Community Wildfire Protection Plan
Cambria, San Luis Obispo County, CA

NR 455 – WUI Fire Protection, Spring 2025

Natural Resources and Environmental Sciences Department

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Prepared for

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EXECUTIVE SUMMARY

The purpose of the Cambria Community Wildfire Protection Plan (CWPP) is to address the complex and growing challenges the community of Cambria faces as a result of its unique structure and location within the Wildland Urban Interface (WUI). This plan is designed to facilitate collaboration among agency representatives, community organizational leaders, and members of the public in order to successfully develop and implement solutions to reduce the risk of wildfire while restoring healthy and resilient forest conditions.

Cambria is an unincorporated community along the Central Coast of California in San Luis Obispo County off of Highway 1. The beautiful community attracts thousands of tourists a year with beautiful coastal and forested views and charming shops. The community of Cambria, California faces significant challenges including but not limited to housing one out of five native Monterey pine stands in the world, substantial fuel loads, limited evacuation routes, vulnerable populations, and aging infrastructure, all of which are hazards contributing to the overall risk of devastation in the event of a wildfire. This CWPP document aims to serve as a guidance tool, emphasizing collaboration with key partners such as Cal Fire, the San Luis Obispo County Fire Safe Council, Cambria Community Services District, and many more. Recommendations include both immediate and long-term actions to mitigate wildfire risks in Cambria. Priority projects include vegetation management, further enforcement on existing legislature, community-wide emergency preparedness, and efforts to secure funding for critical infrastructure improvements.

By embracing a shared responsibility for wildfire safety, the Cambria community can reduce its vulnerabilities, protect its unique environment, and build a more resilient future.

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INTRODUCTION

Community Overview and Demographics

The community of Cambria **(Figure 1)** is located halfway between San Francisco and Los Angeles via State Route 1 on the Central Coast of California **(Figure 2)**. The unincorporated area within San Luis Obispo County was officially established in 1866 after the Old Santa Rosa Chapel was constructed in 1850, marking its legacy as the first Catholic Church in California

(Visit Cambria CA, 2025). In 1870, Cambria was officially named by the federal government. Today, the village is a popular site for tourist activity, which is a main driver of Cambria's economy, offering several attractions such as Moonstone Beach, Fiscalini Ranch Preserve, historic architecture, local art galleries, and natural attractions such as Harmony Headlands State Park and Hearst San Simeon State Park (Snyder, 2023). Cambria is also home to one of five native Monterey pine habitats in the world, making it one of the unique and defining characteristics of the area.

Cambria has a population of 6,038 people **(Table 1)**, with a 6% increase from the last decade. The U.S. Census Bureau reported the median age to be 61.4 with 52% of the population at an age of 60 or older **(Table 2)** (2023). The community is predominantly white at 65% however there is a notable Hispanic presence, making up 29% of the population. Educational accomplishments of the community of Cambria are relatively high compared to other areas of California, with 92.7% having attained a high-school diploma and 43.4% having attained a bachelor's degree or higher.

The median household income is $89,049, which may seem disproportionate given that the median value of owner-occupied housing units is $868,400 **(Table 4)**, with 59% of houses between $500,000 and $1 million range and 27% valuing at over $1 million (U. S. Census Bureau 2023). However, due to the relatively high median age of the community, it can be assumed that a significant portion of the population is retired, which may explain the relatively low median household income. Additionally, the U.S. Census Bureau states that the average household contains roughly 2 people. Of the 4,119 housing units in Cambria, 69% are occupied **(Table 3)**, and 31% are vacant. Of the occupied housing units, 78% are owner-occupied, and 22% are renter-occupied (2023).

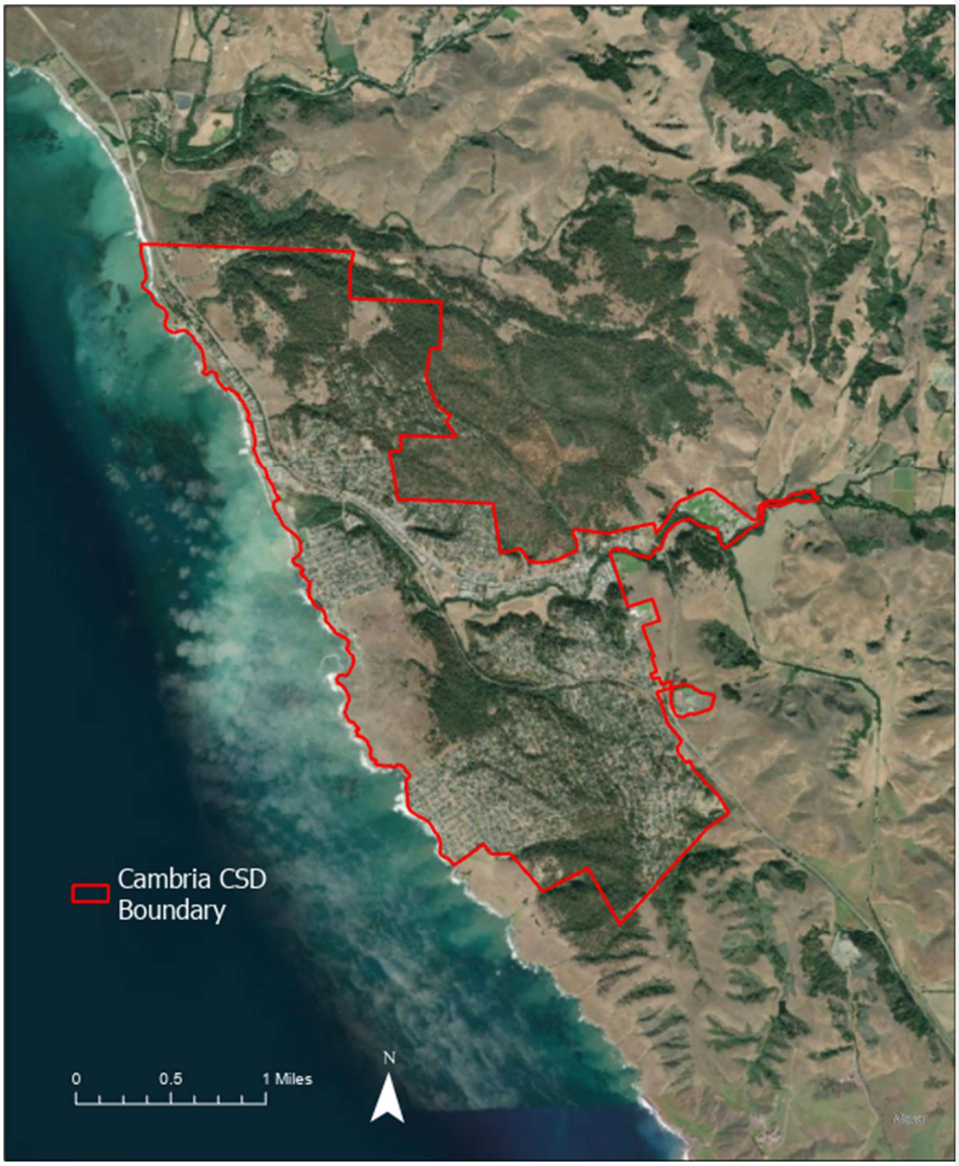

Figure 1. Map of Cambria, California

Figure 2. Map of Cambria in relation to California.

Table 1. Population density of Cambria, California (U.S. Census Bureau, 2023).

Population Density	
Population	6,038
Area of Cambria (Square Miles)	8.4
Population Per Square Mile	717.2

Table 2. Age distribution within Cambria, California (U.S. Census Bureau, 2023).

Age Distribution	
Age (Years)	**Percentage**
18 and Under	15%
19-59	33%
60+	52%

Table 3. Matrix of residential demographics in Cambria, California (U.S. Census Bureau, 2023).

Residential Demographics			
	Total Housing Units	**Occupied Units**	**Vacant Units**
All Units	4,119	69%	31%
Owner Occupied	-	78%	-
Renter Occupied	-	22%	-

Table 4. Financial demographics in Cambria, California (U.S. Census Bureau, 2023).

Financial Demographics	
Owner-Occupied Housing Units	78%
Median Value of Owner-Occupied Housing Units	$868,400
Median Household Income	$89,049
Per Capita Income	$53,560
Persons Below the Poverty Line	9.8%

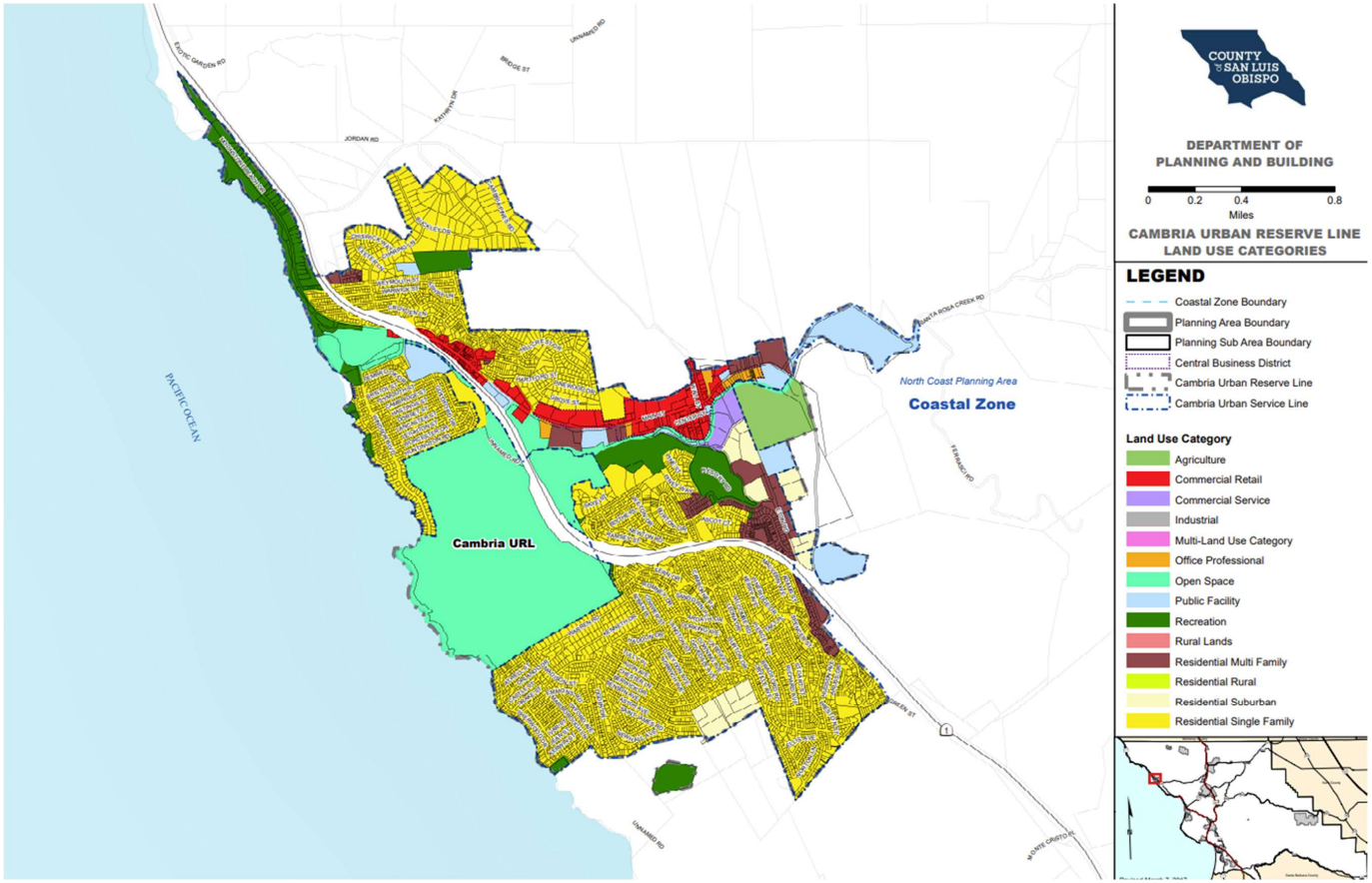

Figure 3. Map of land use distribution in Cambria, California, provided by County of San Luis Obispo Department of Planning and Building

General Description of Fire Problem

The wildfire problem in Cambria is defined by several characteristics that alone are known to increase wildfire risk, and the combination of these traits creates the possibility of a catastrophic and devastating outcome. This section will briefly introduce the largest risks and considerations to factor in when discussing the possibility of fire in Cambria.

1. Monterey Pine

   Cambria is well known for its Monterey pine forests, earning the nickname, “Cambria Pines by the Sea.” Monterey pine is a fire-adapted conifer, which means that it is best suited in environments that burn. Fire is a key part of Monterey pine reproduction as the tree has serotinous cones, cones which only release seeds when exposed to heat. This species thrives in low to moderate intensity fires every 11-20 years, and germination is highest when the parent tree survives. However, Cambria has a long history of fire exclusion, beginning in 1850, when California legislature banned cultural burning to forcibly erase Indigenous culture and cultural land practices (Malsberger, 2024). Since the establishment of Cambria, the number of houses, businesses, and other structures has only grown, contributing to the concern of fire leading to further suppression efforts in the area. This has resulted in dangerously high fuel loads, consisting of excessive surface and ladder fuels, extremely flammable invasive species, and fuel from Monterey pine mortality. Excluding fire from Monterey pine in the Cambria community has had negative effects on the health of these forests; weak trees that would normally be reduced with frequent, low-intensity fires are in such high density it is “almost impossible to pick out a Monterey pine in Cambria that doesn’t have something wrong with it” (Turner, 2024). Unhealthy stands of Monterey pine in Cambria are typically affected by pine pitch

canker and western gall rust and when combined with dwarf mistletoe, overcrowding, and competition for resources lead to weakness and susceptibility, resulting in mortality and wildfire risk.

