



Santa Cruz Civil Grand Jury

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Reducing Our Community's Risk from Wildfire It Will Take Money, Time, and Serious Cooperation

Santa Cruz and San Mateo are 100 years behind in fuels management efforts—that is, reducing the brush and other burnable material that can fuel devastating fires.

“If we don’t start reducing the fuels around our communities and protecting them, it’s only a matter of time before we have another catastrophic event.”

Ian Larkin, retired CAL FIRE Chief,
Good Times, November 2, 2021

Summary

The August 2020 CZU Lightning Complex Fire was the most destructive fire to ravage Santa Cruz County in more than a century. It was a disaster waiting to happen, and it won't be our last calamitous wildfire.

Preventing future wildfires from seriously damaging our forest communities will require a major reduction of hazardous vegetation. We must prioritize vegetation reduction to protect residences, utility infrastructure, access and egress routes, and critical buildings such as schools and hospitals.

This report calls out concrete, achievable steps that will limit the harm done by recurring wildfires to forest communities. Our report identifies major impediments that exist to taking those steps. The Grand Jury recommends that the Board of Supervisors commission a strategic investment plan for reducing wildfire risk. The Grand Jury further recommends that the agencies critical to producing that plan report directly to the Board of Supervisors. Finally, those agencies should update the public annually on progress toward creating a more wildfire-resilient habitat for County residents.

Table of Contents

Background	3
The History of Wildfire in Santa Cruz County	3
Protecting Communities from Wildfires	7
Two Major Elements to Protecting Our Communities	11
Who Oversees Fire Risk Reduction in Santa Cruz County?	12
Scope and Methodology	13
Investigation	13
Strategic Planning for Vegetation Reduction	13
Cross-Agency Strategic Planning for Vegetation Reduction	14
Grant Funding for Community Protection Projects	16
Ongoing Vegetation-Reduction Work	16
Vegetation-Reduction Projects Are Cumbersome and Expensive!	17
Private Forested Lands Can Increase Community Risk	18
Santa Cruz County’s Role in Wildfire Prevention	18
Resources	20
Conclusion	21
Findings	22
Recommendations	23
Commendations	23
Required Responses	23
References	24
Appendix A—Agencies Involved in Fire Protection	31
Appendix B—Fire Prevention Plans	33

Background

The History of Wildfire in Santa Cruz County

Wildfires have always occurred in Santa Cruz County (**County**). Every few years, a wildfire burns from hundreds to a few thousand acres, and a few structures are destroyed. The 2020 CZU Lightning Complex Fire (**CZU Fire**) changed everything. The fire burned more land in Santa Cruz County than had been burned by *all* wildfires in the previous 70 years combined. The following chart shows the four most destructive fires since World War II in comparison with the CZU Fire.

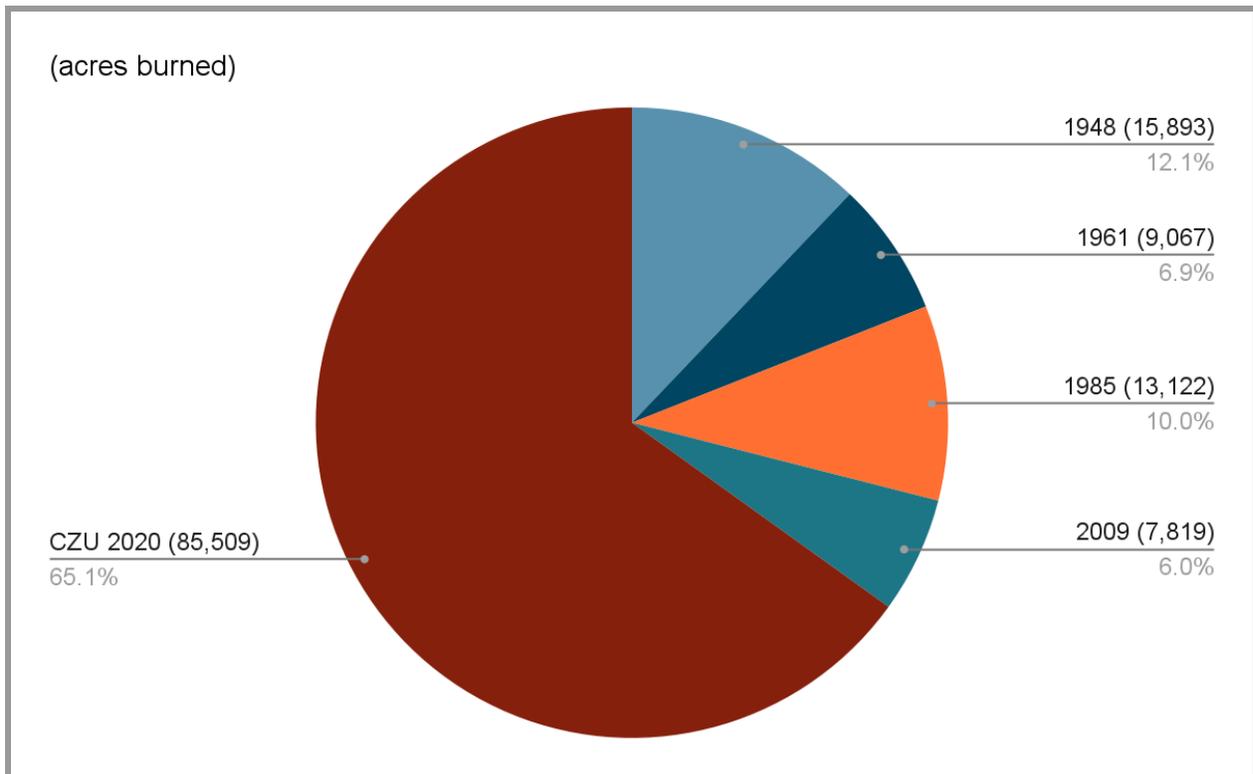


Figure 1. Largest Historical Wildfires in Santa Cruz County^[1]

CZU Fire Effect on People, Communities, and Infrastructure

The CZU Fire started with an unusual lightning event in the early morning hours of August 16, 2020 that ignited multiple fires in Santa Cruz and San Mateo counties. The fires eventually joined, and the resulting megafire destroyed approximately 1,430 structures and damaged another 134 structures. The preliminary estimate of total damage, including public infrastructure, was \$340 million.^[2]

More than 45,000 people were successfully evacuated from areas threatened by the fire,^[2] and one person tragically lost his life.^[3] Interviewees reported that resources were not adequate to fight the fire. At one point, 27 separate fires were burning, but there were only 13 fire engines available to fight them.

