Coombsville Wildhorse Community Wildfire Protection Plan

July 2, 2023

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Executive Summary

The Coombsville-Wildhorse Valley Firesafe Council (CWFSC) has developed this Community Wildfire Protection Plan (CWPP) for the Wildland Urban Interface (WUI) areas within the CWFSC. A CWPP is a community-based plan focused on identifying and addressing specific local hazards and risks from wildfire. It determines what is at risk and provides a road map of actions for a community to address the wildfire threat. It may also open up funding opportunities to implement the plan. CWPPs are authorized and defined in Title I of the Healthy Forests Restoration Act (HFRA), passed by Congress in 2003.

The area included within the CWFSC has had an active fire history, which brings focus to this plan. It is understood that not all fires can be prevented, but appropriate vegetation management and other mitigation practices can minimize the impact and destruction of wildfires. The CWPP is a foundational document for communities to organize their resilience and wildfire adaptation efforts. It is a living document that will be updated over time as projects are completed and new projects are identified. It is important to understand the role this document will play in helping the CWFSC to leverage the full capabilities and support resources of Napa Firewise. NCFF has worked with your community members and paid for the creation of this document so that CWFSC residents can better adapt to the eventual reality of wildfire. NCFF is here to help you and we encourage you to engage with this plan and the broader pre-fire community in Napa County.

Decision Makers

The following community representatives collaborated in the development of the CWPP:

- CWFSC Committee
- Napa Communities Firewise Foundation (NCFF)
- CAL FIRE/Napa County Fire Department
- Napa County Board of Supervisors

Community Evaluation

A Community Evaluation, dated was engaged by NCFF and the CWFSC and prepared by Carol Rice, a wildland fire manager specializing in fire risk issues, and includes input from the CWFSC community, including local government, non-profits and local fire authorities. The Evaluation serves as a foundation for recommendations for projects to minimize threat from wildfire to life safety and damage to homes and natural resources. It is based on a review of the terrain, weather, fuels, and fire history of the area, compared to the values at risk, and likely scenarios of fire ignition and spread.

Introduction

Fire hazard is a special concern in the Coombsville-Wildhorse area. The area is located in central-eastern Napa County (with a small portion in Solano County) in the interface between wildlands and developed areas. Where fires may spread from wildlands to homes, possibly damaging structures, or even threatening lives. Conversely, wildlands are subject to increased ignition potential from elevated levels of human activity in this area. Most fires in the coastal mountains are human caused[1].

This evaluation serves as a platform for recommendations for projects to minimize threat to life safety and damage from wildfire to homes and natural resources. It is based on a review of the terrain, weather, fuels and fire history of the area, compared to the values at risk, and likely scenarios of fire ignition and spread.

The Area

The Coombsville community boundary (Figure 1) covers 10,310 acres in eastern Napa County, and a smaller area in Solano County. It is an organized Fire Safe Council (FSC) sandwiched between the Gordon Valley and Mount George FSC to the north and the Skyline Jamison FSC to the south. The city of Napa (also an FSC) is to the west. Other nearby towns to the west include Salvador and Rocktram; Green Valley is to the southeast. The Coombsville FSC area of interest is bounded by Hagan Road, Highway 121 and Mt. George to the north, the Napa County line to the east, Skyline Wilderness Park to the south, and Penny Lane to the west.

Within the area in Napa County, data records show approximately 975 parcels and 2116 structures (Figure 2). The elevation ranges from 32 feet on the Napa Valley floor to over 2,080 feet at the ridge east of Lake Madigan. The area is best characterized by steep terrain to the east with gentle and rolling terrain to the west. The west-facing foothills rise at an aggressive slope up to a north-south ridge where more rugged terrain begins.

While there are many rural residents within the Coombsville community boundary, there are no incorporated or informally recognized cities or towns within its boundary. Outside the boundary, the unincorporated community of Vicky Springs is to the north, and Imola and Rocktram are to the southwest. The city of Napa is to the west. All of the land in the Coombsville FSC boundary is privately owned.

There are three neighborhoods in the CWPP area. One neighborhood is closest to the City boundaries, called “The Avenues”, where the population density is higher. The Skyline Neighborhood is the southernmost neighborhood, and is characterized by parcels with a high proportion of wildlands, and abuts the public park. The Wildhorse Neighborhood spans the area north of Wildhorse Valley Rd. to the Mt George FSC and covers the steep terrain from the Napa

[1] https://www.nps.gov/articles/wildfire-causes-and-evaluation.htm

valley floor to the higher Wildhorse Valley and Lake Madigan, and extends a small distance into Solano County.