2. Defensible Space

   In addition to the issues surrounding Cambria's Monterey pine forest, defensible space around homes and other structures within the community is inadequate. Cambria falls within a State Responsibility Area (SRA) **(Figure 4)**, which means that residents are responsible for ensuring that their property is compliant with California's building and fire codes (Cal Fire, 2024). One of the most important codes to remain compliant with is Public Resource Code (PRC) § 4291, which essentially mandates that all property owners within the SRA are to maintain defensible space of 100 feet from each side of structures in order to make it so that a "wildfire would be unlikely to ignite the structure" (*California Code, PRC 4291.*, 2024). Currently, the majority of homes in Cambria do not meet these standards. Furthermore, Cambria Community Services District enforces Ordinance 01-2025, which resides in accordance with Government Code Sections 61100 and 61060, and essentially sets "standards for weed abatement to facilitate regulation and control of the growth and accumulation of weeds, grasses, and other combustible vegetation" (Cambria CSD, 2025). The consequences of noncompliance with the weed abatement mandate do not exceed the cost of paying for these services, therefore public incentive to comply with this requirement is lacking. Evidently, this has led to a high amount of ladder fuels which could easily spread to structures. As a result of the

inadequate defensible space and noncompliance with the weed abatement mandate, fuel accumulation in Cambria poses a colossal wildfire risk, especially within neighborhoods.

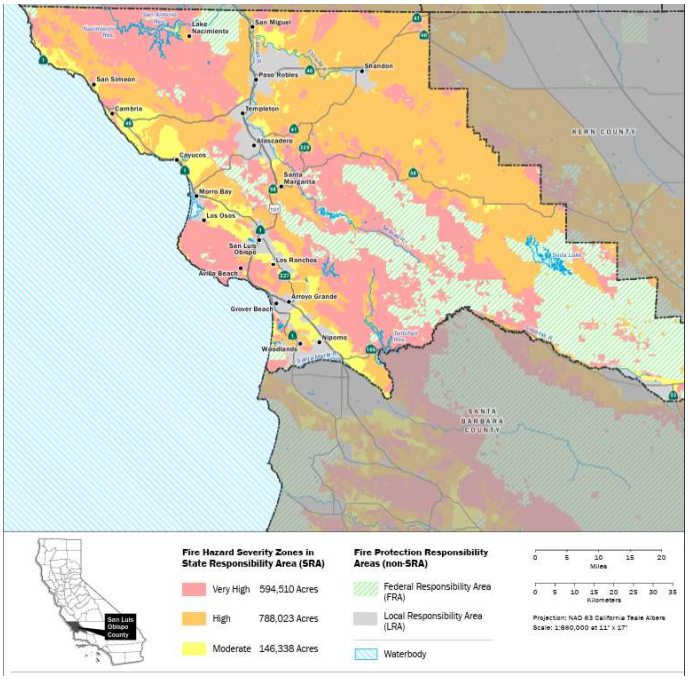

Figure 4. Map of Fire Hazard Severity Zones in State Responsibility Area & Fire Protection Responsibility Areas in non-SRA provided by San Luis Obispo County.

3. Powerlines & Utility Poles

The state of vegetative fuel around powerlines is also an important component to consider. Many of the utility poles, especially near homes and in neighborhoods are in contact with surrounding vegetation **(Figures 5-7)**. This poses a significant ignition risk

as an animal, branch or wind event could quickly lead to a spark which would then be sustained by the vegetation.

Figure 5. Image of vegetation surrounding a utility pole in Cambria, CA.

Figure 6. Image of utility line weaving through coast live oak trees in Cambria, CA.

Figure 7. Image of utility lines and vegetation in Cambria, CA.

4. Road Infrastructure & Navigation

   The current road infrastructure **(Figure 8)** is extremely hazardous in terms of evacuation standards. Highway 1 serves as Cambria's main evacuation route as it passes through the central community sector; however, there are only a few direct roads that access Highway 1, including Ardath Drive, Burton, and Main Street, all of which have the potential to become extremely congested during a mass evacuation event. Additional concerns arise given Ardath Drive and Burton Street intersect meaning both could be compromised in the case of a collision. Aside from the roads named, Cambria's neighborhoods are also made up of narrow and winding roads with minimal signage including intersections without stop signs or streetlights. Additionally, the heavy fuels along the signs further decrease visibility as well as raise ignition risks. Furthermore, the tourist season in Cambria falls relatively in line with fire season, which means that in the event of an evacuation, Cambria's roads would need to support upwards of 2,000 people in addition to the existing residential population on any given day. Navigation is also an issue; the cell service in Cambria is spotty, making it difficult to access navigation tools. As the majority of the visitors likely do not know their way around Cambria, this is extremely hazardous. Narrow winding paths with poor visibility and signage combined with a high stress environment pose a major safety hazard in a potentially deadly situation.

Figure 8. Map of existing road structure in Cambria, CA.

5. Vulnerable Populations

   Cambria also has a significant population of older residents in their retirement and a population of immigrants who do not speak English which would be vulnerable in an emergency. Older residents might require assistance clearing fuels to reduce fire risks, might not have access to cell phones requiring another form of communication, and might have difficulties physically evacuating in an emergency. Similarly, non-English speakers would require language accommodations and potentially more information on how to act safely if they are not from a fire prone area. Tourists who might fit in several of these at-risk populations who are unfamiliar with the town would likely have difficulty navigating the winding roads in an evacuation and could pose a recreational ignition risk. Additionally, there is a significant population of unhoused individuals with over 50 homeless campsites reported by the Cambria Community Services District as well as 15% of students in the Coast Unified School District campuses are classified as homeless meaning there are likely minors living in these makeshift shelters. A significant amount of ignitions spark from these shelters as people need warmth and heat to cook their meals and would not have the means to extinguish a fire that has escaped. Evacuation for these individuals would also be difficult as many would not have access to a vehicle. These are vulnerable populations are important factors to consider for reducing mortality if a disaster were to occur as well where to put efforts to reduce ignition risk.

6. Areas of Concern

   Though much of Cambria's existing infrastructure raises concern in the context of wildfire mitigation, there are several specific areas of concern. The following spaces are

significant sources of hazardous vegetation that may heavily impact the intensity of a potential wildfire: Covell Ranch, Strawberry Canyon, Camp Ocean Pines, Fiscalini Ranch Preserve, Rancho Marino.

Local Jurisdictions

The following jurisdictions are identified by their governing body along with the respective areas under their authority:

Cambria Community Services District (CCSD):

The Cambria Community Services District is responsible for resources within census-designated limits. It is the vision of the CCSD to provide sustainable, cost-effective services while maintaining its environmental stewardship to preserve the things that make Cambria special. It is also responsible for the funding of projects within the villa. Governed by a five-member board of directors, the CCSD serves the Community of Cambria.

County of San Luis Obispo:

The County of San Luis Obispo is responsible for resources within the county boundary. They oversee all regulations and responsibilities in areas outside the census zone. The County of San Luis Obispo is responsible for any county-owned road maintenance, including incorporated areas. It has indirect effects on surrounding cities through influence from its own set of regulations and policies that all of San Luis Obispo County is expected to follow.

San Luis Obispo Sheriffs:

The San Luis Obispo Sheriff's Department is responsible for law enforcement inside the County of San Luis Obispo. They primarily work in the unincorporated areas but serve the County of

San Luis Obispo. They enforce state and county laws with safety being their number one priority.

California Highway Patrol:

The California Highway Patrol patrols all highways throughout California. Enforcing all state and local laws, while also being responsible for responding to emergencies throughout their jurisdiction. The California Highway Patrol serves the State of California and its residents including Highway 1 which runs along Cambria.

California Department of Fish and Wildlife:

The California Department of Fish and Wildlife is a law enforcement agency that is responsible for enforcing all environmental protection laws in California. The department also hosts educational days for the public to learn more about their environment. The California Department of Fish and Wildlife serves all of California.

California Department of Transportation:

The California Department of Transportation (CalTrans) is responsible for all state-owned roads and highways. CalTrans serves everywhere in the state of California.

California Department of Forestry and Fire Protection:

The California Department of Forestry and Fire Protection (Cal Fire) responds to all emergencies in the state of California. Cal Fire focuses largely on fire prevention in the state responsibility area (SRA), but they are always prepared to respond to all emergencies in their jurisdiction. Cal Fire serves and protects the vast communities of California.

California Department of Parks and Recreation:

The California Department of Parks and Recreation is eager to maintain and preserve the biological diversity of California. Its goal is to provide the citizens of California with access to parks and open spaces that may enhance the health and well-being of Californians. They serve the Citizens of California.

Upper Salinas-Las Tablas Resource Conservation District:

The Upper Salinas-Las Tablas Resource Conservation District is committed to serving and educating landowners that will support their management of soil, water, and other natural resources. They assist in balancing land productivity and preserving the natural elements of the landscape. They serve the Northern San Luis Obispo County and some portions of Monterey and Kern counties.

COLLABORATIVE EFFORTS

Stakeholders

As stated in Section 101 of the Healthy Forests Restoration Act, created in 2003 and amended in 2022, the guidance established in a Community Wildfire Protection Plan must be agreed upon by "the applicable local government, local fire department, and State agency responsible for forest management, in consultation with interested parties and the Federal land management agencies managing land in the vicinity of the at-risk community." **Table 5** identifies stakeholders by their title, level of jurisdiction, and their involvement in the CWPP.

Table 5. Table listing potential stakeholders and other interested parties and their involvement in the Cambria, California CWPP.

Stakeholder	Level of Jurisdiction	Involvement in CWPP
Cal Fire	State	Lead agency for wildland fire suppression; leads mitigation compliance, fire response, and evacuations in State Responsibility Areas (SRAs)
California Coastal Commission	State	Ensures compliance with the California Coastal Act in all aspects of wildfire preparedness, mitigation, and recovery
California Highway Patrol	State	Manages highway traffic control and assists with evacuations and road closures on all roads during a wildfire event
Cambria Community Emergency Response Team	Community	Provides volunteer support for emergency preparedness, community outreach, and logistical assistance during evacuations and post-fire recovery
Cambria Community Services District	Community	Manages local wastewater, fire protection, and emergency services; supports fire suppression with water infrastructure and Cambria Fire Department
Cambria Firesafe Focus Group	Community	Coordinates community fire prevention education, defensible space outreach, supports evacuation planning with local stakeholders
Coast Unified School District	Community	Supports evacuation center operations, transportation coordination, and communication with families during wildfire events
Covell Ranch	Independent/Private	Private landowner potentially impacted by wildfire; coordinates with agencies for fuels management strategies, access during wildfire events, and recovery
Friends of the Fiscalini Ranch Preserve	Independent/Private	Fire-adapted land stewardship, coordinates with agencies for fuels management, and supports public communication for preserve access and recovery

Greenspace	Independent/Private (Land Trust/Nonprofit)	Land conservation and ecological restoration; coordinates with agencies for vegetation and fuels management, native plant recovery, and community education before and after wildfire
Local Businesses & Homeowners & Residents	Independent/Private	Potentially impacted by wildfire event; responsible for defensible space, emergency preparedness, evacuation compliance, and community resilience and recovery support
San Luis Obispo County	County	Coordinates emergency management (Office of Emergency Services), public communication, evacuation logistics, and interagency response support
San Luis Obispo Firesafe Council	Independent/Private (Public-Private Partnership)	Fuels reduction project coordination, homeowner education, grant funding assistance, fire resilience planning
San Luis Obispo Resource Conservation District	County (Special District)	Provides support for post-fire erosion control, habitat restoration, and landowner assistance with recovery planning
State Parks	State	Manages state parks; responsible for fire prevention , land management and fire mitigation, and coordination with Cal Fire on suppression and public access
United States Fish & Wildlife Service	Federal	Assesses impacts to federally listed species and habitats; may coordinate post-fire ecological assessments and restoration activities
United States Forest Service	Federal	Potential mutual aid; involved in fuel management policy and coordination in national forests (though not directly managing Cambria lands)

HAZARD ASSESSMENT

Fuel Conditions

The majority of Cambria is constructed of dense Monterey Pine forests, with a dense understory of shrubs and shade-tolerant species that provide dense vertical and horizontal continuity. In the forested areas, we see roughly 400-500 trees per acre, and in some areas, current treatments are aiming for 150-200 trees per acre. As shown in **Figure 9**, the Monterey pine stands tend to border the neighborhoods directly, and in some cases the forest in ingrained in the neighborhood. These areas would lead to a high-intensity crown fire that has the potential for a rapid rate of spread (ROS). As seen in figure four, there are areas of low-load dry grass that would lead to a rapid ROS, low-intensity fire, which has the potential to ignite other areas of the town with the potential to transform into a crown fire if exposed to ladder fuels.

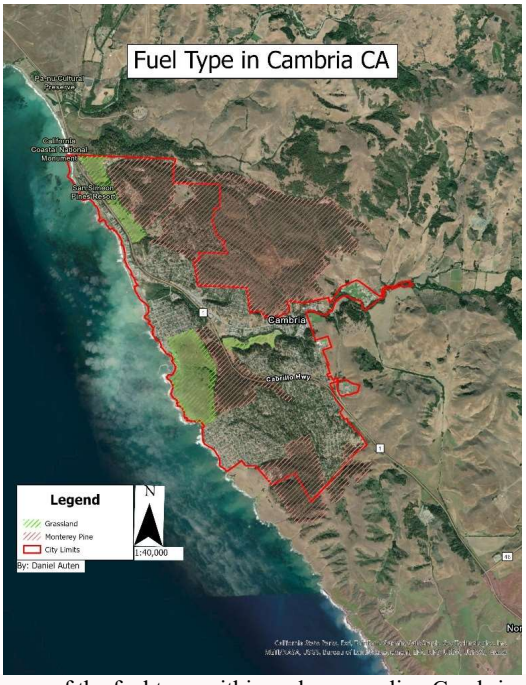

Figure 9. A map of the fuel type within and surrounding Cambria, California

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Weather

Understanding the weather and climate of Cambria, California, is essential for assessing wildfire risks in the wildland-urban interface (WUI). Weather patterns **(Table 6)**, particularly during the dry summer months, significantly influence fuel moisture levels and fire behavior. This section provides an overview of Cambria's regional climate and detailed August weather conditions, including temperature, humidity, wind, and precipitation.

Table 6. Table showing the average and extreme weather parameters for Cambria, CA, in August, created using data compiled from Weather Spark, Weather-Atlas, and ClimateData.org.

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Weather Parameter	Average	Extreme Observations
High Temperature	68–76°F	Up to 97°F
Low Temperature	55–59°F	As low as 51°F
Precipitation	0.0–0.1 inches	Virtually none
Relative Humidity	67%	Can drop to 30% or lower
Wind Speed	~6–8 mph	Gusts up to 20+ mph
Cloud Cover	Clear or mostly clear 92% of the time	Minimal cloud cover
Sunshine Hours	~11.4 hours/day	Peak daylight

Regional Climate

Cambria experiences a warm Mediterranean climate, characterized by dry hot summers and mild, wet winters. The town's proximity to the Pacific Ocean contributes to its moderate temperatures and marine influences, such as coastal fog and onshore breezes. These factors play a role in fuel moisture content and fire behavior during the fire season.