The lightning strikes and the resulting fires damaged communications infrastructure and utilities. Battery backup systems lasted no more than 24 hours and power could not be reestablished due to the ongoing fire. Reverse 9-1-1 notification systems, social media, text messages, and so on, that might have alerted residents to the wildfire threat were inaccessible because of damaged and burned communications infrastructure.^[4] Many of the evacuations were coordinated through California Highway Patrol officers and County Sheriff's deputies, who drove through threatened neighborhoods with loudspeakers encouraging evacuation. This response was dependent on clear evacuation routes.^[5]

Climate Change Sets Up Extreme Wildfires

In California, climate change is causing hotter, drier fire seasons and more drought years, increasing wildfire risk and worsening those that occur. The number of wildfires and the area burned is expected to increase. In 2020, nearly 10,000 fires burned over 4.2 million acres, which is more than four percent of the state's roughly 100 million acres of land. In 2020, the most land burned in California's recorded history.^[6]

Santa Cruz County is likely to experience higher temperatures and generally drier conditions in the years to come due to climate change. Moreover, a recent analysis predicts longer, deeper droughts, but with occasional extremely wet winters. Threats such as Sudden Oak Death, pine bark beetles, and other diseases cause massive tree mortality and further contribute to fire risk.^[7]

In 2007, the California Department of Forestry and Fire Protection (**CAL FIRE**) mapped wildfire hazards across the County.^[8] The resulting map is shown in Figure 2. Note that this map is 15 years old, and most of the County was already in the moderate and high fire severity zone. Since then, climate change and repeated drought have increased wildfire risk throughout the County. The State Responsibility Area (**SRA**) is the area of the County where CAL FIRE is the primary emergency response agency responsible for fire suppression and prevention.

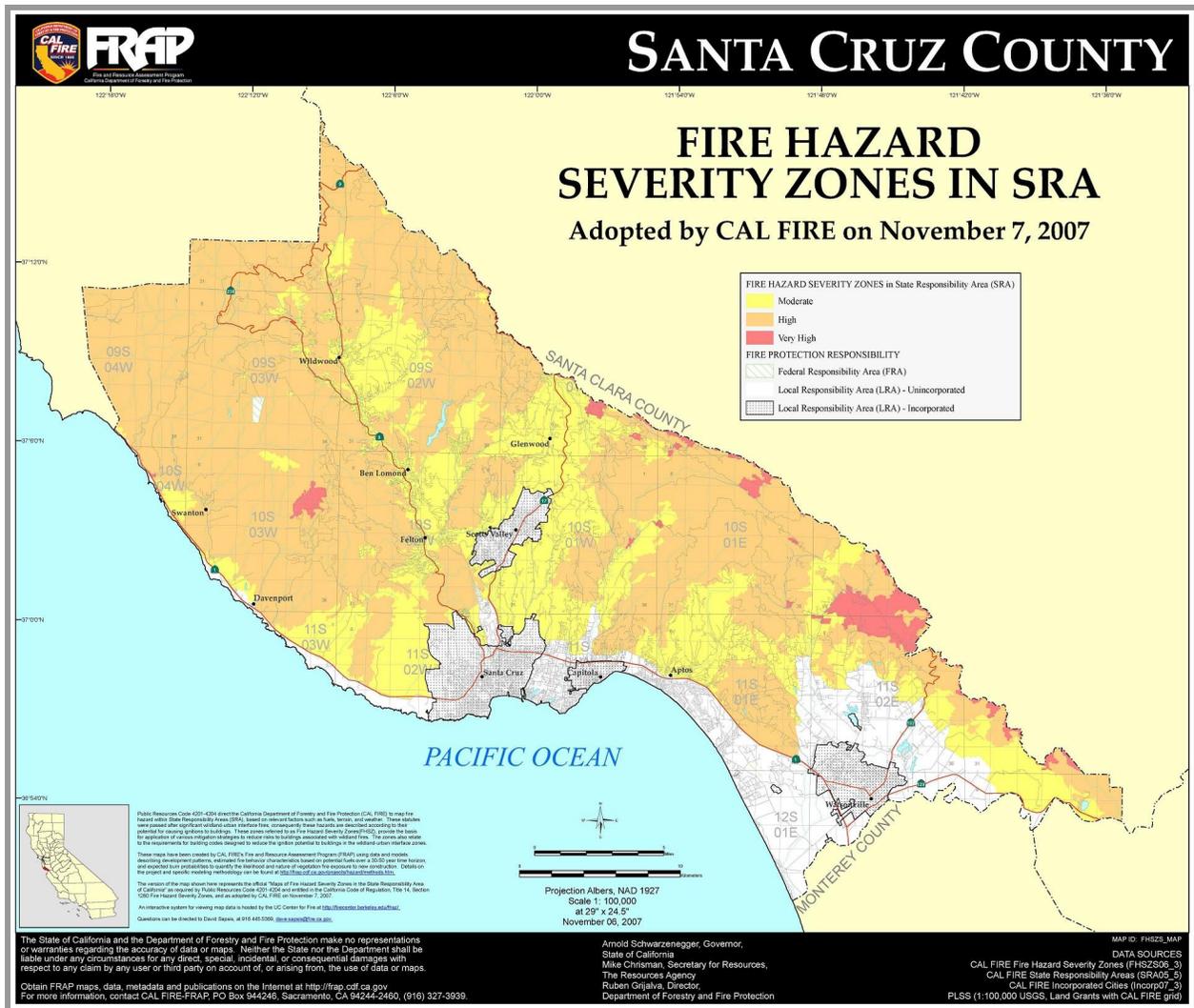


Figure 2. Fire Hazard Severity Zones in Santa Cruz County

(An enlargeable version is available at osfm.fire.ca.gov/media/6768/fhszs_map44.pdf.)

Wildfire Suppression

Throughout most of the 20th century, fire-management policies have focused on protecting watersheds, communities, and the timber supply by suppressing all wildfires.^[9] This has led to a massive increase in the available fuel at ground level, making wildfires that get out of control much more devastating. Prior to wildfires being suppressed, natural fires, usually sparked by lightning, burned forests every 5–15 years. These frequent fires burned dead wood and vegetation under trees, and limited the accumulation of flammable materials.

Today we face the consequences of our fire-management policies. There is just too much inhabited forested land to broadly execute prescribed burns. The costs—not to mention the risks—are too high. Presently, a number of methods are employed to reduce excessive vegetation to reduce the risk of destructive wildfires.

People, Fire, and the Forest

Beyond the effects of climate change, what makes wildfires different today—as compared to the early part of the last century—is the number of people living in rural areas, or the Wildland Urban Interface (**WUI**). A 2010 survey of counties in the western United States by Headwaters Economics, an independent, nonprofit research group, states that Santa Cruz County has 61 square miles of WUI, 59 percent of which is developed with residences. There were then 20,858 homes in the Santa Cruz County WUI, and that number has increased since. These homes represent 20 percent of all residences in the County.^[10]

According to the CAL FIRE 2021 Strategic Fire Plan, developed for the San Mateo–Santa Cruz Unit,^[11] the increasing population in the WUI has caused fire agencies to change their approach. The agencies have shifted from focusing primarily on fighting fires to protecting roads, structures, and people. There are not enough firefighters or fire apparatus to protect every home during a wildfire. As a result, communities and government are asked to take greater responsibility for making homes, neighborhoods, and the larger community more defensible from wildfire.^[12]

In 2019–2020, the Santa Cruz County Civil Grand Jury investigated wildfire preparedness. The report, *Ready? Aim? Fire! Santa Cruz County on the Hot Seat*,^[13] was published just before the CZU Fire erupted. The report included Findings on the County’s vegetation-management activities, and on the lack of a risk management strategy for wildfire. Excerpts are included here together with the Board of Supervisors’ responses.