More details on each will be presented in the following sections. Note that all figures and tables, and statistics were created prior to the inclusion of areas in Solano County. All proposed projects that would be funded or otherwise supported by Napa County would take place in Napa County.

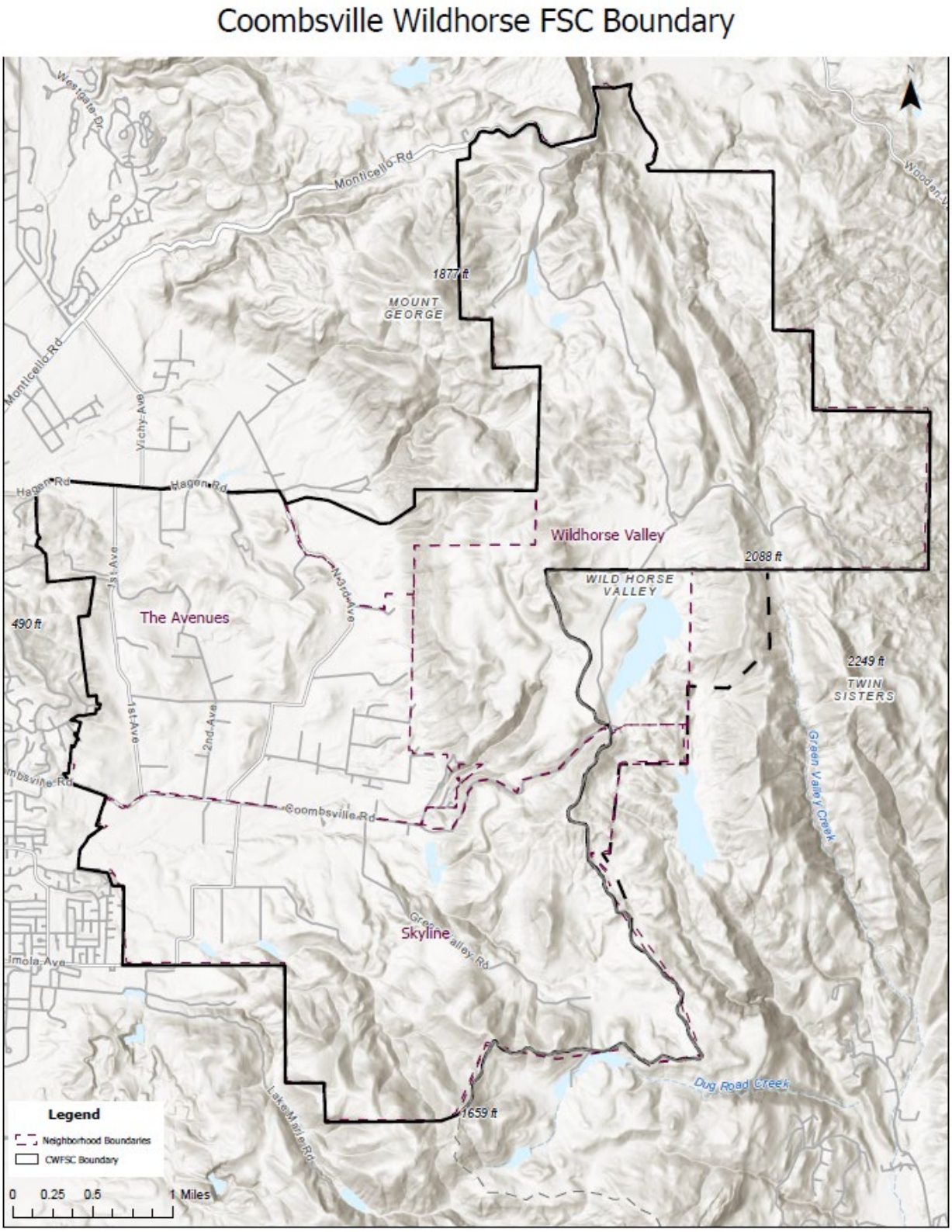

Figure 1. Area of Interest – Coombsville FSC boundary (shown in red), and neighborhoods

Values at Risk

The most important values at risk are life safety, then improvements to property (residential structures and vineyards), then natural resources. Because all the evacuation routes are long and involve poor road conditions, the threat to human life is significant.