Temperature

August marks one of the warmest months in Cambria, with average high temperatures around 75°F (23.9°C) **(Figure 10)** and average lows near 58.8°F (14.9°C) **(Figure 11)**. While these values may appear moderate compared to inland California communities, their consistency and duration throughout the summer months have a cumulative drying effect on the local landscape. Prolonged exposure to even moderate heat can significantly reduce fuel moisture, particularly in fine surface fuels such as dry grasses, fallen leaves, and pine needles, which are highly responsive to daily temperature changes.

Daytime warmth intensifies drying by accelerating evapotranspiration in both live and dead vegetation. South and west-facing slopes, which receive the most intense solar radiation, often exhibit the driest conditions, especially by late summer when fuels have been baking in the sun for weeks or even months. Even shaded areas are not immune, as warm air temperatures combined with low humidity slowly reduce moisture across all fuel types. These conditions not only increase the flammability of fuels but also influence how quickly a fire can ignite and how rapidly it can spread, particularly during hot afternoons when relative humidity is at its lowest.

Nighttime temperatures offer only limited relief. With lows typically in the high 50s**,** overnight cooling is insufficient to allow full fuel moisture recovery, particularly when paired with low dew points or offshore wind events. The result is a fire environment that remains receptive to ignition well into the evening, potentially extending fire activity beyond daytime hours.

Temperature patterns also interact closely with other fire weather variables. For example, elevated temperatures combined with strong wind and low humidity can create explosive fire conditions, especially when fuels are already dry from weeks of minimal precipitation. In

extreme cases, temperatures can surge well past 90°F (32°C) during heatwaves, particularly when offshore winds funnel hot air from the inland valleys toward the coast. These rare but powerful events can dramatically increase fire intensity, challenge suppression efforts, and reduce firefighter endurance and equipment effectiveness.

While Cambria's coastal location often spares it from the most extreme inland heat, its repeated cycles of warm, dry days and mild nights throughout summer play a critical role in setting the stage for fire. When combined with low rainfall and drying winds, sustained summer heat becomes a key driver of seasonal wildfire risk, shaping both fire behavior and the urgency of mitigation efforts.

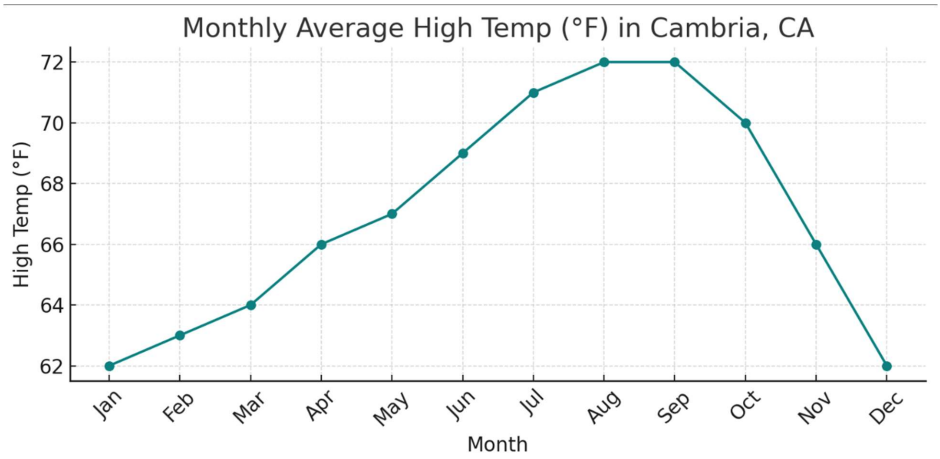

Figure 10. Monthly Average High Temperatures in Cambria, CA. Peak values occur in August and September, coinciding with the region's highest wildfire risk.

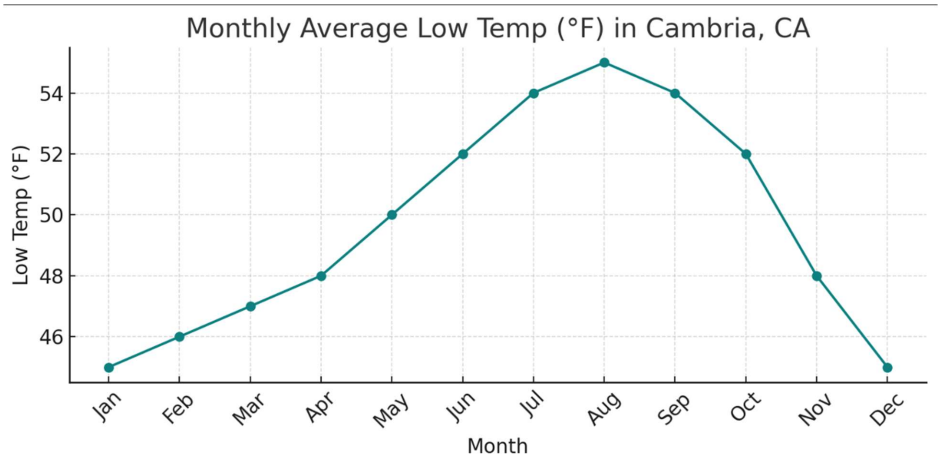

Figure 11. Monthly Average Low Temperatures in Cambria, CA.

Relative Humidity

The average relative humidity (RH) in Cambria during August is approximately 67%, but this single value does not capture the dynamic daily fluctuations that significantly affect wildfire potential. Humidity levels are typically highest in the early morning, often exceeding 85% due to coastal fog and the persistent marine layer. These conditions can temporarily slow the drying of fine fuels overnight. However, as the day progresses and temperatures rise, RH decreases sharply, often dropping to 40% or lower by mid-afternoon. On particularly hot or dry days, especially when influenced by offshore winds, afternoon RH can fall below 30%, creating prime conditions for fire ignition and spread.

Cambria's dew point values in August generally range between 53°F and 57°F, reflecting a moderately dry air mass. While not as arid as inland regions, this dew point range still supports the rapid drying of fine fuels, particularly when RH is low and winds are active. Dew point is

less variable than RH and offers insight into how much moisture is actually available in the atmosphere. Lower dew points signal a greater potential for fuels to dry quickly during warm, breezy afternoons and offer less opportunity for overnight fuel moisture recovery.

This atmospheric behavior plays a crucial role in wildfire preparedness and planning. Since RH and dew point directly affect fine dead fuel moisture content, they are vital variables in fire behavior modeling systems such as FlamMap or BEHAVE. Accurate RH inputs can improve the reliability of fire spread simulations, especially on Cambria's steep, vegetated slopes. Understanding local RH trends **(Figure 12)** also helps define safe operational windows for fuel reduction activities like prescribed burning, which may need to be halted if RH drops below critical thresholds (e.g., 25%). Furthermore, consistently low afternoon RH values are one of the key indicators used by fire agencies to issue Red Flag Warnings, which signal elevated fire danger and trigger increased readiness among both emergency personnel and residents.

In addition, poor overnight fuel moisture recovery, often caused by low dew points and insufficient marine influence, can lead to sustained fire activity throughout the night, limiting firefighting opportunities and increasing risk to both responders and the public. By closely monitoring RH and dew point behavior, agencies and communities in Cambria can better prepare for and respond to wildfire conditions, making this information an essential part of a comprehensive CWPP.

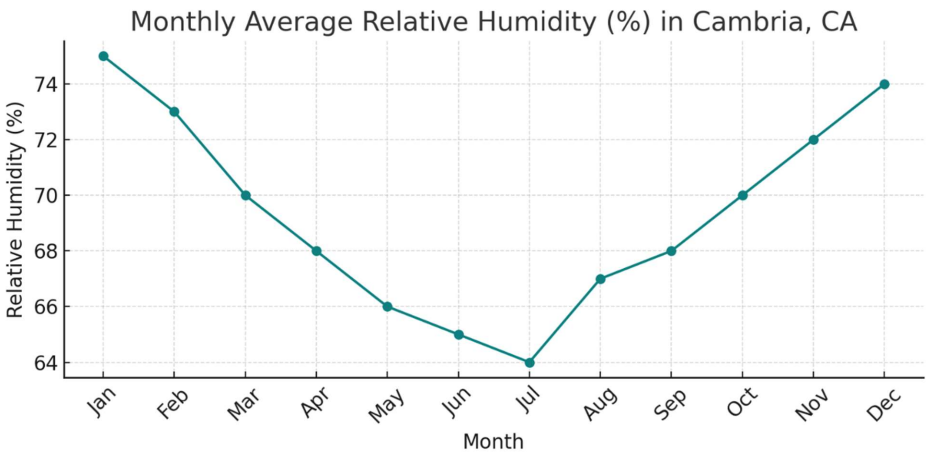

Figure 12. Monthly Average Relative Humidity in Cambria, CA.

Wind

Cambria experiences prevailing ocean breezes from the north-northwest (NNW) throughout the summer months, including August **(Figure 13)**. These winds typically originate over the Pacific Ocean and move inland, maintaining average speeds of around 6.5 mph (10.5 km/h) **(Figure 15)**. While these marine winds generally help moderate daytime temperatures and increase relative humidity, their drying effect on fine fuels can still contribute to fire risk under hot conditions.

Occasionally, the region is affected by extreme offshore winds from the east-northeast (ENE) most notably the Santa Lucia winds **(Figure 14).** These downslope winds occur primarily in late summer and fall, bringing hot, dry air from the interior. As they descend rapidly from higher elevations toward the coast, they compress and heat up, often resulting in gusts exceeding 20 mph. These events drastically lower humidity, increase evaporation, and create highly volatile fuel conditions. Their intensity and direction can cause rapid fire spread, push embers long

distances, and overwhelm suppression efforts, especially in densely vegetated or rugged areas. Understanding the dual influence of typical coastal winds and periodic extreme offshore events is crucial for fire behavior prediction and wildfire preparedness planning in Cambria's WUI zones.

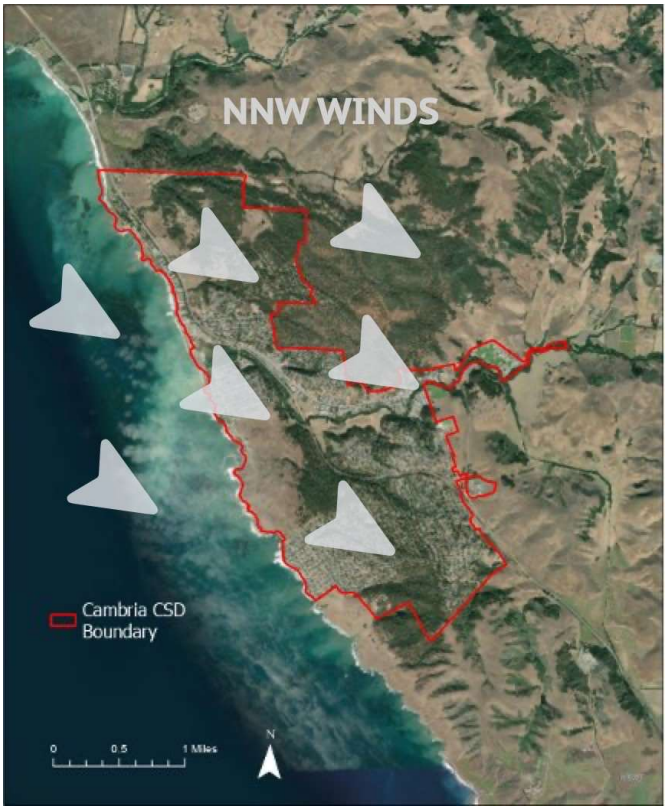

Figure 13. Map of Cambria with North, North-West wind pattern shown.

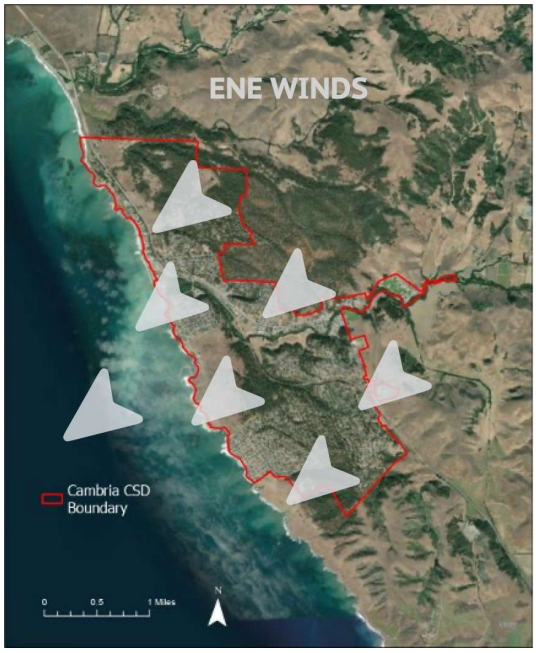

Figure 14. Map of Cambria with East, North-East wind pattern shown.

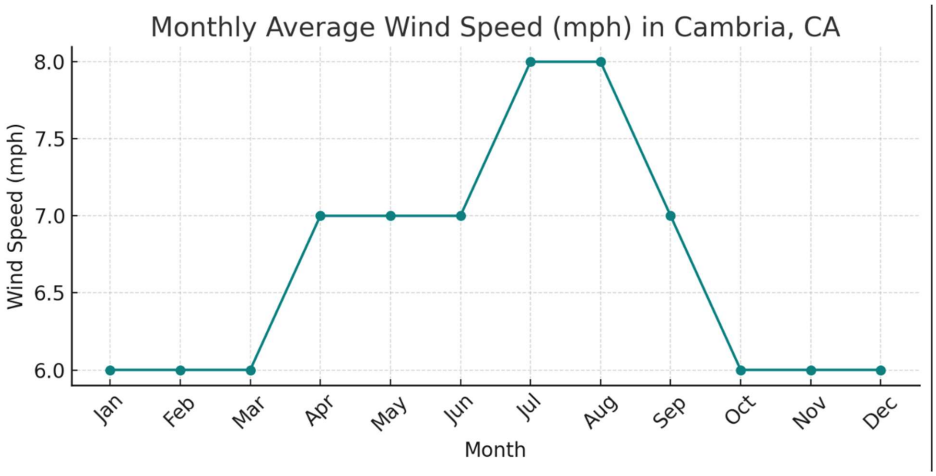

Figure 15. Monthly Average Wind Speed in Cambria, CA Wind speeds are slightly elevated during the fire season (June–September).