Vegetation Management

Finding 1: Vegetation/fuel management and abatement are not receiving the attention nor funding needed from the County of Santa Cruz Board of Supervisors, and therefore are not adhering to California Government Executive Order 1.8.19-EON-05-19.

Board of Supervisors’ Response to Finding 1: PARTIALLY DISAGREE: Vegetation/fuel management and abatement is the responsibility of the property owner not the County of Santa Cruz. The County could do more to improve the clearing or removal of vegetation along County maintained roadways, more than just the sight line clear that may or may not occur annually. The removal of vegetation is expensive and labor intensive for a county that provides many services to the community. Funding is available through different grant opportunities to assist with fuel reduction and the County has benefited from such grants. An example of such grant funding is the fuel reduction project that was approved as part of the 35-statewide project as outlined in Governor Newsom’s 45-day report and the Executive Order 1.8.19-EON-05-19 that was issued regarding fuel reduction in California. This project is in the unincorporated area of the County within the CSA 48 area of Aptos Creek and Buzzard Lagoon roads near Corralitos. The project consisted of treating 225 acres to improve existing and create additional fuel breaks to protect vulnerable communities. Of the 225 treated acres, 150 acres is a shaded

fuel break and has allowed for the use of prescribed fire to be used to help clear and maintain the area.

Recommendation 9: Each year, during the budget presentation, the County Board of Supervisors should require County Fire to provide a vegetation-management plan, including a priority list of projects and a timeframe for their completion.

Board of Supervisors' Response to Recommendation 9: REQUIRES FURTHER ANALYSIS: There is currently no funding for a vegetation-management plan for the County Fire Department. We currently coordinate with CAL FIRE on a priority list of projects that have timelines related to available funding. In order to implement such a process will require additional analysis and potential funding.

To summarize the position of the Board of Supervisors two years ago:

1. Property owners are responsible for vegetation reduction on their property, not the County.
2. The County could improve its vegetation reduction activity on County-maintained roads.
3. County Fire does not have a plan. It coordinates with CAL FIRE to identify priority projects.
4. Because there is no funding for vegetation-management planning, the planning isn't being done.
5. Priority projects are only done after grant funding has been obtained.

Santa Cruz County Fire (**County Fire**) is Santa Cruz County's fire department, discussed later in this report. CAL FIRE is the California Department of Forestry and Fire Protection, also discussed later in this report. The Grand Jury determined that vegetation reduction along roadways is a major problem that the County must lead in solving. We wanted to understand what is really needed to protect our community from future wildfires, who is responsible for achieving it, and the County's role in ensuring this work gets done.

Protecting Communities from Wildfires

The highest priority areas for vegetation reduction are those that are located within, or are adjacent to, the WUI, especially high-density, special needs, or disadvantaged communities.^{[14] [15]} Within the WUI, vegetation reduction addresses the following high-priority community protection elements:

- Costly and difficult to rebuild public infrastructure
 - Above-ground utility transmission lines for water, gas, and electricity
 - Communications infrastructure, such as cell towers
 - Water infrastructure, such as pump stations, water tanks, pipelines, and water treatment plants

- Communities
 - Schools, hospitals, and government or commercial buildings
 - Homes and agricultural buildings
- Transport and natural resources
 - Ridges, truck trails, access roads, and evacuation routes
 - Areas where fires pose a considerable threat to water supply and water quality

Beyond the WUI, where infrastructure supporting nearby communities exists, that infrastructure must be protected. During the CZU Fire, communications infrastructure failed, limiting the ability to warn residents to evacuate. Protecting this infrastructure is critical.^[4] The San Lorenzo Valley Water District also suffered significant damage to above-ground pipelines.^[16] Much other essential infrastructure was damaged, slowing recovery operations.

Creating fuel breaks is a well-understood and commonly applied vegetation reduction method. There are two types of fuel breaks:

- A fuel break is a gap in vegetation created by removing most of the vegetation in an area to prevent the spread of a fire, as shown in Figure 3.
- A *shaded* fuel break is created by the thinning of dense tree cover and removal of lower-level vegetation. Less material is removed than a full fuel break, as shown in Figure 4.

Fuel breaks are more effective than shaded fuel breaks, but are generally used away from residential areas because of their aesthetics. Fuel breaks are often employed to protect critical infrastructure. A large fuel break constructed by the University of California at Santa Cruz enabled firefighters to halt the advance of the CZU Fire and protected the campus.^[17] Another large fuel break was constructed during the CZU Fire in Henry Cowell State Park along a heavily forested ridge to prevent the fire from reaching San Lorenzo Valley High School and Highway 9.

Shaded fuel breaks are frequently used along roadways, particularly those that may become evacuation routes in the event of a wildfire. Shaded fuel breaks are cheaper and easier to maintain, are less detrimental to sensitive habitat, and often have more community support.^[18]

BEFORE



Removing brush strategically across the landscape interrupts fuel continuity which helps slow an advancing wildfire, allowing firefighters a safe place to defend nearby communities and protect natural resources.



AFTER

Figure 3. Construction of a fuel break along a ridge^[19]

BEFORE



Shaded fuel breaks along roadways remove heavy fuels and are designed to prevent roadside sparks from becoming a devastating wildfire. They also create safer ingress and egress routes for emergency personnel and residents.



AFTER

Figure 4. Construction of a shaded fuel break along an existing road^[19]

Two Major Elements to Protecting Our Communities

Ensuring Safe Movement During Wildfires

Providing safe evacuation routes, shelter-in-place locations, and access routes for fire crews enables safe movement for affected residents and emergency services. Safe movement is the responsibility of the state and local agencies described in [Appendix A](#).

Statewide, over 95 percent of wildland fires are started by human activity, and of those, 90 percent start within ten feet of a road or trail. Overgrown vegetation on or adjacent to roads makes access difficult for firefighters and equipment. Additionally, roadside vegetation—including tree limbs, brush, and grass—is the fuel that is ignited first. There are many overgrown, narrow, one-lane roads in the County. These road conditions often make it difficult for emergency vehicles to access a fire area at the same time that residents are leaving.^[20] Much of the vegetation reduction work described later in this report provides shaded fuel breaks along important ingress and egress routes.

Alert systems are also essential for safe evacuation, but are not considered in this report. Alert systems are explored in the 2019–2020 Grand Jury report, *Ready? Aim? Fire! Santa Cruz County on the Hot Seat*.^[13] The reader is encouraged to sign up for one of the alert systems, such as Code Red, to receive notifications and updates from official agencies of potential threats. Information on alert systems is provided at the end of the Investigation section.