Homes in the Coombsville area are at risk from wildfire for a number of reasons. Structures are generally older, dating before the requirement for ignition resistant construction. Most roofs are less flammable, however, wood siding, decks, and unprotected vents that are part of most homes all make the buildings prone to ignition.

Homes: Residential structures are mostly made of wood because of their age. They have wood porches and decks, though wood fences are a rarity. The presence of ignition-resistant construction is closely related to the age of the structures; structures built after 1996 have features that prevent ignition such as non-flammable roofs, double-paned windows, and stucco siding. Many older structures have been remodeled and a few property owners have installed personal fire suppression systems involving various water sprinkler strategies.

Structures are located primarily along the gentler slopes within the FSC boundary (Figure 2). A network of smaller roads branch off from Coombsville Road, Third Avenue, Second Avenue and First Avenue, accessed from Highway 121 (Figure 12). Structures located further east in the Wildland Urban Interface (WUI) have long narrow driveways, often with a poor ingress/egress route.

Land Use Distribution and Neighborhoods

Residential development, on large lots is generally scattered following the winding road network (Figure 2). Vineyards are located among residences, and some are newly developed large lots on the edge of the community. A significant portion of the Coombsville area is comprised of land designated as Vacant (Table 1). These parcels account for approximately 23% of the area. Vineyards (approximately 46%) account for most of the other areas within the Coombsville. These lands are adjacent to Vacant and Residential lands. Residential parcels account for approximately 26% of the Coombsville area and are concentrated in the area below and west of the foothills. Most Vineyard and Vacant parcels are large enough that the landowners can influence fire behavior to protect their structures; structures are rarely within 100-ft of the neighboring parcel.

Table 1. Acres by broad land use and percentage of total within the Coombsville area.

CATEGORY	PARCEL COUNT	AREA (ACRES)	PERCENT
AGRICULTURAL	139	4733.66	46%
COMMERCIAL	15	376.60	4%
RESIDENTIAL	716	2684.50	26%
VACANT	105	2372	23%

The Napa County parcel database shows that Coombsville is dominated by agricultural lands. Agricultural lands account for 46% of the lands within the Coombsville area (Table 1). Many of the vineyards also have residences. These lots are mostly located in the northeastern and southern parts of the area. The next largest land use is Residential. Most of the residential lands are in the western part of the area on the less steep hillsides. Interspersed among the vineyards are commercial wineries and residences.

Parcels categorized as vacant account for 23% of the area and are made up mainly of vacant rural lots, but there are small vacant residential lots throughout the area. Three percent of the parcels are designated as Commercial (which includes wineries).