Precipitation

August is one of the driest months in Cambria, with an average precipitation of just 0.04 inches (1 mm) **(Figure 16)** and in many years, the area records no measurable rainfall at all. This near-total absence of moisture plays a critical role in shaping local wildfire conditions, as the lack of precipitation during this period leads to the cumulative drying of vegetation across all fuel layers. Fine fuels such as grasses and leaf litter can become highly flammable within hours of exposure to sun and wind, while larger fuels like branches and logs lose moisture more gradually, contributing to longer lasting and more intense burns later in the fire season.

This seasonal dryness is characteristic of Cambria's Mediterranean climate, which features cool, wet winters followed by prolonged dry summers. More than 90% of the region's annual rainfall typically occurs between November and April, leaving June through September, and especially August as a period of progressive desiccation. By late summer, vegetation across the landscape reaches peak dryness, with minimal live fuel moisture and depleted soil water reserves. The result is a landscape that is primed to ignite and burn rapidly, even under moderate weather conditions.

The impacts of sustained dryness are far-reaching. Plants under water stress may shed leaves or die back, increasing the volume of dead surface fuels available to carry fire. As water sources diminish, local wildlife may move closer to human activity in search of hydration, and critical firefighting water infrastructure including storage tanks, cisterns, and natural watercourses, may run at lower capacity. These dry conditions also often overlap with increased human activity, including recreation, landscaping, and equipment use, all of which heighten the risk of accidental ignitions.

The timing and severity of the dry season also affect fuel management strategies and fire suppression readiness. Vegetation treatments must be completed before fine fuels become too dry to work around safely, and water-dependent suppression tactics must be evaluated in light of potentially limited availability. As dryness peaks in August and continues into early fall, even a small ignition such as a spark from power equipment or an improperly extinguished campfire can escalate quickly under these tinderbox conditions.

Cambria's sharp seasonal precipitation pattern underscores the importance of proactive planning and ongoing monitoring of moisture conditions. By understanding how summer dryness shapes fuel behavior and fire potential, agencies and communities can better prepare for the challenges of late-season wildfire activity.

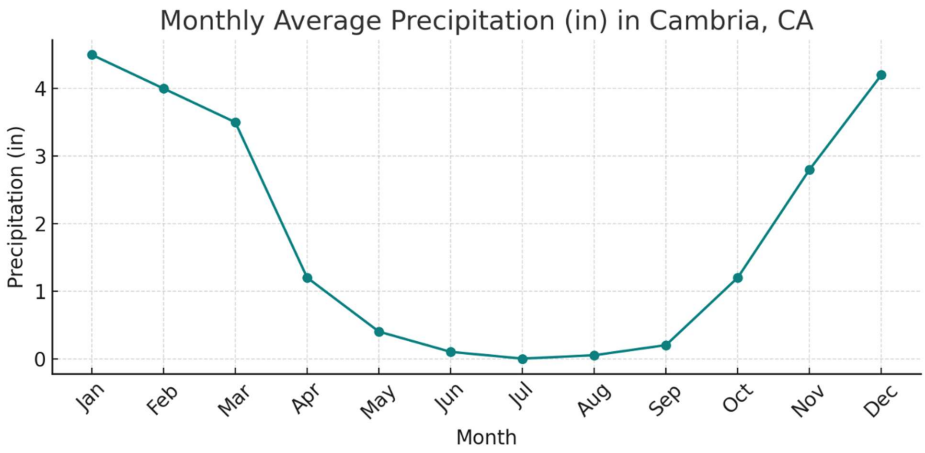

Figure 16. Monthly Average Precipitation in Cambria, CA. Precipitation in Cambria is highly seasonal. The summer months (May–September) receive minimal to no rainfall, exacerbating dry vegetation and increasing wildfire danger.

Topography

Cambria's Elevation ranges from sea level to approximately 690 feet, creating a varied landscape that influences wildfire behavior **(Figure 17)**. Slope steepness and aspect play a critical role in fuel conditions and fire intensity: south-facing slopes tend to have less fuel loading, lower moisture content, and higher temperatures, which makes them more prone to ignitions and rapid fire spread. In contrast, north-facing slopes generally retain more moisture, support heavier fuel loads, and maintain cooler temperatures, potentially reducing fire intensity but increasing fuel loading and availability. Key terrain features such as canyons and ridgelines can significantly influence fire behavior by channeling winds and accelerating fire spread. Steeper slopes not only increase fire spread but also pose challenges to firefighter access and defensible space creation, complicating suppression efforts and mitigation planning.

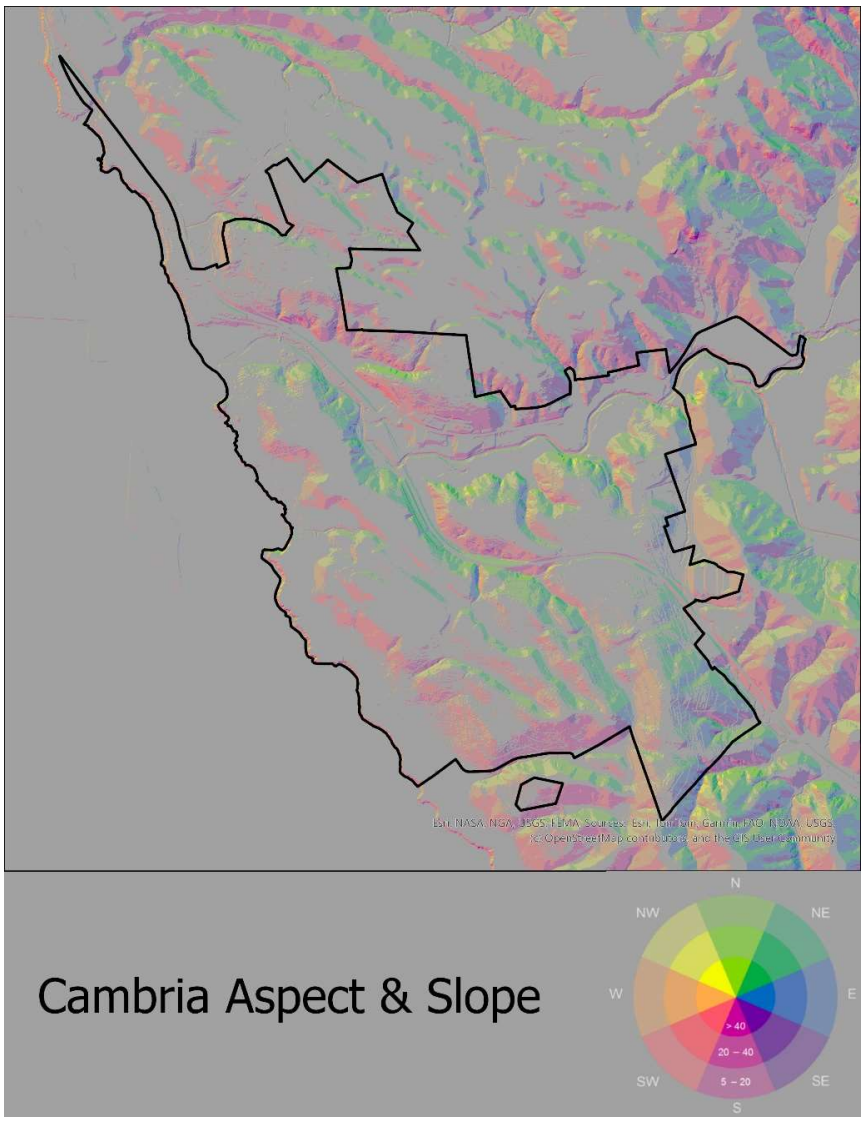

Figure 17. Map of slope and aspect in Cambria, California (Black Border).

Fire History

Cambria has a strong history of fire suppression with the most significant fire dated back to 1889, which was named the Cambria Fire. Flames ignited behind the Proctor Hotel and spread rapidly, destroying several homes and businesses. Due to a major lack of water systems, fire suppression efforts were hampered later prompting the installation of water tanks around Cambria. In recent years smaller fires have burned around Cambria **(Figure 18)**, including a fire in 2012 which reburned the same regions as the fire of 1889. Neighboring cities have been affected by wildfires including the 2023 Green Fire and the 2025 Harmony Fire. The region is also subject to small vegetation fires from vehicle ignitions which are promptly extinguished by local fire services. As there has not been a significant fire in the forest in over 100 years due to suppression efforts the concern for a destructive crown fire which could spread into the community is high.

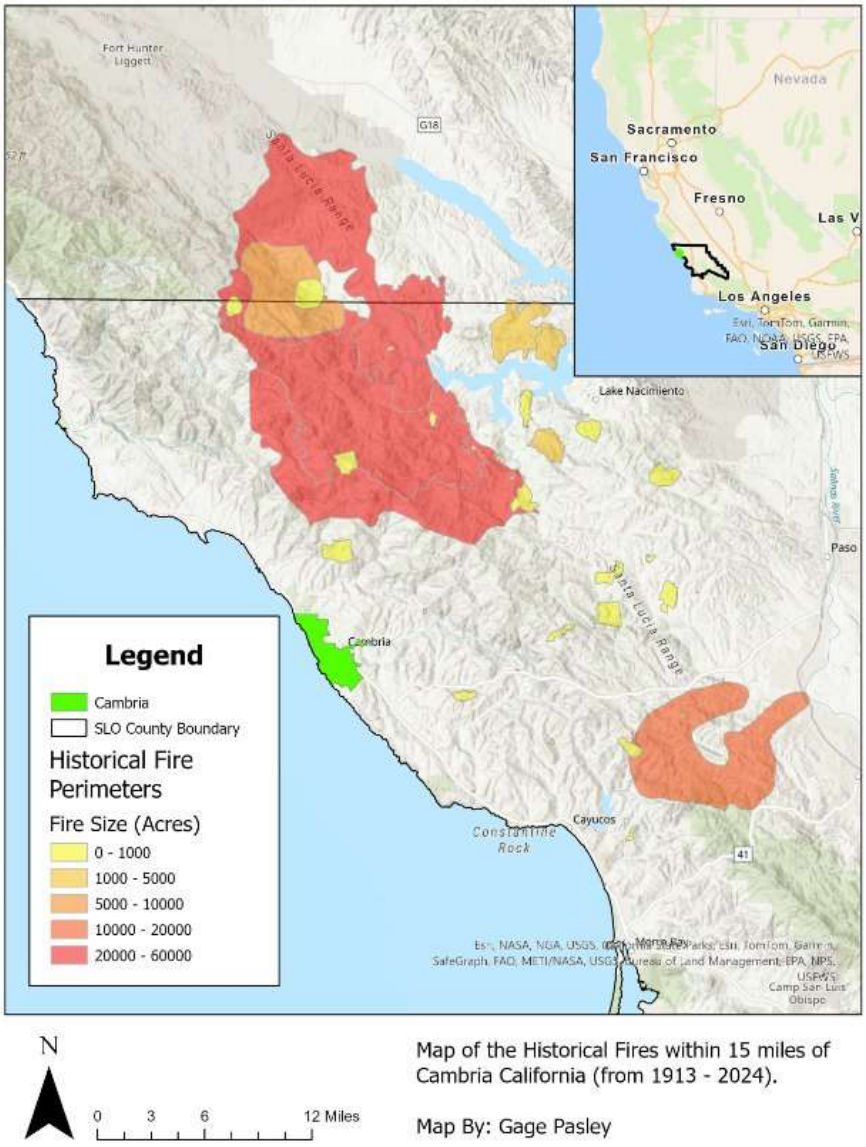

Figure 18. A map of historical fires within 15 miles of Cambria, California from 1913 to 2024, by Gage Pasley.

Potential Ignition Sources

Cambria is home to a small but relevant community of people experiencing homelessness who commonly create campfires for warmth, cooking, and other activities. While this is not inherently troublesome, it does pose major risks as an ignition source due to human error (accidentally or purposely displacing the fire source incorrectly) and/or embers being picked up by coastal winds which can start ignitions elsewhere. Powerlines also pose a major risk of ignition due to their proximity to trees and homes. Under the correct conditions such as high winds, blowdowns could damage lines and cause ignitions; relevant species within Cambria such as Monterey Pine already have an increased susceptibility to blowdowns due to their shallow roots systems.

Potential Fire Behavior

Cambria is a fuel-rich landscape with a high potential for fire spread. There is an overgrowth of vegetation in and around the town, with trees growing in high density and tall dry grasses. There are many areas facing high risk, the most notable locations including the forests surrounding Camp Ocean Pines and Strawberry Canyon. With Cambria settled right alongside the coastline, the coastal winds can further intensify an ignition should there ever be one. The embers that spur from a fire can be carried by the winds and create spot fires, with homes also at a high risk of igniting, leaving whole neighborhoods in flames potentially. Alongside the coastal winds, Cambria has steep terrains and narrow roads, which can cause fires to ignite across streets and spread faster due to more ladder fuels. Overall, a fire in Cambria would be a very difficult situation to resolve, and evacuation would be as well.