Hardening Property and Infrastructure

Ensuring that residences are resistant to wildfires is generally the responsibility of the property owner. Since the CZU Fire, there is increased interest in what homeowners can do to reduce the impact of a wildfire on their property. Homeowners living in the WUI should maintain defensible space around all structures on their property. Defensible space generally refers to the area within 100 feet of structures or to the property line, whichever is closer.^[21] Within this area, there should be no dead or dying vegetation, no vegetation overhanging the structure, no highly flammable trees—such as eucalyptus—and no combustible materials. Additionally, the structures should be as non-combustible as practical, especially roof shingles.^[22] Flying embers and fuels that were too close to buildings caused most of the structure destruction in the CZU Fire. Home-hardening and reducing fuel around structures could have prevented many of these losses.^[23]

While home-hardening and the creation of defensible space is strongly encouraged, veteran firefighters caution that creating a defensible space does not mean that firefighters will be able to save every home. During the CZU Fire there were not enough resources available to save many structures, but hardened structures surrounded by defensible space fared better.^{[24] [25]}

CAL FIRE and our local fire protection districts perform home-hardening and defensible space inspections. Educational materials may be distributed to residents during inspections, including a pamphlet focusing on defensible space and a document called

“Living with Fire in Santa Cruz County.”^[26] These inspections are well received; CAL FIRE often has difficulty keeping up with their demand so local fire districts are being encouraged to perform inspections.^[27] However, the number of these inspections by CAL FIRE has varied considerably. In the best recorded year, CAL FIRE performed 9,000 inspections, but managed only 1,000 inspections in the worst recorded year.^[28]

Many other local organizations provide extensive materials and advice on home-hardening and defensible space. Any reader living in a forested neighborhood is encouraged to research and implement home-hardening and defensible space measures for their property. At the end of the Investigation section, several resources are provided on home-hardening and defensible space creation.

Infrastructure protection is the responsibility of the utility company, public entity, business, or local agency, as appropriate. Infrastructure hardening for structures employs similar techniques as home-hardening, but usually on a larger scale. For instance, burying utility lines protects them from high winds, falling trees, and fire.^[29] Pacific Gas and Electric has a major program for “undergrounding” its power lines to both prevent spark ignition and to protect power lines from fire damage.^[30] Further discussion on infrastructure-hardening is outside the scope of this investigation.

Who Oversees Fire Risk Reduction in Santa Cruz County?

There is a plethora of agencies and organizations—many with overlapping responsibilities—providing different aspects of fire prevention throughout the County. The list is below, with brief descriptions given in [Appendix A](#).

Fire Protection

- Santa Cruz County Fire Department (**County Fire**)
- Thirteen separate Fire Protection Districts
- California Department of Forestry and Fire Protection (**CAL FIRE**)

Local Agencies

- Office of Response, Recovery & Resilience (**OR3**)
- Resource Conservation District of Santa Cruz County (**RCD**)

Community and Industry Groups

- Fire Districts Advisory Commission (**FDAC**)
- Santa Cruz Fire Safe Council
- Santa Cruz Mountains Stewardship Network (**SCMSN**)
- Firewise Councils

Some of these organizations have published reports or plans on fire protection; these are briefly described in [Appendix B](#).

We know that wildfires like the CZU Lightning Complex Fire can happen in our County, and will happen again. The Santa Cruz County Civil Grand Jury investigation focused on what it will take to provide resilience to future wildfires, and how Santa Cruz County

agencies are preparing to prevent the loss of life, and to reduce damage to residences and critical infrastructure.

Scope and Methodology

This investigation examined the planning, strategy, leadership, and funding to effectively implement a countywide vegetation-reduction program. The goal is to improve safety for residents and minimize damage resulting from the next major wildfire. We also tried to identify systemic shortcomings that create barriers to achieving wildfire resilience in Santa Cruz County.

The investigation included:

- A review of forest management, fire prevention, and containment literature
- An examination of strategic plans for fuel reduction
- An evaluation of resources for fire protection
- Numerous interviews with fire agency leaders, local government officials, and private organizations
- A review of previous Grand Jury reports on wildfire

Investigation

This report evaluates local agencies, budgeting, and operational processes as they relate to protecting residents and communities from future wildfire damage. In the course of our research and interviews, three key questions surfaced.

1. How are vegetation-reduction projects prioritized, funded, and executed?
2. Is the County sufficiently proactive and providing the leadership needed to achieve adequate wildfire protection for the future?
3. Are County residents sufficiently informed of progress toward wildfire resilience?

Vegetation-reduction projects to reduce community risk from wildfire are, in essence, taxpayer-funded public works projects. When viewed that way, residents deserve to understand why specific projects were selected, and what benefit they will provide. As with other public works investments, vegetation reduction projects should be tracked relative to predefined goals, and progress toward those goals should be reported periodically. The Grand Jury investigated how vegetation-reduction projects are prioritized, selected, and tracked so that residents can seek improvement where needed.

Strategic Planning for Vegetation Reduction

This section looks at the many agencies tasked with vegetation reduction and the strategic plans for vegetation reduction they are implementing—or, in some cases, not implementing. We examine how projects are prioritized, funded, and implemented, along with work actually being accomplished. Finally, we analyze the scope of necessary vegetation reduction against the level of funding available for achieving the reduction.

Cross-Agency Strategic Planning for Vegetation Reduction

The many countywide entities tasked with aspects of wildfire resilience were listed previously. In addition to these local organizations, CAL FIRE is the major player in wildfire protection. It participates in many of the local organizations.^[31] Also involved are California State Parks and the California Coastal Commission.

The Grand Jury tried to understand how all these entities are working together to create wildfire resilience for the County. We learned that both the Resource Conservation District of Santa Cruz County (**RCD**) and the Office of Response, Recovery & Resilience (**OR3**) often coordinate the planning and implementation of projects. However, being regarded as a lead agency comes with the expectation of reliable funding and the ability to manage large projects, which these two agencies lack.^{[32] [33]} Coordination is not the same as leadership.

Over several interviews, the Grand Jury gained some appreciation of the enormous complexity of the required permitting for large vegetation-reduction projects. We were told that some of the plans described in [Appendix B](#) of this report intentionally lack the kind of specificity that would trigger the requirement for an Environmental Impact Report (**EIR**). However, when an individual project needs an EIR—as many of them will—that requirement makes it slow to execute and hampers obtaining funding.

In Santa Cruz County, there are multiple, overlapping efforts to produce a strategic plan for vegetation reduction. However, no strategic plans appear to have been completed at present—much less made available to the public. The Grand Jury also came to understand that the various organizations have differing priorities for vegetation reduction.

What follows is a summary of individual agency plans. The list illustrates the fragmented nature of wildfire risk-reduction planning in the County.

