage/disposal facilities of any type to be built in the areas of the Coastal Zone.

6.10.26 Recreational, Cultural or Scenic Areas

Prohibit industrial hazardous waste management facilities in areas of historic preservation and other cultural or scenic areas, as defined by the Santa Cruz County General Plan and LCP Land Use Plan.

6.10.27 Proximity to Waste Generators

Locate industrial hazardous waste collection facilities close to Large Quantity Generator (LOG) sources to minimize the risk of transportation.

Programs

a. Update the County Hazardous Waste Management Plan a minimum of every three years for compliance with State and federal regulations. (Responsibility: Environmental Health, Planning Department, Board of Supervisors)

b. Identify the types of treatment, storage and disposal facilities needed in Santa Cruz County, identify general areas where such facilities can be located, and, where appropriate, develop agreements with other counties to handle hazardous wastes produced in Santa Cruz County.

(Responsibility: Environmental Health, Planning Department, Public Works, Board of Supervisors)

ELECTRIC AND MAGNETIC FIELD EXPOSURE HAZARDS

A number of studies have examined the potential for risk to human health that may exist due to long term exposure to electric or magnetic fields found adjacent to electric powerlines. Some of these studies have found a potential for risk to human health. Siting of sensitive land uses (such as schools) and housing next to powerlines may, therefore, have an environmental health impact on users of the sensitive land uses and the residents of such housing.

ELECTRIC AND MAGNETIC FIELDS

In Santa Cruz County electric power is transferred from power generating stations to substations by means of 115,000-volt transmission lines. Substations are used to "step down" the electricity's voltage to facilitate the transfer from transmission to distribution lines. Distribution lines bring electricity from substations into neighborhoods. In Santa Cruz County, distribution lines operate at voltages from 4,000 to 21,000 volts. A magnetic field measured in units of milligauss, and an electric field, measured in volts per meter, found in the vicinity of these powerlines, and commonly called together the electromagnetic field, are a consequence of the delivery of the electric power. These fields fall off rapidly in strength with increased distance from the powerlines.

The strength of a magnetic field at a given site depends on several factors such as how many conductors are carrying the electric current, their spacing, and height above the ground. The magnetic field will also be proportional to the value of electric current being carried, which varies with electric power demand by time of day, day of week, season of the year, and changes over the years due to growth. Furthermore, the magnetic field also varies with height, so that the magnetic field in a second story bedroom could be substantially larger than the magnetic field found three feet off the ground in a first story living room. This is a consequence of getting closer to the current carrying conductors with increase in structure height or even change in ground height. The value of the magnetic field is essentially independent of the powerline voltage.

In contrast to the magnetic field, the electric field from powerline does not depend on the current being carried, but it dependent on the voltage of the line. The higher the line voltage the higher will be the electric field magnitude around the line. The value of the electric field will also be drastically modified by objects in the field. For example, the presence of housing, trees, shrubs, and people will markedly change the electric field value at a given location.

Measurements of the existing electric and magnetic fields across a given site, and at a given time, are easily made and may be available at no cost from local utilities. Estimates of the fields expected can also be obtained from existing computer programs, but would be based on assuming ideal conditions, such as parallel lines with no sag and level ground.

A typical 115,000-volt transmission powerline would have a magnetic field of 25 to 40 milligauss directly under the powerline at a height of three feet. The magnetic field would decrease with distance from the powerline and would drop off to a level of 1.5 milligauss at a distance of about 150 feet from the powerline, at the same three-foot height. The same 115,000-volt transmission powerline might have an electric field of 1,000 volts per meter directly under the powerline and the electric field would drop to 50 volts per meter at a distance of somewhere between 100 and 200 feet from the powerline. Any objects in the vicinity of the powerline would drastically change these electric field values.

Numerous studies have suggested a potential for adverse health effects due to long term exposure to electric and magnetic fields, such as found near powerlines. The siting of housing, or other habitable structures,

such as schools, near powerlines will increase the electric and magnetic field exposure to future residents above the background levels and may thus increase the risk of disease.