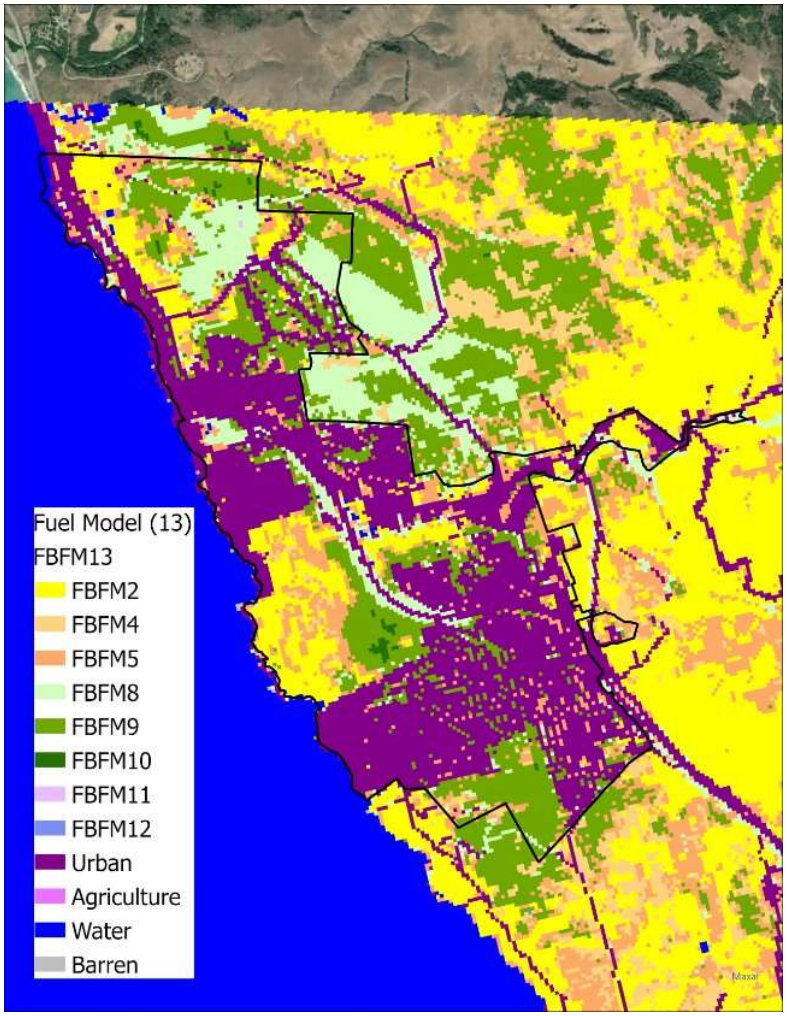

Figure 19. A map created using FlamMap illustrating fuel conditions during the month of August.

ASSETS AT RISK

Built Environment

If a fire was to spread across Cambria in the right conditions, the damage would be unimaginable to recover from. There is a significant amount of information unavailable as to specific values of structures, however notable locations and their suspected potentials losses will be discussed in this segment.

As tourism is a large driver of the economy within Cambria, tourism locations would be a large priority to preserve. The Cambria Pine Lodge is home to the Cambria Christmas Market, which attracts 70,000 tourists annually. Within Cambria, the Stolo Family Vineyards is a fully operational vineyard, tasting room, and winery. There are no chain properties in the community and over 137 inns and hotels which charge upwards of a hundred dollars per night. There is also a large art scene in Cambria with over 15 art galleries and working artists studios attracting art enjoyers, often selling paintings worth hundreds each and supporting smaller local artists. Historical structures include the Cambria Historical Museum built in 1870 as well as the Santa Rosa Schoolhouse built in 1881. The community also houses over 40 restaurants.

Cambria is also a very desirable place to live but as of 2001 a moratorium was put in place blocking any new structures from joining the water system due to shortages. This likely contributes to the high median home value of 1.25 million in Cambria (Redfin 2025).

In Northern Cambria along the coast sits the Moonstone Ranch Estate, which sold for 17.2 million in late 2024.

While the direct number of houses is unclear the Cambria Community Service District reports approximately 4,000 dwellings, over 40 of which are considered “pole” houses in areas of

considerable slope and limited access. This refers to homes which are stilted over a slope, many of which have vegetation under which poses a major vegetation to structure fire hazard. Cambria is considered a high fire hazard severity zone and in recent years insurance companies have refused to renew contracts in the region. Due to this property owners are forced to turn to the California FAIR Plan as a last resort for fire insurance which costs on average $3,200 per year (Bankrate 2025). This only provides fire coverage meaning homeowners would need a secondary insurance plan for their valuables on their property. In addition to this, Cambria is a relatively expensive city to live in with a cost-of-living score of 146.1 while the national average rests at 100. The increased rates of insurance in addition to the separation of property and fire insurance creates a rift between citizens and their ability to pay the high insurance rates meaning likely some of the homeowners are without insurance.

There are no hospitals in Cambria; the Community Health Centers Cambria acts as a care clinic and an ambulance service through the Cambria Community Healthcare District, however, these are around a 10-minute drive from any safety zone. Other critical infrastructures include elementary, middle and high schools.

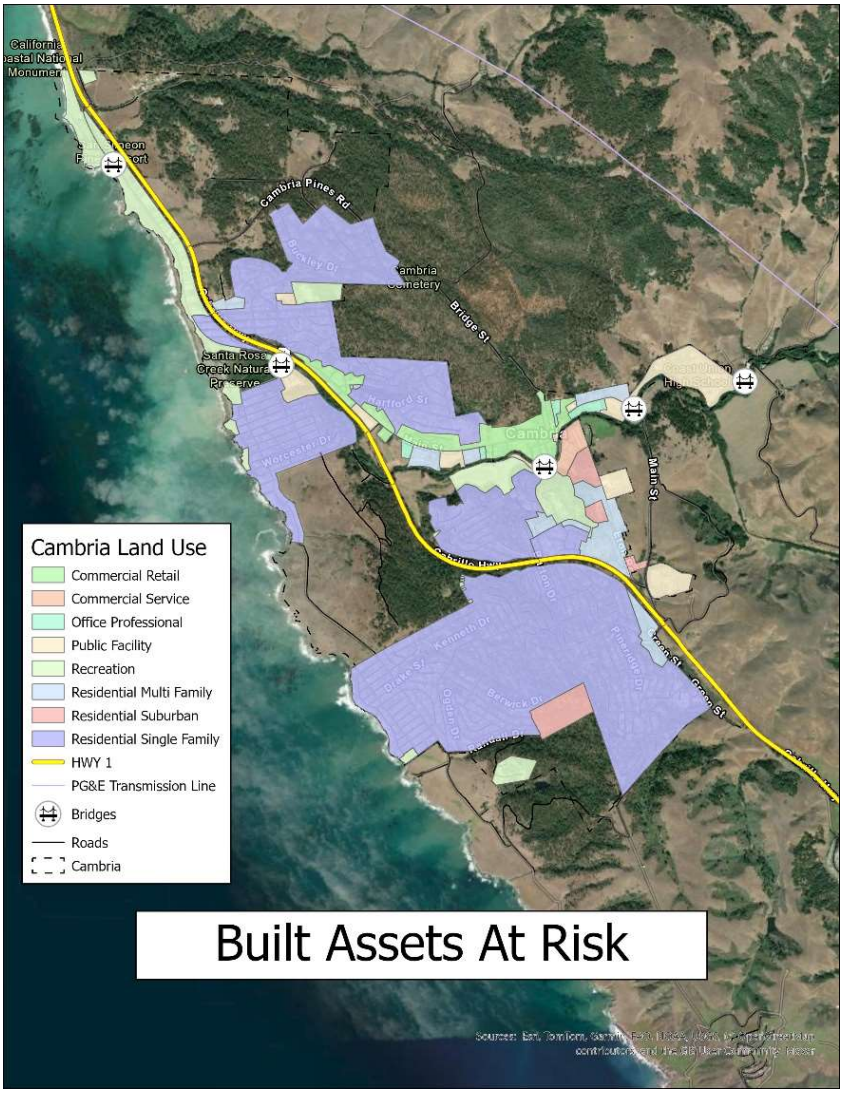

Figure 20. Built assets at risk in Cambria, California.

Natural Environment

Cambria's natural landscape is both ecologically significant and extremely vulnerable to wildfire **(Figure 21)**. As mentioned previously, the region is home to one of five native Monterey pine (*Pinus radiata*) stands in the world, serving as one of Cambria's defining characteristics as well as supporting a biodiverse ecosystem. Monterey pine is already considered a threatened species due to urbanization, recreation, fire suppression, and pests and diseases (United States Department of Agriculture).

Additionally, the Santa Rosa Creek Watershed and adjacent watersheds such as the San Simeon Creek Watershed and the Villa Creek Watershed are at risk of extreme degradation in the event of a wildfire. Wildfires have the potential to cause hydrophobic soils, which impact the ability of water to permeate the soil. This can cause flooding, sedimentation, and ultimately lead to poor water quality, which has the potential to impact several wildlife species within the area. Degradation of watershed areas affects several special status wildlife species **(Table 7)** This is because sedimentation, poor water quality, turbidity, and unusual temperature fluctuations alter the preferred habitats of the flora and fauna in the area.

Table 7. Table listing wildlife species with special status in Cambria, California.

Common Name	Scientific Name
Pacific Pond Turtle	*Actinemys marmorata*
California red-legged frog	*Rana draytonii*
Monarch butterfly	*Danaus plexippus*
Tidewater goby	*Eucyclogobius newberryi*
Steelhead trout	*Oncorhynchus mykiss*

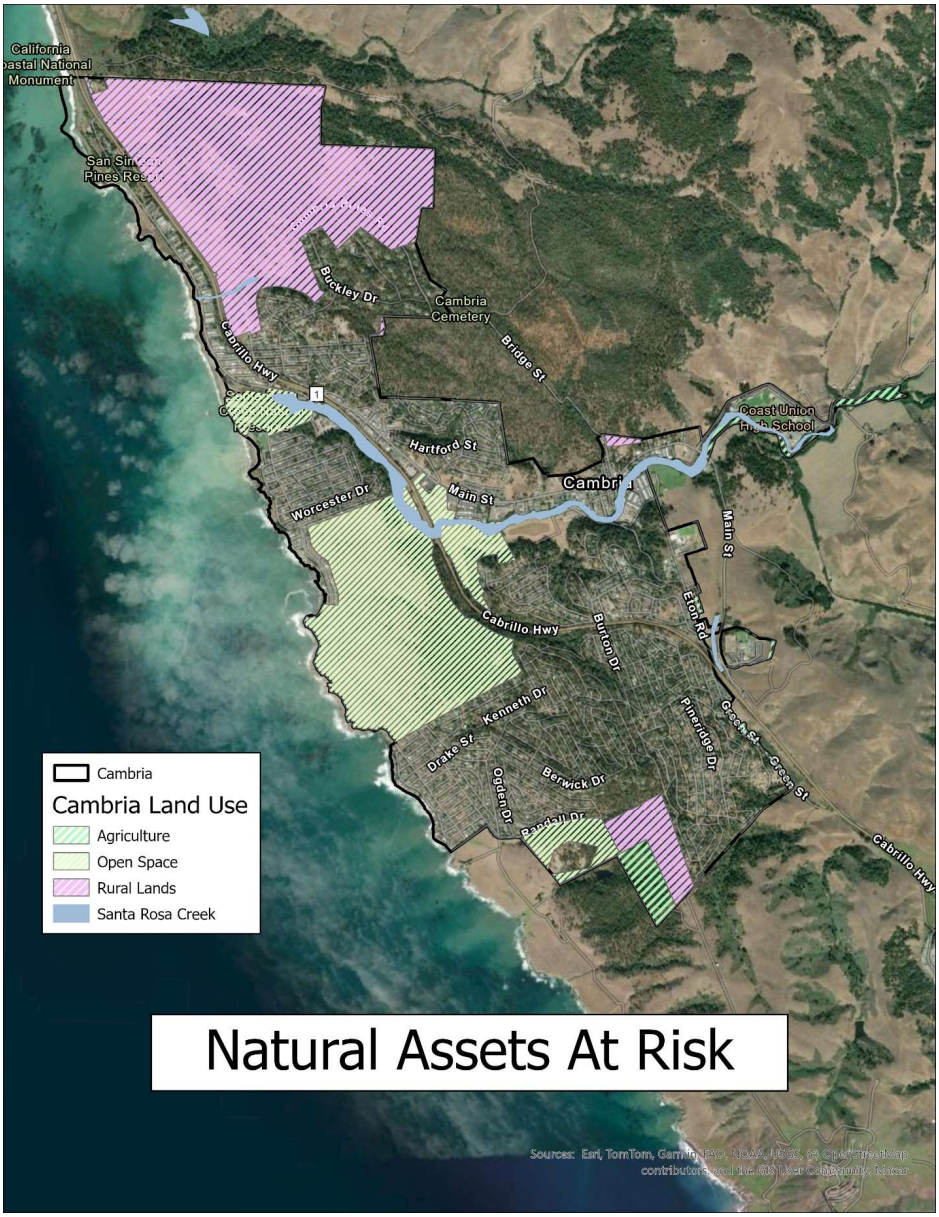

Figure 21. Natural Assets at Risk in Cambria, California.

PRIORITIZED FUEL REDUCTION

Fuel Modifications and Locations

Cambria is in desperate need of fuel modifications across the town **(Figure 22)**. The first area of concern I the Fiscalini Ranch Preserves due to the amount of recreation and the location in relation to the neighborhoods. This property has a dense Monterey pine stand that border the Lodge Hill and Marine Terrace's Northwest side. With the predominant Northwest winds, the Fiscalini Ranch Preserve poses a direct threat to these neighborhoods if a fire were to start. Widening some of the existing trails in this area could provide firefighters with pre-existing fire breaks and easy ways to hike in. Additionally, some understory clearing to break up horizontal and vertical continuity of the fuels would be necessary in mitigating a fire **(Figure 23)**.

Covell Ranch and Strawberry Canyon are also areas of concern, as they both are bordered by densely packed neighborhoods. Fuel modification is currently operational in Covell Ranch, but Strawberry Canyon remains mostly untouched. Strawberry Canyon needs density reduction, and buffers must be put in along the surrounding neighborhoods. Buffers are meant to break up continuity between the wildland and the urban areas so fire cannot pass through easily, and firefighters can use them as a strategic space to hold the fire. Fuel reduction is also important in urban areas, and defensible space must be discussed. As seen in the figure below, houses in Cambria are built into the landscape rather than on it, meaning most of the houses have dense vegetation surrounding them. It is recommended that within 5 feet of your house there is no combustible vegetation, within 30 feet, it is expected that there is adequate fuel management reducing the risk of fire, and within 100 feet, it is expected that all grass be trimmed to 4 inches and vertical and horizontal continuity are broken up.

Figure 22. Image showing density of trees in urban areas in Cambria, California.