County Fire and the Fire Department Advisory Commission

The Fire Department Advisory Commission (**FDAC**) is working with County Fire on updating its Santa Cruz County Fire Department Master Plan for the first time since 2015.^[34] The requirement for the County Fire Department Master Plan is listed as the first item on the FDAC's website.^[35] The goals that are driving the Master Plan update, and that have been approved by the Board of Supervisors (**Board**), include evacuation maps, potential debris flows, Code Red notification, vegetation management, fire surveillance (cameras), and increasing the number of volunteer firefighters. We were told that this is the first time there have been objectives approved by the Board for County Fire.^[36] The Master Plan update has become a priority since the CZU Fire almost two years ago, but is still apparently a work in progress, although the goals listed above are included in the County Operational Plan.^[37] We found broad support for a County Fire Department Master Plan and the need for buy-in from the local community.^{[35] [38] [39] [40]}

California Department of Forestry and Fire Protection

The California Department of Forestry and Fire Protection (CAL FIRE) has produced the Community Wildfire Prevention Plan (**CWPP**) and its companion document, the CAL FIRE Strategic Plan. They are both described in [Appendix B](#). These documents identify hazards and mitigation strategies, and also support the grant application process. The CAL FIRE Strategic Plan includes considerable information on local firefighting capabilities. Neither document describes actual vegetation-management projects, although the CWPP includes maps showing high wildfire risk areas across the County as well as lists of roads and communities that are high priority for vegetation reduction. CAL FIRE is the only governmental agency that has vegetation-management specialists on staff. CAL FIRE tracks vegetation-reduction projects internally,^[41] ^[42] ^[43] but that data is not consistently provided to the media or to the public to demonstrate progress.

Santa Cruz Mountains Stewardship Network (SCMSN)

The SCMSN does not have a strategic plan, but has completed a significant vegetation mapping project that is being used to categorize the wildfire risk level across the County.^[44] CAL FIRE is leading the development of a project prioritization matrix using this map to rank potential projects, with participation from OR3, the Fire Safe Councils, and SCMSN.^[45] The objective is to build collaboration between jurisdictional entities, private landowners, and timber companies to more effectively obtain state and federal grants for vegetation reduction.^[46]

The Resource Conservation District's Public Works Plan

This Public Works Plan aims to facilitate approval of multiple essential forest health and fuel reduction projects within significant wildfire risk areas of the Coastal Zone over the next ten years. The Coastal Zone includes much of the area north and west of Santa Cruz, some of which was burned in the CZU Fire. The effort will use CAL FIRE Fire Hazard Severity Zone maps and new high-resolution vegetation maps developed by the SCMSN to create a list of high-priority projects for implementation. Work will be conducted in collaboration with CAL FIRE, the SCMSN, the Fire Safe Councils, the California Coastal Commission, and the California State Coastal Conservancy. Achieving cooperation with local landowners will also be essential.^[47] This Public Works Plan is a real attempt at strategizing vegetation reduction, but it applies only to the Coastal Zone north and west of the City of Santa Cruz, and does not include the high wildfire risk areas of the Santa Cruz Mountains.

The California Board of Forestry and Fire Protection

The Board of Forestry and Fire Protection has created a new approach to address California Environmental Quality Act (**CEQA**) compliance for large and complex vegetation reduction and forest health projects by releasing the Programmatic Environmental Impact Report for the California Vegetation Treatment Program.^[48] Individual projects are not described, but the intent is that they will not require an EIR provided they meet the requirements of the California Vegetation Treatment Program.

Santa Cruz County Fire Safe Council

We were told that the Santa Cruz County Fire Safe Council has recently completed a strategic plan.^[49] The “Strategic Plan” on their website is an 11-page presentation describing the mission and goals for the organization—not for vegetation reduction.^[50]

Office of Response, Recovery & Resilience (OR3)

Originally, the OR3 planned to publish a strategic plan on their website in the first quarter of this year.^[37] Currently, the County Operation Plan includes the statement, “OR3 will develop coordinated strategy on hazardous fuel reduction with strategic prioritization of egress from single-road access communities,” with a completion date amended from June to December 2022.^[51]

In summary, the completed plans from CAL FIRE do not list individual projects, and the RCD’s Public Works Plan (**PWP**) applies only to the Coastal Zone. The OR3 seems most likely to produce and execute a vegetation reduction plan. We do not know to what extent the OR3’s plan will be coordinated with the RCD’s PWP, or the plan from County Fire and the FDAC.

Grant Funding for Community Protection Projects

Vegetation-management projects conducted in Santa Cruz County are mostly funded through grants obtained from state or federal agencies. By far the largest source of grants is CAL FIRE, which funds projects in the categories of Wildfire Prevention, Forest Health, Forestry Improvement, Forest Legacy, and Forest Research, among others. The 2021–2022 Wildfire Prevention Grants Program funded \$120 million and Forest Health Grants another \$120 million.^[52] ^[53] Other entities funding grants for vegetation reduction include the California Fire Safe Council, the U.S. Forest Service, the California Coastal Commission, and Pacific Gas and Electric. CAL FIRE has produced an extensive manual on how to apply for its grants.^[54]

Ongoing Vegetation-Reduction Work

Significant grants have been awarded to Santa Cruz County for vegetation reduction. In 2020–2021, CAL FIRE’s Forest Health Program awarded just over \$3 million to the RCD to improve forest health and fire resiliency on 454 high-priority acres in the County.^[55] This project is in partnership with members of the SCMSN, including California State Parks, University of California at Santa Cruz, the San Lorenzo Valley Water District, the Land Trust of Santa Cruz, and private landowners.

The same year, Cal Poly Corporation received a \$4.7 million grant from the same CAL FIRE program for reforestation on 930 acres at Cal Poly’s Swanton Pacific Ranch and at the Soquel Demonstration State Forest.^[55] Also in 2020–2021, the RCD obtained a \$1.3 million grant from the CAL FIRE Early Action California Climate Investments Program for shaded fuel breaks along Summit Road.^[56] The willingness of the agencies to partner with others, and to publish long-term property management plans, were factors in getting the awards.^[57] This is not an exhaustive list of grants awarded to our County, but we calculated that Santa Cruz County received at least \$9 million in CAL FIRE grants in the 2020–2021 year.

In winter months, CAL FIRE runs the “two-truck program” to conduct vegetation-reduction projects. This program both keeps the crews employed during the winter and maintains their availability for off-season fires.^{[43] [41] [58]} Among the projects they have completed are shaded fuel breaks on Bonny Doon Road and the City of Santa Cruz drainages.^[59] Also funded by CAL FIRE, Firewise communities along Summit Road are working with RCD independently to create shaded fuel breaks.^[60]

Santa Cruz County recently purchased a masticator, a device that “chews up” low-growing vegetation complete with roots and topsoil. The resulting mixture of soil and plant material is noncombustible and grows back fairly slowly.^[61] The masticator is seeing use outside of projects funded by grants.^[62] RCD runs chipping programs to facilitate creation of defensible space around buildings.^{[63] [64]}

Vegetation-Reduction Projects Are Cumbersome and Expensive!