LIMITING ELECTRIC AND MAGNETIC FIELD EXPOSURE

Due to the potential for adverse health effects a practice of "prudent avoidance" is recommended. Prudent avoidance means limiting exposures that can be avoided with relatively small investments of money or effort and generally includes increasing the distance and decreasing the time of exposure between people and sources of electric and magnetic fields.

There are no national standards or regulations specifically for powerline magnetic fields. Some local attempts at regulation have, however, been made to date. California has not established any limitations for siting homes near powerlines, although some guidelines are currently being used for school sites near transmission powerlines. The School Facilities Planning Division requires that no new schools be sited 100 feet from the edge of the right-of-way of 100,000-to-110,000-volt lines; 150 feet from 220,000-to-230,000- volt lines; and 250 feet from 345,000-volt lines.

There are generally three approaches to mitigating adverse impacts from electric and magnetic fields. The first typically involves site planning techniques to set habitable structures back from sources of electric and magnetic fields and thereby avoid hazardous doses. The second is to use engineering solutions, such as reconfiguring the powerlines, to mitigate electric and magnetic fields. The third, more difficult (and costly) approach involves placing powerlines underground and removing constraints to site development by significantly diminishing the magnetic field strength or completely eliminating the electric field, thus reducing the potential health hazard.

1. **Site Planning**
   With a transmission or distribution powerline crossing a subdivision site, the subdivision could be designed to set habitable buildings back from the powerlines, in a manner consistent with the current state of scientific knowledge.

2. **Undergrounding the Powerline**
   It is possible substantially to reduce the electric and magnetic fields by undergrounding the powerlines in a metallic pipe. The electric field would be essentially eliminated by the shielding of the metallic pipe and the magnetic field could be considerably reduced because the conductors are placed closer together causing the magnetic fields from the individual conductors to partially cancel each other.

3. **Reconfiguring the Powerlines**
   The number of conductors in a transmission or distribution powerline can be increased and their current fed (phased) in ways to achieve significant cancellation of the electric and magnetic fields near the ground. The techniques to considerably lower the fringing electric and magnetic fields around powerlines are known at this time. In addition, there is considerable research effort underway in this area.

Objective 6.11a Electric and Magnetic Energy

To protect the public from potential health hazards associated with electric and magnetic fields based on the then current state of scientific knowledge through appropriate limitations on the use and development of land near electric transmission and distribution powerlines and substations which could create health hazards.

Objective 6.11b New Electrical Facilities

The planning, siting, and construction of future electrical facilities should minimize electric and magnetic fields near sensitive areas (for example schools, hospitals, playgrounds), residential uses, existing areas of high electric and magnetic exposure, and areas of future development.

Policies

6.11.1 Prudent Avoidance

In regard to exposure of electric and magnetic fields, the policy of the County of Santa Cruz is one of "prudent avoidance." Prudent avoidance assumes that exposure to electric and magnetic fields may present a health risk. The policies in this section shall apply to residential land divisions or other new discretionary development and other sensitive land uses, not including development of one single-family dwelling on an existing lot of record.

6.11.2 Measuring Ambient Magnetic Fields

Require the measurement of the ambient magnetic fields for all residential land divisions or other new discretionary development (not including development of one single-family dwelling on an existing lot of record) where such property is within 150 feet of 21 kv or greater transmission or distribution powerlines of the electric power delivery system. The measurements should delineate the area on the site where the magnetic field is above the level at which potential health effects may exist, based on the then current state of scientific knowledge.

6.11.3 Development Mitigation Measures

Utilize the following techniques to minimize exposure to potentially hazardous electric and magnetic fields from electric powerlines.

(a) Site Planning – Locate and/or cluster habitable building envelopes away from the potentially hazardous electric and magnetic fields consistent with the current state of scientific knowledge.

(b) Underground the Powerline – Reduce the electric and magnetic fields by undergrounding powerlines in a metallic pipe or other appropriate insulator.

(c) Reconfigure the Powerline – Reconfigure lines and conductors in transmission or distribution lines to achieve significant cancellation of the electric and magnetic fields near the ground.