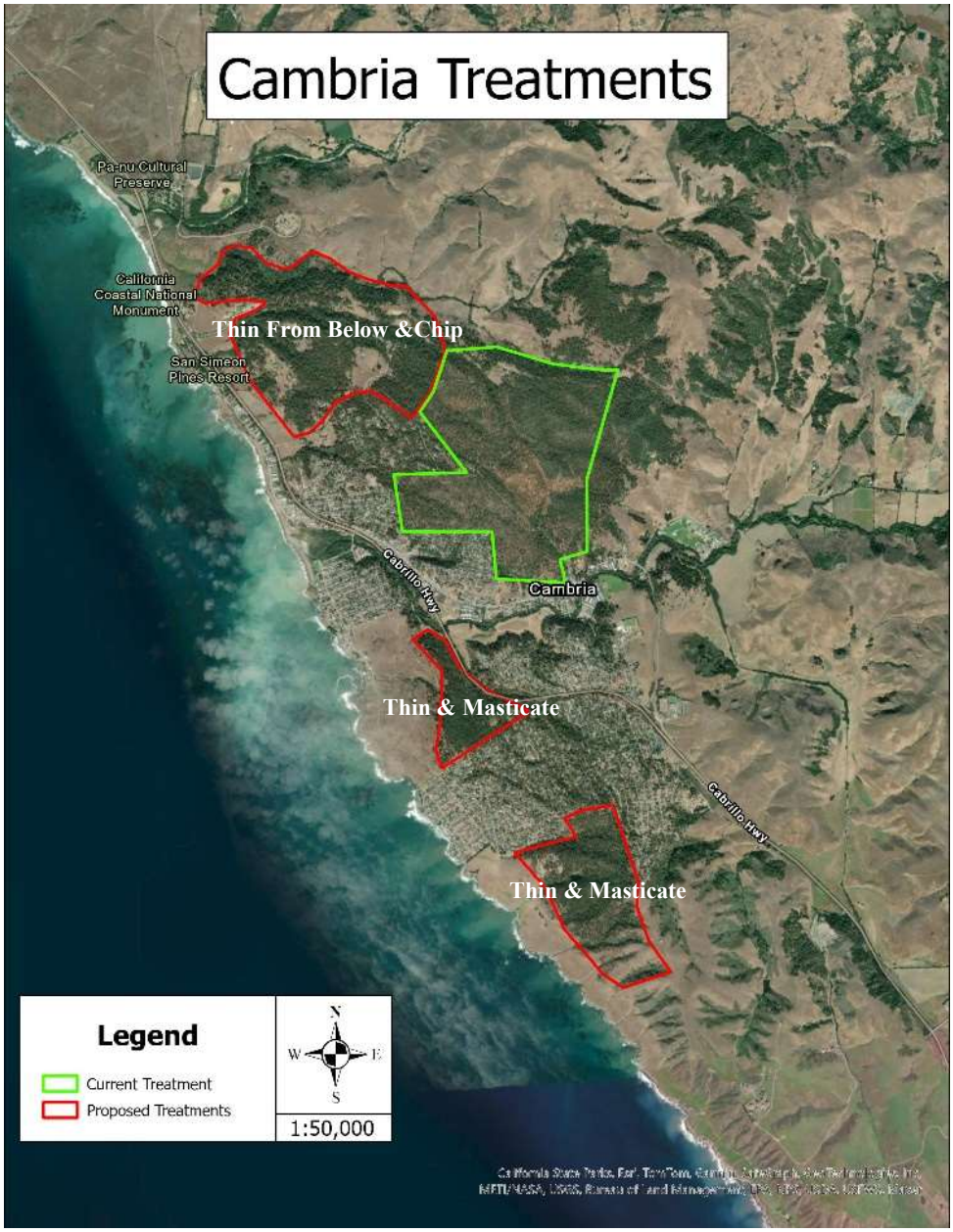

Figure 23. A map of the proposed and current fuel treatments in Cambria, California.

Recommended Treatment Methods and Actions

Having effective fuel reduction in Cambria is a balance between biophysical needs and sociopolitical reality to both reduce wildfire risk and gain community support. The following strategies are recommended:

Biophysical Treatments:

- **Prescribed Burning**

  While it does not have good public reception and can be considered risky, particularly in populated areas, prescribed fire is one of the most effective ways of effectively managing and reducing understory fuels and mimicking the natural fire regimes. If properly managed, prescribed fire can also promote ecosystem balance and decrease wildfire intensity. New innovations such as Burn Bots RX2 is a promising piece of technology that offers a controlled way to implement low-intensity burns in targeted areas.

- **Strategic Thinning**

  Strategic thinning operations should focus on reducing ladder fuels and overcrowded stands that promote crown fires with priority given to areas composed of dense vegetation and invasive species. Many techniques can be employed based upon needs and objectives which may include mastication, hand crews, and mechanical thinning, depending on terrain and access.

- **Shaded Fuel Breaks**

  Installing and maintaining shaded fuels breaks, especially along key evacuations routes, provide a muchneeded buffer that deters wildfire spread and improves emergency services access. These areas should be designed to retain canopy cover while overall reducing surface and ladder fuels

Sociopolitical Actions

- **Policy Advocacy**

  Support for county-level policies that streamline environmental review and permit process for vegetation management is crucial. These advocacy efforts should be aimed at making fuel treatments more efficient and legally accessible.

- **Expand Cost-Share Programs**

  Expanding participation in programs like Fire Wise to provide financial and technical assistance to private landowners implementing defensible space and home hardening measures. Making these programs more accessible can boost community wide effects for fuel reduction.

METHODS TO REDUCE STRUCTURE IGNITABILITY

Prevention Measures

Wildfire prevention measures are implemented in areas that have a high fire risk, and they are aimed at stopping the spark entirely. There are two basic categories to prevention measures which include biophysical and sociopolitical. Biophysical measures are aimed at upgrading infrastructure to prevent the possibility of ignition. Sociopolitical measures aim to address the human factors that lead to wildfires around the globe.

Around 85 percent of wildfires in the United States stem from human ignition (USDA 2017). Many human behaviors pose risk of ignitions such as recreation, cooking, and transit, and under the right conditions an escaped spark can quickly escalate to a deadly situation. There are currently efforts to further engage the community about fire hazards and fuel reductions through weekly social media and email blasts as well as an informational session held at the Vet's Hall

with the fire chief. However, furthering these efforts could benefit the community and education is the first step in prevention.

Currently around 14.6% of the population of Cambria is under 18 and attending one of the three schools in the community. This provides an easy way to address a significant population who would likely share their learned knowledge with their household. Additionally, these school reach outs could be an overall community event where adults can choose to join their kids in learning how to make their community safer.

Other potential outreach locations include the weekly farmers market as often farmers markets promote a strong sense of community and a booth about how to protect and serve their community would likely be beneficial and reach tourists as well. Tourists who might not be educated on how to be responsible in high fire hazard severity zones would also greatly benefit from education. Given the number of visitors at any given time it is unclear the owners of the rentals or hotels should be responsible for providing at minimum a paragraph on the listing of prohibited and unsuggested activities and explain the risks associated so they are able to make safe informed decisions during their visit. The owners, as members of the community and stakeholders would benefit from this as their properties are protected by these actions.

There is a notable population of people experiencing homelessness in Cambria who pose high risk for potential ignition sources. These individuals require fire for warmth and to cook their meals as there are currently no homeless shelters in Cambria as well as no soup kitchens. For their survival fire is required and often their shelters are in areas with dense vegetation posing high risk for fires to escape. To reduce this risk of prevention resources have to be made available for this population such as warm clothing and bedding through a donation drive to provide alternative solutions to keep warm. Additionally, safe areas to ignite fires such as parks

with barbecue areas or providing hot meals would reduce the need for unsafe fires to stay nourished. There are currently 3 parks in Cambria that provide safe areas for cooking: Shamel Park, Leffingwell Landing, and Hardie Park.

As for biophysical efforts, many wildfires in the United States are started due to vehicles, so the most effective prevention measures will be everything surrounding the roadsides. Roadside clearing should be done along Highway 1, specifically between the intersection of Highway 1 and Windsor Boulevard, and Highway 1 and Main Street. Observe the figure below. Along this stretch, we see forested areas with tall dead grass, which is highly flammable. Mowing the shoulders during peak fire season may help prevent many potential sparks.

Figure 6. A map showing the transmission lines and suggested roadside treatment in Cambria, California

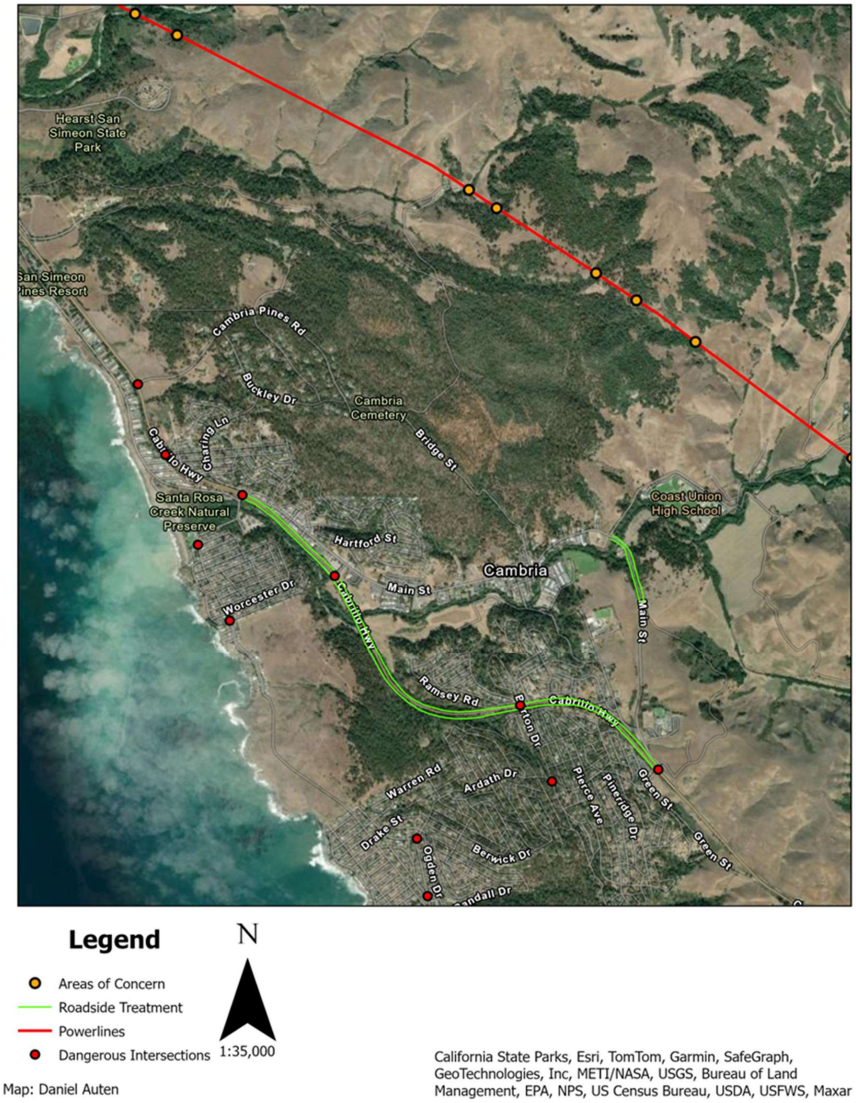

Figure 24. Map showing the transmission lines and suggested roadside treatment in Cambria, California.

Another large proponent of starting wildfires is PG&E transmission lines due to the high voltages running through them. As seen in the figure above, PG&E runs 60-volt transmission lines along the ridge above Cambria to supply power to the town. These lines pass over dense Monterey pine and chaparral that should be proactively maintained on a yearly basis to ensure no vegetation gets close enough to the lines to spark. Additionally, monitoring the weather and shutting off power during high wind events, or when the RH drops below a specific unusual threshold, could also be a necessary measure to prevent the spark.

Mitigation Measures

An essential consideration in reducing the destructive impact of wildfires in Cambria is the implementation of both biophysical and sociopolitical mitigation strategies that can help safeguard the community. From a biophysical standpoint, one of the most pressing concerns is the lack of adequate defensible space and the use of combustible exterior materials on many homes. A significant number of residences in Cambria are built with wood siding, which poses a high fire risk. To reduce the likelihood of structure-to-structure ignition, fire-resistant building materials—such as concrete, non-combustible siding, or fire-treated wood—should be prioritized. These materials can help slow fire spread and improve the chances of survival for residents who may be unable to evacuate. Another widespread issue is the condition of the surrounding landscapes. Overgrown vegetation, trees planted too close to homes, and power lines entangled with branches all contribute to increased fire danger. Regular property maintenance—such as trimming trees away from structures and utilities, mowing tall grass, and clearing brush—can significantly lower the risk of ignition and help protect entire neighborhoods from wildfire devastation.

When considering sociopolitical mitigation measures for emergency evacuations, it is important to recognize the unique challenges faced by vulnerable demographics in Cambria, particularly retirees and non-English speaking residents. While these groups may differ in their specific needs, both face significant barriers to effective communication during emergencies. For retirees, communication can be hindered by the lack of access to or familiarity with modern technology such as cellphones, which are often central to emergency alerts and updates. Hearing impairments and other availability hinderances can further complicate traditional communication methods such as door-to-door outreach, for example. Non-English-speaking residents may struggle to understand emergency instructions from neighbors or on the phone due to the language barrier which can create a tricky situation, especially when evacuations happen. Agencies and other residents may not be multilingual which leaves the non-English behind in a disaster. Acknowledging and preparing for these challenges ahead of time can help prevent confusion and ensure that all residents receive life-saving information quickly and efficiently. Mobility is another critical concern for retirees, with some unable to walk long distances, carry emergency supplies, or drive themselves away from the incident. One approach to solving this problem is to install an emergency siren system throughout Cambria to get residents' attention. For the non-English speakers, implementing reverse 911 messages that are translated into their primary language can knock down some of the language barriers. To support retirees and the non-English, there should be established neighborhood liaisons and a buddy system to ensure that no one is left behind. Ensuring there are larger transport vehicles like vans or buses for mass evacuation can limit the traffic during an evacuation.

Preparedness Measures

Preparedness is one of the most critical components of wildfire resilience. The steps taken before a wildfire, ranging from emergency planning to infrastructure readiness, determine how effectively a community can respond and recover. In Cambria, preparedness depends on the integration of biophysical resources, such as fire suppression systems and evacuation routes, with sociopolitical efforts, such as public education, community drills, and individual readiness. These approaches work in tandem to reduce risk, protect life and property, and ensure residents are empowered to act when time is limited.

In a community like Cambria, which features narrow, forested neighborhoods, variable terrain, and an aging population, preparedness, and planning must be both realistic and proactive. This includes clear evacuation strategies, robust fire suppression infrastructure, and strong communication between agencies and residents.