The Grand Jury wanted to understand the scale of vegetation-reduction projects needed to treat all the occupied WUI. The Santa Cruz County WUI is 61 square miles, of which 59 percent has residences on it.^[10] There are 640 acres in a square mile, so there are $61 \times 0.59 \times 640 \approx 23,000$ acres of occupied WUI in the County.

Last year, two grants totalling \$7.7 million (\$3 million + \$4.7 million) funded vegetation-reduction projects on 1,384 acres (454 + 930).^[55] (also see “Ongoing Vegetation-Reduction Work” above), which works out to about \$5,600 per acre. If these projects are representative of the cost of vegetation reduction per acre, ***then treating 23,000 acres would cost about \$130 million.***

Note that this estimate includes vegetation reduction only on the occupied WUI. The estimate does not allow for critical infrastructure or access and egress routes located outside the occupied WUI but that are essential to protecting the community and providing safe movement. The survey that determined Santa Cruz County has 61 square miles of WUI *and* 59 percent has residences is now 12 years old. There has been a significant increase in people living in the WUI since the survey was done. It may be that some of the occupied WUI does not need vegetation reduction, but it is more likely this estimate is low.

As noted above, Santa Cruz County received at least \$9 million in CAL FIRE grants last year. If the County received a similar amount in grant funding each year, it would take about 14 years to complete high-priority vegetation reduction. Thus it is imperative that the highest risk areas receive treatment first and not wait until the end of the 14 years. Also during this time, vegetation will be growing back; hence, after 14 years, it will be time to start over. The County’s success in obtaining grant funding means it is able to make *some* progress in vegetation reduction. It would certainly be preferable to complete the work in less time. However, we don’t know how much more grant money the County could effectively manage each year.

Both the RCD’s PWP and the California Board of Forestry and Fire Protection’s Programmatic EIR for the California Vegetation Treatment Program have the goal of streamlining the grant acquisition process, but these plans do not cover all of the high-priority areas that require vegetation reduction.^[65] RCD has achieved real success

obtaining grants for vegetation reduction. The OR3 is also assisting with the difficult grants process. Their Climate Action Strategy, together with the Local Hazard Mitigation Plan, described in [Appendix B](#), will meet some pre-requirements for obtaining grants.

The SCMSN has a fire-and-forest-health team that shares information and coordinates fuel reduction grant acquisition in cooperation with CAL FIRE.^[66] ^[67] The SCMSN tries to coordinate grant applications to avoid competition within the County.^[68] Because it has a proven track record, the SCMSN has been able to get large projects approved. They can also put together more effective grant proposals because members' organizations can contribute staff to the proposal development.^[69]

As described above, the permitting process for grants is cumbersome. Consequently, projects that are easier to permit are more likely to be completed.^[70] ^[68] The Grand Jury was also told that better-written grant proposals receive preference for funding.^[71] ^[72]

Private Forested Lands Can Increase Community Risk

A further complication to vegetation reduction is that much of the high wildfire risk land is privately owned, and cooperation from the landowner is required before work can be done.^[73] ^[74] It may also be more difficult to get grant money to work on private land.^[75] CAL FIRE specifically states that their grants may only be awarded for projects on private land if there is an imminent threat to public rights of way or public infrastructure.^[19] A wildfire does not respect land ownership; a fire may start on private land and quickly spread to a nearby community or critical infrastructure. The SCMSN is the major player in advocating for vegetation-management work on private land.

Santa Cruz County's Role in Wildfire Prevention

The Santa Cruz County Fire Department (**County Fire**) serves unincorporated Santa Cruz County, including the communities of Bonny Doon, Davenport, Loma Prieta, Corralitos, Las Cumbres, and the wider South Skyline area. This area is County Service Area 48 (**CSA 48**) and it overlaps almost entirely with the State Responsibility Area. County Fire is governed by the Santa Cruz County Board of Supervisors. It operates ten fire stations; five are staffed by a combination of local professional and volunteer firefighters and five are staffed by CAL FIRE firefighters.^[76]

Organization

The Grand Jury sought to understand County Fire's organization and placement within the County government structure. The County Fire Chief also serves as the local CAL FIRE Chief. This person holds similar roles with nearby counties.^[77] We learned further that the CAL FIRE/County Fire Chief reports to the General Services Department, with only indirect access to the Board of Supervisors. We are concerned that this reporting relationship does not give sufficient visibility and priority to fire prevention.

In neighboring San Mateo County, the CAL FIRE chief is a department head within the County government structure. San Mateo has about three times the population of Santa Cruz County, but even accounting for this, the San Mateo County Fire Department is considerably larger.^[78] County Fire's organization is discussed more fully in the 2019–2020 Grand Jury report, *Ready? Aim? Fire! Santa Cruz County on the Hot Seat*.^[13]

CAL FIRE has just announced the formation of a new division to assist local communities to prepare for wildfires.^[79] Quoting from its press release “...the new Division will be expanding its local technical assistance it provides to cities and counties to ensure they have the best available measures, practices, support, and funding to prepare their communities against wildfires.” Hopefully, this new division will be able to assist County Fire in providing improved wildfire prevention and mitigation.

Amador Contract

CAL FIRE has a complex relationship with County Fire. The basic outline is given below. A 1948 contract model, known as the Amador Contract, details responsibilities of CAL FIRE and County Fire.^[80] CAL FIRE has statutory responsibility for State Responsibility Areas within the County year round, but they are only fully staffed during the fire season. The County pays for 24 seasonal firefighters working on CAL FIRE engines for up to seven months when they would normally be laid off in the winter.^{[81] [82]} These are the employees from the five fire stations operated by CAL FIRE. Under the Amador Contract, the County pays for CAL FIRE to manage the volunteer firefighter system year round, emergency response for the winter months, plus maintenance of fire engines, water tenders, utility vehicles, and rescue vehicles.^{[83] [84]}

Due to climate change, the number of months defined as winter under the contract has decreased. The fire season used to be defined as the five months from June through October, with a seven-month winter, or non-fire season. This seems to be reversing, with seven months of fire season and five months of winter season becoming the new normal.^[85] Since the County pays for the 24 firefighters for the months defined as winter under the Amador Contract, the County is paying significantly less. CAL FIRE is effectively subsidizing the County. However, CAL FIRE sets priorities during the period of time that it is paying for fire-protection service. Those priorities could include firefighters and engines being sent to another fire out of County even when there is a fire within the County.^{[83] [86] [87]} In comparison to Santa Cruz County, San Mateo County funds 58 full-time firefighters^[88] and eight fire engines.^[89]

Staffing is no longer covered under the Amador Contract because it does not meet current labor law. There is a three-year contract for staffing, and this is the second year of that contract. When the contract comes up for renewal in 2023, County Fire cannot rely on CAL FIRE continuing an arrangement in which it subsidizes the County.^{[78] [90]}

Funding

Santa Cruz County Fire protection funding comes from 0.5 percent of local property taxes, plus the CSA 48 fee collected with property tax for those residents, and inspection and plan-review fees.^[91] The total County Fire budget last year was \$10.8 million. The budget provides for the purchase of two new fire engines to replace ones that had been deployed far beyond their expected life.^[92]

Santa Cruz County has an ongoing budget challenge as described in the 2021–2022 Santa Cruz County Grand Jury report, *Words Matter—Did Measure G Mislead Voters?*^[93] It is unrealistic to expect the County to allocate significant additional funds to wildfire prevention, even though this is sorely needed. Ideally, the County would pay for sufficient staff and fire engines, which would then be under its control and not subject to state priorities.