6.11.4 New Transmission and Distribution Facilities

The siting of new transmission and distribution powerlines and substations shall minimize electric and magnetic fields near existing sensitive areas, residential uses, existing areas of high electric and magnetic field exposure, and areas of future development. Public exposure to electric and magnetic fields shall not be increased where practical alternatives exist.

Programs

a. Work with PG&E and other relevant private and public organizations to maintain EMF informational handouts and reference lists for public education. (Responsibility: Public Works Department, Environmental Health)

b. Identify those areas where a potential hazard from exposure to electric and magnetic fields exist by mapping the location of the transmission lines, distribution lines, and substations in the County. (Responsibility: Public Works Department, Environmental Health, Information Service-GIS)

ENVIRONMENTAL JUSTICE

In 2016, the State of California also adopted requirements for General Plans to address environmental justice for disadvantaged communities. Disadvantaged communities are defined as low-income areas (at or below 80% of area median household income) that are disproportionately affected by environmental pollution and other hazards that can lead to negative health effects, exposure or environmental degradation. While the unincorporated area of Santa Cruz County contains a small agricultural area near Watsonville that meets the technical definition of disadvantaged community, certain sub-areas of unincorporated Santa Cruz County can at times be of similar status as a disadvantaged community, depending upon how the geographic limits are defined and upon economic circumstances of the area population as the economy and housing market changes. This Safety Element therefore incorporates environmental justice requirements and generally addresses these unique or compounded health risks for these certain sub-areas that may at times qualify as disadvantaged communities, including policies regarding promotion of civil engagement in public decision making, and prioritization of improvements and programs that address the needs of disadvantaged communities.

In Santa Cruz, the community areas and environmental hazards that may at times qualify as disadvantaged communities affected by pollution or hazards include:

1. Areas of San Lorenzo Valley affected by woodsmoke from heavy use of fireplaces and woodstoves in homes;

2. Areas in San Lorenzo Valley that are affected by the lack of sewer infrastructure and existence of older and possibly failing septic systems;

3. Areas in Davenport that are subject to high water and sewer treatment rates due to the nature of infrastructure and small number of users;

4. Areas in Soquel and Live Oak that are subject to moratoriums due to inadequate and/or undersized stormwater and sanitation infrastructure; and

5. Areas within the Soquel Creek Water District that are served by a groundwater basin that is in overdraft and households subject to high costs to connect to and be served by the system.

6. Area within the Freedom area of the County affected by high costs to maintain and upgrade sewer infrastructure.

Objective 6.12.1 Environmental Justice

Address unique or compounded health risks for areas that may be considered disadvantaged communities affected by pollution or hazards, through developing plans to address the pollution or hazards, and providing funding as feasible through the Capital Improvement Plan and County Budget processes and through seeking funding from federal, state, regional or local grant programs.

Policies

6.12.1 Civil Engagement

Promote civil engagement within disadvantaged communities in public decision making.

6.12.2 Woodburning Fireplaces and Stove

In recognition of the broad public health benefits that result from decreased burning of wood and wood pellets to heat homes, reduce or waive permit fees for change-outs of woodburning fireplaces and stoves to gas-fired appliances.

6.12.3 Cement Plan Re-Use

Support a re-use of the cement plant site in Davenport that will modernize and improve water and sewage treatment, and will lower costs to community residents and businesses.

6.12.4 Septic Systems

Support modern septic treatment approaches in the San Lorenzo Valley in order to phase out underperforming septic systems and improve water quality and the environment.

6.12.5 Groundwater Management

Support efforts of the Soquel Creek Water District to identify a water source that will prevent further overdraft of the aquifer and lead to recharge and recovery of the aquifer.

6.12.6 Drainage and Sanitation Facilities

Update Stormwater Drainage and Sanitation Facilities Master Plans in order to ensure availability of infrastructure to serve planned development in the Soquel and Live Oak areas.

6.12.7 Local Income Surveys

Perform local income surveys to determine if an area is considered a disadvantaged community in order to qualify for grant opportunities from state and federal sources.

6.12.8 Disadvantaged Communities

Prioritize improvements and programs that address the needs of disadvantaged communities.