Existing Suppression Infrastructure

Cambria currently benefits from a solid foundation of suppression infrastructure. The community is served by two fire stations, including one Cal Fire facility (located at the end of Coventry Lane) and one operated by the Cambria Community Services District (Located on Burton Dr. between Yorkshire Dr. and Patterson Pl.). There are also four major water tank sites, five potable water production wells, and over 360 fire hydrants distributed throughout residential zones. These resources support initial fire response efforts and give first responders access to pressurized water and regional coordination points. A dedicated water treatment and delivery network enhances this system by ensuring redundancy and geographic reach across the CCSD boundary.

Recommendations to Improve Suppression Infrastructure

Despite its strong base, Cambria's suppression infrastructure would benefit from localized upgrades in both resource availability and redundancy. This includes encouraging rainwater and graywater harvesting systems for residential use and shared community water tanks in areas with slower hydrant access. Financial incentives, such as through Cal Fire Wildfire Prevention Grants or San Luis Obispo County's Integrated Regional Water Management (IRWM) funding should be pursued to support implementation. Distributing household water storage tanks in remote areas or on dead-end roads could support firefighting access during road blockages. These biophysical measures complement outreach campaigns to educate residents on their role in enhancing local water resilience.

Existing Ingress and Egress

Cambria's ingress and egress are limited by narrow, winding roads with high vegetation density and limited shoulder space. Many evacuations routes funnel into Highway 1, creating chokepoints that are further complicated by seasonal tourism and residential growth. Several roadways also lack visible signage or address markings, which can delay response times or hinder evacuation, particularly for visitors, unfamiliar residents, or confused elderly residents. Additionally, cell service is unreliable in certain areas, limiting the effectiveness of GPS-based navigation or emergency alerts.

Recommendations to Improve Ingress and Egress

To address these constraints, several upgrades are recommended. Clearing vegetation at least 25 feet on either side of key neighborhood roads would improve visibility and emergency vehicle access. This is especially important in areas furthest from evacuation routes, such as Strawberry Canyon or the southern end of Marine Terrace. Installing directional and street signage,

including arrows pointing toward Highway 1, will reduce navigation confusion during evacuations. These should be visible at night and in smoky conditions. Public transportation also plays a key role. Expanding shuttle access to popular points of interest such as the East Village, Moonstone Beach, and natural reserves could decrease the number of non-resident vehicles on the road during an emergency.

Planned Residential Response

Cambria residents should be equipped with both the tools and knowledge to act quickly. Evacuation zones and pre-assigned routes should be clearly mapped and distributed to every household in physical and digital formats. These should be available in English and Spanish. Homeowners should also be encouraged to designate a neighborhood liaison, someone trained to coordinate communication, assist vulnerable residents, and ensure everyone is accounted for. The enforcement of PRC 4291, which requires 100 feet of defensible space around structures, should be prioritized as a community-wide safety standard. Residents should also assemble and maintain a go-bag containing essential documents (e.g., IDs, birth certificates, insurance policies), medications, money, phone chargers, a flashlight, clothes, and comfort items like family photos. These bags should be stored in an accessible location near exits. In the event of evacuation delays or blocked egress, residents should know how to shelter-in-place safely: shutting off gas lines, turning on exterior lights for visibility, placing ladders outside for roof access, and leaving doors unlocked for responder access.

Agency and Residential Training

Training efforts must reach both professionals and residents. Cambria has already hosted successful community preparedness meetings and CERT (Community Emergency Response

Team) training sessions, which should continue regularly. Agencies including the Cambria Fire Department and Cal Fire should conduct joint evacuation drills and tabletop response exercises to test coordination. Special attention should be paid to managing house-to-house ignitions, identifying high-risk fuel zones, and preparing for scenarios involving hazardous materials or medical triage. Neighborhood-level efforts should include liaison training, door-to-door outreach, and fire prevention education, particularly about ignition risks related to human activity such as equipment use or vehicle sparks.

Figure 25. Map of Cambria showing all roads, including HWY 1, with highlighted escape routes, safety zones, and fire stations.

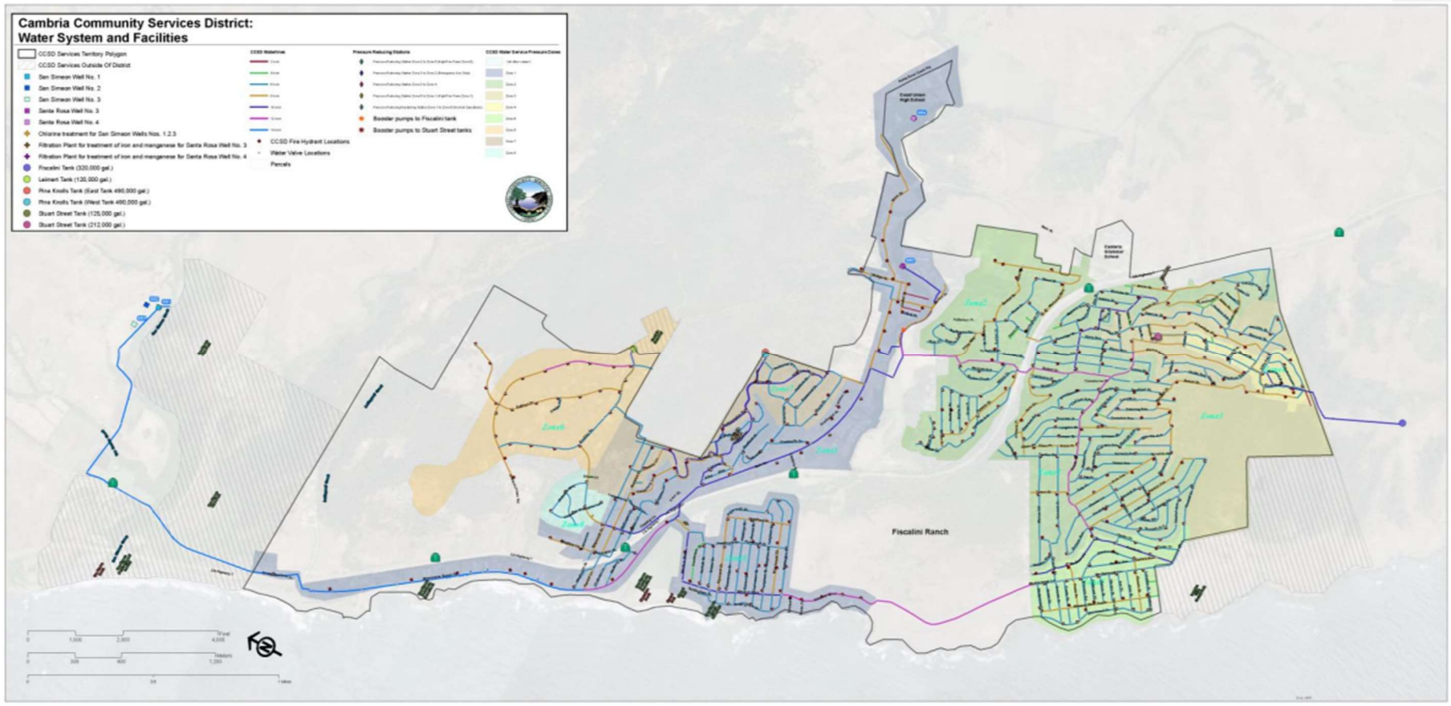

Figure 26. Map of Cambria showing existing suppression infrastructure including 2 Fire Stations, 369 Fire Hydrants, 4,033 Service Connections, 4 Tank Sites, and 5 Potable Water Production Wells. Map provided by the Cambria CSD Water Department webpage.

RECOVERY MEASURES

Community Recovery

For Cambria to recover biophysically from a wildfire, we need to take a look at some key strategies that can benefit the community after a disaster. First, we should have salvage logging taken into consideration. After a wildfire, there are a lot of dead brushes and slashes left behind. Salvage logging removes dead or damaged trees, and this would help reduce future fuel loads, slow the spread of insects like the bark beetle, and clear space for native forest regeneration. Secondly, we can implement waddles which can prevent potential landslides from wiping out entire homes and business districts. Waddles should be placed on the slope of hills in order to reduce water runoff, sediments and stabilize hillsides.

Along with waddles, planting native grasses and digging trenches can benefit Cambria as well. Native grasses are important and beneficial to the landscape because they re-establish the vegetation cover and reduce erosion, along with supporting native wildlife. Trenches can be dug to slow water flow and prevent flash flooding, which will help protect areas like Santa Rosa Creek from getting contaminated with sediments. After a wildfire, many soils are left unstable, with water unable to be absorbed due to hydrophobicity, causing any runoff from storms to flow straight into community roadways. Having these trenches on the sides of roads and throughout Cambria can prevent storm drains from getting overwhelmed to an extent.

Post-disaster funding is equally as important as the methods of action discussed because without proper funding, none of these implementations can be proceeded. Programs like FEMA, the United States Forest Service, Natural Resources Conservation Service, and California state agencies can help fund and aid in the recovery process. Local governments and non-profits would also play a big and important role in biophysical recovery. Next, we need to mandate

rebuilding standards for home hardening using more fire-resistant materials. This was discussed earlier in the document, but to rephrase it, resident houses should be using exteriors that are more fire-resistant to flying embers and general radiation from passing flames. In doing so, this will prevent homes from igniting down the road and destroying entire neighborhoods.

Road recovery will also ensure safe evacuation routes and access for fire crews and restoration workers. Roads often become destabilized after a fire due to fallen trees, erosion, and flash flooding. Without proper road recovery, Cambria would be less accessible to agencies along with future tourists, should they visit the town post-wildfire. Tourism is a major aspect of Cambria, supporting their economy and giving it the recognition and popularity we know today. In the case of a wildfire, business districts are at a very high risk of destruction and damage. Damaged businesses thus damage Cambria's economy and the owners of these businesses' livelihoods. Along with this, tourists would be impacted as well with one of their favorite locations to stop being destroyed. A method to benefit Cambria's economy as well as keeping tourism relatively alive should there be a disaster is a form of 'Eco-Tourism'. Cambria can host volunteer events for visitors that can rebuild the town and businesses while also giving the economy a chance for potential donations to bring in some sort of revenue. While this won't be bringing in the same revenue before a wildfire disaster, it will keep Cambria alive and educate the visitors on the importance of keeping their towns safe.

Socioeconomic Recovery

In the aftermath of a wildfire, the social and informational recovery of a community is just as vital as the restoration of its physical infrastructure. In Cambria, where a large portion of the population is elderly and geographically dispersed, the ability to deliver timely, accurate, and accessible information becomes one of the most critical components of community resilience.

Residents need clear guidance on a wide range of issues that extend far beyond the initial fire event. This includes fire perimeter and severity maps, estimated timelines for reentry, and updates on road closures or re-openings. Many will seek information about the cause of the fire, acreage burned, containment progress, and details on any fatalities or injuries. It's equally important to provide support with the practical and emotional burdens that follow a disaster. This may involve connecting residents with agencies and support services, outlining steps for filing insurance claims, identifying available financial aid, and listing nearby emergency resources such as food distribution centers, shelters, pet care support, and mental health counseling. Guidance should also address potential hazards, such as chemically compromised structures or areas with lingering fire danger.

Cambria presents unique challenges in disseminating this information. A significant portion of the population is elderly, and not all are comfortable with digital platforms or social media. Non-English-speaking residents, especially Spanish speakers, may struggle to access critical recovery information if it is not translated or delivered through culturally appropriate channels. Furthermore, many areas in and around Cambria suffer from limited cell coverage, particularly in forested or rural zones. In an emergency, these barriers can lead to dangerous gaps in communication if not properly addressed.

To overcome these challenges, information sharing must be strategic, inclusive, and redundant. No single communication method should be relied upon exclusively. Local agencies and community partners should deploy a combination of tools to ensure messages reach everyone. This can include updates on the Cambria Community Services District (CCSD) website, translated printed bulletins posted at the library, post office, and grocery stores, as well as real-time broadcasts through local radio stations. For those without internet or radio access, physical

mailers and door-to-door outreach by trusted community members can be especially effective. Community marquees, hotlines with recorded updates, and social media posts can further reinforce the message. In-person engagement at shelters, schools, churches, and community centers will be critical in reaching displaced or vulnerable individuals directly. Coordination with service organizations, such as local churches and volunteer groups, can enhance outreach efforts, particularly for residents who are isolated or living alone.

Ultimately, recovery in Cambria depends not just on rebuilding homes and roads, but on reconnecting people ensuring they feel informed, supported, and empowered to take the next steps forward. A thoughtful, inclusive communication strategy will help restore that connection and strengthen the community's long-term resilience.

Mitigation of Secondary Disasters

Secondary disasters are a large concern during post-fire conditions, especially in the wildland-urban interface. Cambria, California, is susceptible to a multitude of secondary disasters, including but not limited to mudslides/debris flows, flash floods, and water contamination. Secondary disasters are unpredictable and potentially fatal, so it is our job to help mitigate these potential risks.

When wildfire burns all the vegetation and trees on a landscape, there are no more roots to hold the soil together. This leads to soil that is lacking structure and stability, therefore making it prone to sliding. Structureless soil, steep slopes, and a rainy day are the key components needed for debris flows. Downtown Cambria is positioned in a small valley with slopes exceeding 50 percent on either side, which makes it a prime location for a debris flow. Mitigation measures should be required post-fire to prevent a debris flow through downtown and potentially other areas. To mitigate this threat, straw wattles must be lined perpendicular to the slope and spaced

out according to the percentage of slope. For anything from 10-20%, wattles are to be placed 60 feet apart, from 20-40%, wattles are to be placed 30 feet apart, and anything over 50%, wattles should be placed 15 feet apart. This will slow down the water on the slope, allowing the slope to retain more of its soil. Additionally, straw will be placed over all the bare mineral soil to reduce the impact of the rain on the slope. The straw will also act as a building block to construct a new organic matter layer.