Although the County does not directly fund any ongoing vegetation-reduction projects, as noted earlier, it did make a one-time purchase of a masticator.^[94] This is intended to work outside the grants process described above, especially on projects that would not easily secure grant funding, such as on private land. The masticator is used by CAL FIRE personnel because they have the training and required insurance.^[62] The County is planning to increase the number of remote cameras from seven to nine to provide improved wildfire detection.^[95]

Volunteer Firefighters

Volunteer fire departments everywhere have difficulty maintaining their workforce—due in part to significant and often onerous training requirements—and our County is no exception. This lack of staff frequently results in inadequate fire protection for rural communities. The Grand Jury was told that about 100 volunteer firefighters would be ideal, but only a small fraction of that number is able to maintain the training requirements and respond to a call.^{[96] [97]} Unfortunately, the County budget shortfall noted above means that reliance on volunteer firefighters will continue.

Community Outreach

Other than a great deal of information on defensible space creation, home-hardening, and chipping programs, the Grand Jury found little evidence of outreach to the community on what the County is doing to mitigate wildfire risk. There is also little information for residents on what their individual risk is. There does seem to be some recognition within County Fire that more needs to be done to provide the community with more information on wildfire prevention and mitigation work.^[38]

Resources

The websites below, from CAL FIRE and local organizations, provide useful information on home-hardening and defensible space.

www.readyforwildfire.org

www.firesafesantacruz.org/home-hardening-events-2019

www.cityofsantacruz.com/government/city-departments/fire-department/reducing-wildfire-risks

lookout.co/santacruz/guides/story/2021-05-17/wildfire-season-prep-before-get-ready-santa-cruz-county

The following website has comprehensive information on how to subscribe to Code Red and other alert systems that warn residents of potential hazards including wildfires and earthquakes.

www.santacruzcounty.us/OR3/Response/PlanandPrepare/AlertNotificationApplication.aspx

Conclusion

The 2020 CZU Lightning Complex Fire changed our understanding of wildfire risk for Santa Cruz County. Devastating wildfires can happen, and, with climate change, will happen again. The Grand Jury's investigation sought to understand the vegetation-reduction problem, and to quantify its magnitude. We found vegetation reduction is the biggest challenge to achieving adequate fire resilience, and that dealing with it will take both resources and high prioritization from the County. The bulk of vegetation reduction to enable safe movement is the responsibility of the County, local fire protection districts, CAL FIRE, or a utility company such as Pacific Gas and Electric.

Within the Wildland Urban Interface, home-hardening—together with the creation and maintenance of defensible space around a property—is normally the responsibility of the homeowner. Through the Resource Conservation District, the Office of Response, Recovery & Resilience, Firewise communities, Fire Safe Councils, and CAL FIRE, a good deal of information and support for home-hardening and defensive space creation is available.

Our review of the many County organizations addressing wildfire protection did not find any published plans describing the prioritization process for vegetation-reduction projects. The large number of agencies tasked with fire protection complicates the situation, although we did find clusters of collaboration among the agencies.

We investigated the grants process and found that it is unwieldy and complex, and that grants may be awarded to projects that do not have the highest priority for wildfire mitigation. However, the County is almost entirely dependent on grants. Due to effective work by local agencies, the County is receiving much of what it needs to complete sufficient vegetation-reduction projects to eventually provide wildfire resilience.

We looked at the County Fire Department, its organization, budget, contract with CAL FIRE, and its reliance on volunteer firefighters. None of these aspects are ideal, and, taken together, are suboptimal for delivering adequate fire protection to rural communities in the Wildland Urban Interface. Additional funds would be of benefit, but the Grand Jury recognizes that the County's overall budget challenges mean this is not likely to happen without significant effort. The budget limitations also mean the reliance on volunteer firefighters will continue. County Fire would benefit from increased visibility and priority within the County government structure, and should report directly to the Board of Supervisors. County Fire should be doing much more to inform residents of their wildfire risk, and what the County is doing to mitigate it.

The Grand Jury has issued a number of investigative reports on fire protection over the past few years. A recurrent theme of these reports is the lack of attention that

community protection and safe movement receives from the County government. This Grand Jury echoes that observation.

Findings

Wildfire Risk and Mitigation

- F1.** Vegetation reduction must become a major priority for the County to adequately protect communities, critical infrastructures, and ingress/egress routes from increasing wildfire risk.
- F2.** Currently, there is not a countywide strategy for prioritizing vegetation-reduction projects.
- F3.** County residents are not sufficiently informed of vegetation-management strategy, planning, and implementation.
- F4.** No single agency guides the County vegetation-reduction programs and projects, a situation that contributes to the observed lack of strategic planning.

Funding Vegetation Reduction through the Grants Process

- F5.** The grants process is competitive, fragmented, and opaque, and lacks the published priorities and governance to ensure the money is well spent.
- F6.** Santa Cruz County is obtaining significant vegetation reduction funding through the grants process but not sufficient to complete high-priority vegetation reduction areas in a reasonable time.
- F7.** County residents do not have easy access to grant prioritization and project selection criteria.

County Fire Organization

- F8.** Neither County Fire nor the Office of Response, Recovery & Resilience have staff or funding that are charged with creating, managing, and reporting on vegetation-reduction strategy, planning, and execution for the benefit of County residents.
- F9.** The County Fire/CAL FIRE Chief reporting to General Services does not give vegetation reduction sufficient priority and visibility.
- F10.** The Office of Response, Recovery & Resilience reporting to the County Administrative Officer does not give vegetation reduction sufficient priority and visibility.

Recommendations

- R1.** By September 30, 2022, the Board of Supervisors should designate the appropriate lead agency to work with other local fire agencies to produce and publish the County Strategic Plan for Safe Movement and Community Protection in the Wildland Urban Interface by June 30, 2023. This document should include up-to-date wildfire risk levels across the County, along with prioritization and selection criteria for projects, and how completing them will reduce the wildfire risk to County residents. The criteria should emphasize public safety, including safe movement, community protection, and infrastructure fire resilience. (F1, F2, F4, F6, F8)
- R2.** The production of the strategic plan for vegetation management should be visible to County residents, and public opinion should be sought and included in the final document. (F3, F5, F7)
- R3.** By December 31, 2022, the Board of Supervisors should require County Fire to report directly to the Board of Supervisors on vegetation reduction planning and execution every six months. (F1, F9)
- R4.** By December 31, 2022, the Board of Supervisors should require the Office of Response, Recovery & Resilience to report directly to the Board of Supervisors on vegetation reduction planning and execution every six months. (F1, F10)
- R5.** By December 31, 2022, the Board of Supervisors should allocate funding for the strategic plan and community outreach recommended in this report. (F1, F2, F3, F4, F8)
- R6.** By December 31, 2022, the Board of Supervisors should direct County Fire, with support from the Resource Conservation District and the Office of Response, Recovery & Resilience, to report annually to the public on progress toward published goals for improving safe movement and community protection. The first report should be published by June 30, 2023. (F3, F7, F8)

Commendation

- C1.** The Resource Conservation District of Santa Cruz County is commended for its successful efforts in obtaining significant grants for vegetation reduction.

Required Response

<i>Respondent</i>	<i>Findings</i>	<i>Recommendations</i>	<i>Respond Within/ Respond By</i>
Board of Supervisors	F1, F2, F3, F4, F5, F6, F7, F8, F9, F10	R1, R2, R3, R4, R5, R6	90 Days September 22, 2022

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Appendix A—Agencies Involved in Fire Protection

Office of Response, Recovery & Resilience

Following the 2020 CZU Lightning Complex Fire disaster, the Board of Supervisors established the Office of Response, Recovery & Resiliency (OR3) in the County Administrative Office (CAO) to coordinate the County’s response to the CZU Lightning Complex Fire, respond to future disasters, and increase resiliency of the County’s overall response to climate change. Because of the interdependency in responsibilities, OR3 is combined with the County’s existing Office of Emergency Services.^[98]

OR3 primarily acts as an emergency management office including response to disasters for the County. It additionally provides a support role in recovery, and liaison between the County Planning Department, the Environmental Health Department, and the Recovery Permit Center. The Office is seeking grant funding at the state and federal level both to support recovery efforts and to promote wildfire resiliency. The OR3 is also updating the County’s Climate Strategy document, which will then serve to define goals for the Office. The OR3 staff are being trained to prepare for future disasters, including, but not limited to wildfire.^{[99] [100] [101]}

Santa Cruz County Fire Districts

There are 13 fire districts in Santa Cruz County.

1. Aromas Tri-County Fire Protection District
2. Ben Lomond Fire Protection District
3. Boulder Creek Fire Protection District
4. Branciforte Fire Protection District
5. Central Fire District
6. County Service Area 4
7. County Service Area 48
8. Felton Fire Protection District
9. Pajaro Valley Fire Protection District
10. Santa Cruz City Fire Department
11. Scotts Valley Fire Protection District
12. Watsonville City Fire Department
13. Zayante Fire Protection District

CAL FIRE/County Fire

The California Department of Forestry and Fire Protection (CAL FIRE) is a state agency tasked with fire protection for some 31 million acres of State Responsibility Area in California. It also provides other emergency services in many counties.^[102] The San Mateo–Santa Cruz Unit of CAL FIRE includes the counties of San Mateo, Santa Cruz, and San Francisco. CAL FIRE also manages the County Fire Department for both San Mateo and Santa Cruz counties.^[103] Within Santa Cruz County, CAL FIRE and County Fire have responsibility for fire protection in County Service Area 48 (**CSA 48**) and

County Service Area 4. The CSA 48 covers a significant portion of the County, including much of the Santa Cruz Mountains and North County.

Resource Conservation District

The Resource Conservation District of Santa Cruz County (RCD) is a special district tasked with coordinating efforts to protect the County's natural resources. Its mission includes water management and conservation, fish protection, erosion control, soil and forest health, and fire resiliency. It operates by applying for and obtaining grants from mostly state and federal agencies.^[104]

Fire Department Advisory Commission

The Fire Department Advisory Commission (FDAC) is tasked with the preparation and implementation of the County Fire Department Master Plan. It advises the County Fire Department on methods for improving the cost-effectiveness and delivery of the County's fire protection, as well as its rescue and emergency medical services programs. FDAC reviews the County Fire Department's budget priorities and specific budget recommendations, and advises on the mission and requirements of each of the volunteer fire companies.^[105]

Fire Safe Councils

The Fire Safe Santa Cruz County aims to educate and mobilize the people of Santa Cruz County to protect their community, homes, and environment from wildfire. They foster collaboration between local Fire Safe councils, CAL FIRE, local government, water districts, non-profit organizations, industry, and the RCD.^[106]

Santa Cruz Mountains Stewardship Network

The Santa Cruz Mountains Stewardship Network is a wide-ranging collaboration of diverse organizations from lumber companies to tribal groups. It has 21 members, including CAL FIRE, Big Creek Lumber, California State Parks, and Peninsula Open Space Trust.^[107]

Firewise Councils

Firewise is a national program that helps communities work together to reduce wildfire risk through education and collaboration. Local Firewise councils in Santa Cruz County reduce their local wildfire risk through encouraging neighbors to work together on defensible space, home-hardening, and evacuation planning.^[108]

Appendix B—Fire Prevention Plans

Below are the major plans that detail aspects of strategic planning for wildfire protection.

Community Wildfire Prevention Plan

The Community Wildfire Prevention Plan (CWPP), prepared by CAL FIRE and last updated in 2018, categorizes wildfire risk throughout Santa Cruz and San Mateo counties. The plan provides mitigation strategies aimed both at preventing destructive wildfires and at promoting healthy forests, while protecting human life and property. Grant funding for wildfire protection projects is easier for communities to obtain when there is a current CWPP in place. Individual wildfire prevention projects are not described in the document, as this might require an Environmental Impact Report.^[109]

CAL FIRE Strategic Plan 2021

This is a companion document to the CWPP described above. It includes descriptions of the County’s firefighting capabilities and wildfire mitigation strategies.^[11]

Local Hazard Mitigation Plan

This document describes the potential hazards that may affect our County, from earthquakes to droughts. It includes a section on wildfires, describing both the risks and mitigation strategies. The Local Hazard Mitigation Plan (LHMP) is updated on a five-year cycle, with the current plan produced in 2021. Each update includes progress from the previous plan. As with the CWPP, a major purpose of the document is to facilitate obtaining state and federal grants. Each project for which funding is sought should be listed as a mitigation strategy in the LHMP.^[110] Thus the current LHMP includes a “high-priority” item for vegetation reduction.^[111]

Santa Cruz County Forest Health and Fire Resilience Public Works Plan

The RCD produced the Santa Cruz County Forest Health and Fire Resilience Public Works Plan in 2021 to facilitate approval of fire protection projects in areas where a Coastal Development Permit is required. The document is intended to replace the requirement for each project to obtain an individual permit.^[112] Further description of the Public Works Plan is found in the Strategic Planning for Vegetation Reduction section of this report.