Post-fire, we expect to see 1000 times or more runoff than we did in pre fire conditions (Wagenbrenner et al., 2023). This means that towns without adequate storm drain systems are prone to flooding without any mitigation. The Santa Rosa Creek, which runs directly through downtown, passes under three bridges on its way to the ocean. With the excess runoff we expect to see post fire, we can expect higher water levels and lots of debris in the streams. This could lead to jams under the bridges sending water up over the bank and into downtown Cambria. One could mitigate this by replanting the vegetation on the slopes where we expect to see the most runoff, which would allow the runoff to get slowed down and some may even get used by the plants. Straw waddles, and straw on the slopes could also help mitigate the runoff by soaking up the water and letting it evaporate rather than sending it downhill into the Santa Rosa Creek.

Water contamination is also a huge risk the town of Cambria will face post-fire due to the sedimentation bound to affect the streams. Cambria gets their water from the San Simeon Creek Watershed, and the Santa Rosa Creek Watershed which will both be affected by a wildfire in this area. The aquifers are able to filter out most of the impurities in the water under normal conditions but with extra sedimentation, and an expected increase in compounds potentially harmful to humans, we cannot expect the aquifers to filter out all of this. Additional filtration of the water may be needed for the water to be safe to drink. Mitigation is possible but this would

be a top priority to make sure the water does not get contaminated. We can reduce runoff by utilizing the straw wattle methods where wattles get placed every so often depending on the slope. This would keep contamination and runoff down maintaining the pre-fire water quality the best we can. This could also be mitigated by adding additional filtration systems near the three different well sites, though this may be more expensive than the waddles.

CONCLUSION

Short Term Recommendations

Understanding there are many influencing factors which result in a high concern for a disastrous fire can cause confusion when trying to determine where to begin. Within the next two years the following actions could significantly reduce fire risk while larger long term projects can be further discussed and funded.

Short Term Suggestions Include:

- Stricter Defensible Space Regulations
- Utilizing Volunteers
- Fire Hydrant Inspection
- Implementation of Community Leaders
- Creating Siren System
- Roadside Clearance
- Implementation of More Safety Zones
- Potential Helispot
- Road Re-painting

Currently in Cambria there is a mandatory defensible space and weed abatement efforts. In the past the Fire Department engaged Paradise Tree Service to execute the 2024 Fire Hazard Fuel Reduction Program continuing this collaboration would be ideal. For the weed abatement, the costs for failed inspections included the contractor's service charge and a $100.00 fine if paid within 90 days and $200.00 if paid after the 90 day period. However, these relatively low fines are not a strong enough deterrent given in 2024 there were 296 parcels which failed inspection. In Los Angeles there is a 30-day grace period with a $500.00 administrative fine if disregarded with an additional $1199.00 direct assessment fine to account for the County of Los Angeles Fire Department costs for enforcement of the Fire Code, a $51.59 inspection fee if the parcel is clear or inspected by the Agricultural Commissioner and the clearing costs will be charge to the owner as well. Implementing higher fines and specific fines to account for enforcement would greatly benefit Cambria given Cambria does not have a large law enforcement population and creating funding to continue defensible space inspections would cause property owners to take action to prevent taking further financial loss.

Another underutilized resource within Cambria is the population of volunteers. There are 149 teenagers attending high school in Cambria, combining these students with physically able adults in the city, high schoolers in nearby cities and even Cal Poly students could create a large work force to help support fuel reduction efforts. There are many retirees in Cambria who likely would struggle with manual labor to protect their house and community. Reaching out and creating a group of volunteers to which tools and direction could be donated to would provide these high schoolers opportunities to improve their resumes and college applications while also giving back to their community as a whole. In the 2024 End of Year Report from the Cambria Community Service District the CERT Program Member Application Process is mentioned and community

members are encouraged to be ready for more information about the Community Emergency Response Team (CERT) however no resources were given. Furthering these efforts would be very beneficial to strengthening community preparedness.

Fire hydrant importance cannot be underemphasized as the most important time for fire-fighting efforts are immediately after the fire ignition. Resultingly, fire hydrants are meant to be inspected every year and flow tested every 5 years. However, it is unclear whether this responsibility falls on the Water District or Fire Department within Cambria. As both are relatively small departments as the water department has 6 workers while the fire station homes 12 firefighters, a clear responsible party needs to be assigned to the role of ensuring the hydrants are functioning in case of an emergency. Having discrepancies allows room for mistakes and due to this the condition of the hydrants in Cambria is largely unknown. There are 369 fire hydrants in the city of Cambria meaning that if ~ 3.5 hydrants were inspected per week a full inventory of the hydrants and their conditions could be conducted in a 2-year period. Outsourcing is possible however very expensive as a flow tests costs $574 (Public Works Beverly Hills) and could take between 15 minutes to several hours depending on the conditions and when the last test was conducted.

Given there is a network of fire safe individuals as witnessed by the existence of the Fire Safe Counsel in Cambria “community leaders” could be created. This role would act as a liaison between the firefighters and counsel and the people of Cambria. Depending on the amount of volunteers the community would be split into neighborhoods and given contact information to the community leaders. They would reach out to their citizens and provide a space for resources and information and aid in connecting those who need help with volunteers for things such as go bags, fuels reduction efforts, and evacuation planning if they struggle with mobility or

transportation. This role would also entail reporting risks witnessed in neighborhoods such as powerlines in contact with vegetation, ladder fuels, unsafe behaviors or damaged hydrants. Effectively acting as another pair of eyes on the ground with the best interest of Cambria in mind.

While majority of the population of Cambria has a cellular device there are some older adults without internet access. Additionally, reception is often spotty across the town meaning those with internet access cannot consistently rely on the resource for information. To combat this lack of communication the implementation of an alarm system would greatly benefit the community. Having sounding alarms would help people understand there is a fire and allow them to begin preparing to evacuation. This would also help emphasize the fact there is a fire as there is an attitude within Cambria of "it won't happen to me" and likely some would refuse to leave their homes. A loud siren would not only act as an informant but also as an annoying sound making people more likely to leave to get to a safe area. Sirens cost about $35,000 per sirens and are often placed one every 1-2 square miles however this varies with topography and how sound would travel. Cambria likely would need between 3 and 6 sirens to ensure proper coverage.

Roadside clearance would reduce ignition risk and improve visibility throughout Cambria. First addressing high traffic high speed roads such as Highway 1 mastication costs about $843.78 per acre. Following this, roads should be cleared beginning in the northwest heading southeast as the northwesterly are the highest concern for increasing rate of spread of a potential fire.

Furthering the short-term suggestions for road improvement repainting and labeling the roads would help aid evacuation in case of emergency. Accounting for the tourist population, reduced visibility from smoke as well as the confusing and signless intersections within Cambria evacuations pose a high collision risk. Repainting roads can be expensive as in Grand Junction,

Colorado roads are quoted at about $627 per mile. However, clearly identifying dead ends and street names at intersections would provide more clarity in the chaos of evacuation. Specific regions which should be repainted first can be found below in Figure 24.

Lastly, more potential safety zones and potential helispot landing should be implemented. Potential zones include the Cambria Grammar School as well as the Coast Union Highschool as marked in Figure 25 below. By establishing more safety zones there would be less congestion as people evacuate as well as higher chances of survival as there are more places people can escape towards for temporary shelter. A potential helispot could be on Fiscalini Ranch as the area is large, open and relatively flat.

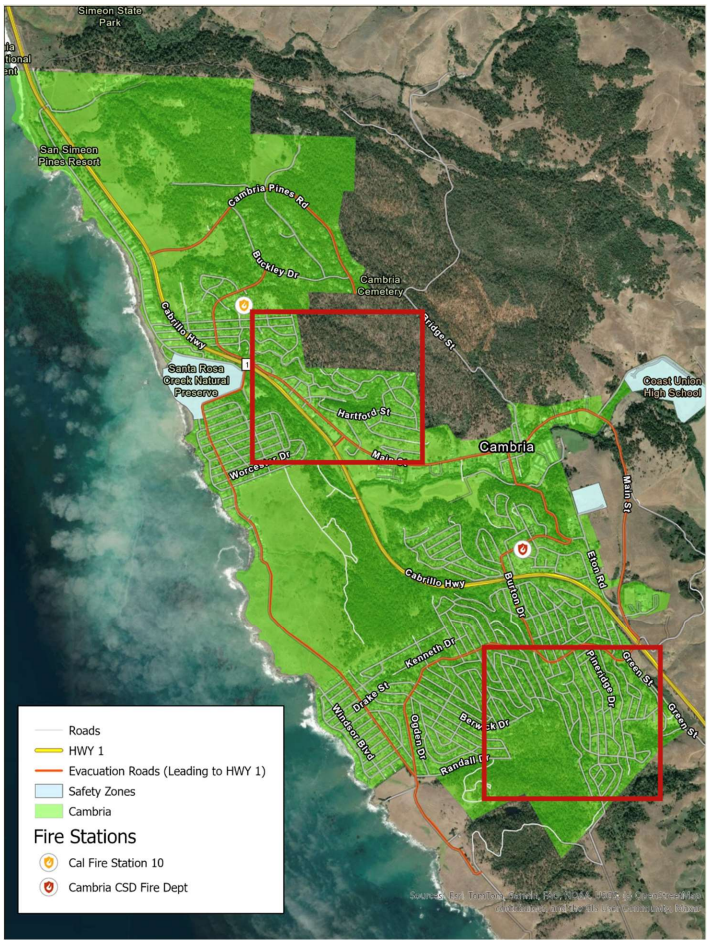

Figure 27. A map showing the fire stations and areas that need newly painted roads.

Figure 28. A map showing the proposed helipads in Cambria, California

Long Term Recommendations

Actions that are considered to be "long term" are those that typically take longer to implement, and in many cases, are more expensive. Though there are several projects that could be listed in the "Long Term Recommendations" section, the following recommendations are seen as the top priority of those projects that will either take longer to implement, are more expensive, or both.

Chapter 7A of the California Fire Code mandates that houses built or modified after 2008 are constructed with specific fire-resistant materials for the purpose of establishing minimum standards to increase the ability of a building to survive in the event of a wildfire. This is

otherwise known as “home hardening” or “hardening your home.” The issue with this ordinance in Cambria is that many homes and other such buildings were built prior to 2008, so they are not regulated to these standards. The San Luis Obispo County Fire Safe Council encourages home hardening, but without a mandate, these changes are often times too expensive for homeowners—especially those living in retirement—to afford. Therefore, the first long term recommendation to be proposed in this document is to push for legislation that will mandate changes to harden legacy structures. It has been made aware that this proposal may raise a few concerns. One of these concerns is that a mandate doesn’t make something more affordable, it just makes it more mandatory, which in this case would be correct. A potential solution to this concern is to subsidize and incentivize home hardening projects to increase the likelihood of compliance within the community. The California Wildfire Mitigation Program focuses on providing funds to high-risk communities with the intent of assisting with wildfire mitigation measures. This is just one of several potential grant options that may be able to fund this project.

The community of Cambria is also severely lacking in terms of their suppression infrastructure. Within this category, there are three main issues: limited local firefighting capacity, aging and limited equipment, and limited water supply and storage capacity. Identifying the extent of these issues is critical for the implementation of an effective solution.

Beginning with the limited local firefighting capacity, the community is supported by one Cambria CSD Fire Department station and one Cal Fire station (Figure 24). Given the current state of Cambria’s wildfire risk, if there were to be a wildfire event, most likely those two stations, even fully equipped with personnel, would not be enough to contain an active fire. Fire departments outside of Cambria are relatively far away, increasing response times. Additionally, for some of those outside departments, mutual aid may not always be an option if their resources

are dispersed elsewhere for another emergency. With this in mind, another long-term recommendation would be to build a third fire station on Camp Ocean Pines property, which would provide more coverage to an area of Cambria that is tucked behind a series of narrow neighborhood roads. Camp Ocean Pines is also an educational source for the public, so the addition of a fire station could be seen as another educational component of what already exists at Camp Ocean Pines. The California Fire Foundation and the Volunteer Fire Capacity Program are two resources that may be used to fund this project.

The second issue—fire suppression equipment and tools are aging and limited—can be addressed using funds from the Assistance to Firefighters Grant and the California Fire Foundation. These are two sources that may be used to update outdated equipment or otherwise support firefighting resources.

The third issue—limited water supply and storage—is a problem that is significantly worse in times of drought and directly impacts fire suppression efforts. Referring back to Figure 23, there are 6 tank sites and 8 tanks total for all of Cambria. The existing tanks combined hold a total of 1,757,000 gallons of water, which for reference, the Type 1 engines in Cambria pump about 1,500 gallons per minute (Cambria CSD, n.d.). Furthermore, access to these tanks may not always be feasible, thus contributing to the water issue. There are a couple of proposed solutions to address this problem; the first being to expand the size of the current holding tanks; the second being to add more holding tanks; and the third being to implement rainwater or graywater harvesting tanks on residential properties. The use of residential tanks (Figure 23) also helps with the access issue because it allows for a wider range of tank locations. The Cal Fire Wildfire Prevention Grant, or even the SLO County Integrated Regional Water Management (IRWM)

funds may be used to support this project. Additionally, these funds may be able to be used to subsidize or serve as an incentive for homeowners to install tanks on their properties.

Timeline

Short Term Recommendations (Years 1-2)

- **Months 1-6**
  - Increase defensible space fine to deter non-compliance
  - Public outreach to recruit and organize volunteer workforce
  - Clarify fire hydrant maintenance and responsibility between Fire Dept. and Water District
- **Months 7-12**
  - Begin community leader program with defined roles per neighborhood
  - Initiate hydrant inspections (~3.5 per week over 2 years)
  - Continue collaboration with Paradise Tree Service
  - Launch CERT recruitment and training resources
- **Months 12-24**
  - Begin roadside vegetation clearance (start NW Cambria, work SE)
  - Paint/repaint critical evacuation roads and dead-ends
  - Install 3-6 emergency sirens across town
  - Identify and prep potential safety zones and helispot

Long Term Recommendations (Years 3-10)

- **Year 3-4**
  - Advocate and lobby for legislation mandating home hardening for pre-2008 structures.
  - Apply for CA Wildfire Mitigation Program funds to subsidize home retrofits
- **Year 5-6**
  - Begin installation of subsidized home hardening measures
  - Design and break ground on a third fire station at Camp Ocean Pines
  - Apply for Assistance to Firefighters Grant to update fire equipment
- **Year 7-8**
  - Assess and expand existing water tanks
  - Add additional municipal storage tanks in strategic locations
  - Launch residential rainwater/graywater harvesting incentive programs
- **Year 9-10**
  - Continue subsidized residential tank installations

- Conduct reassessment of CWPP progress and identify additional infrastructure needs

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