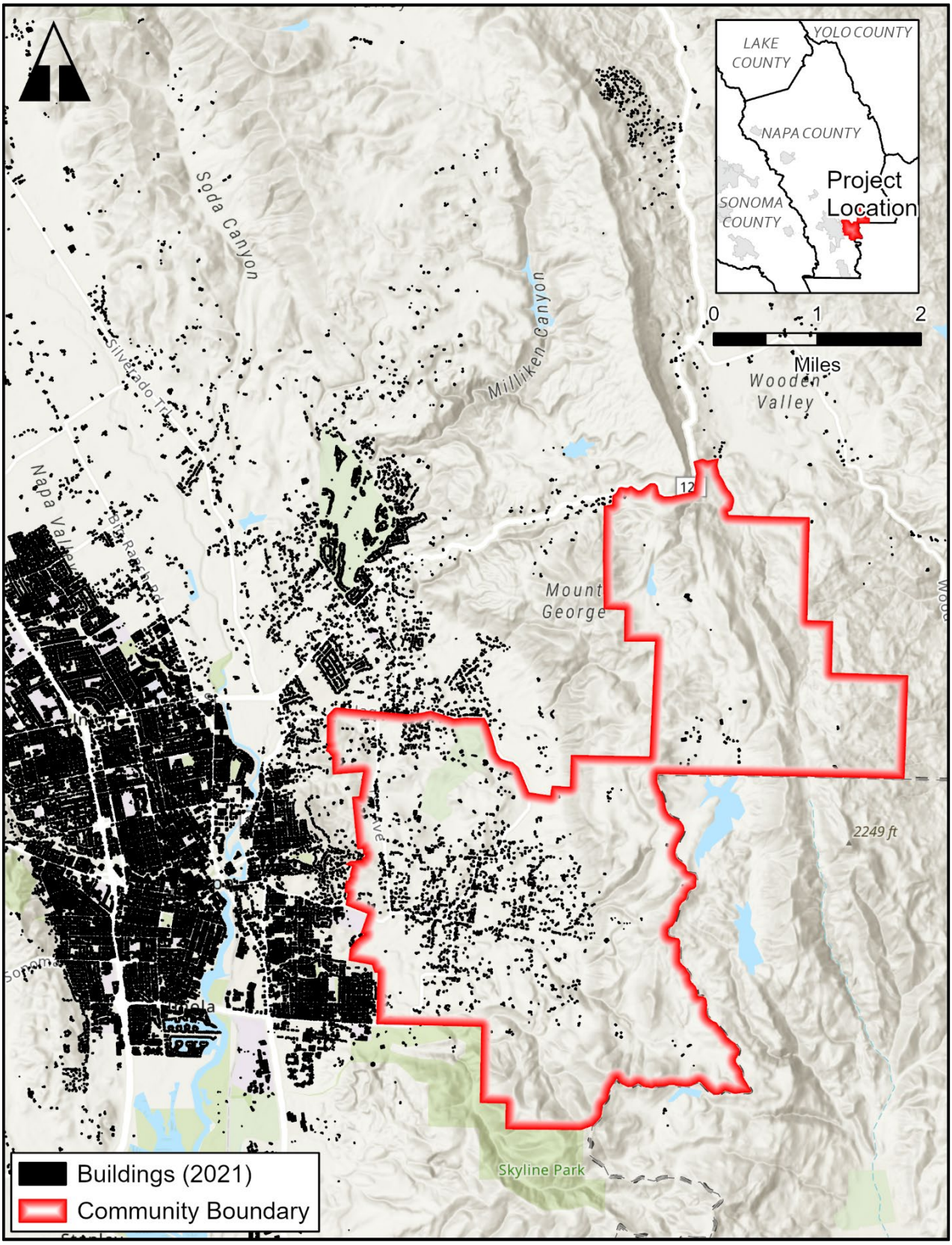

Figure 2. Structures (shown in black) within Coombsville community boundary.

Topography

Topographic features - such as slope and aspect (orientation with respect to sun and wind) and the overall form of the land - have a profound effect on fire behavior. Topography affects a wildfire's intensity, direction, and rate of spread. An area's topography also affects local winds, which are either "bent" or intensified by topographic features. Topographic features can also induce daily upslope and downslope winds. The speed, regularity, and direction of these winds (and other winds) directly influence the direction of wildfire spread and the shape of the flaming front.

For example, fires burning on flat or gently sloping areas tend to burn more slowly and to spread more horizontally than fires burning on steep slopes. This makes ridgetop positions more vulnerable than valleys.

The area is best characterized by steep terrain to the east with rolling terrain to the west. Elevation ranges from 32 feet in Napa Valley to over 2,080 feet on the ridge east of Lake Madigan. The area encompasses a broad range of slopes and aspects (Figure 3). Slopes range from 0 at the bottom in Napa Valley and greater than 35% along the ridgelines. The west-facing foothills rise at an aggressive slope up to a north-south ridge where more rugged terrain begins. There are no large peaks in the area, but the eastern slope of Mt. George extends into the area near Lake Leoma. The northeast area is bisected by northwest to southeast ridges. Several creeks and canyons feed into the developed valley in the southwest portion of the area (Figure 4).

Immediately outside the Coombsville area to the south, Sugarloaf Peak dominates the landscape (Figure 5). To the northeast, Mt. George defines the area. To the west, the Cup and Saucer ridge separates northwest Coombsville FSC from the city of Napa.

Watersheds and Orientation of the Canyons: There are several well-defined canyons in the CWFSC (Figures 3, 4, and 5).

- Kreuse Canyon: This canyon runs from the northwest to the southeast. Kreuse Canyon originates at the base of Sugarloaf Peak at the southern edge of the area. The upper reaches of this canyon are steep.
- East of Mount George: Ridges span from the southern boundary above Lake Madigan to Jenkins Rock. This ridge is oriented in a northwest to southeast direction.
- Murphy Creek box canyon: The lower portion of Murphy Creek forms a box canyon as it descends the ridge. The canyon runs from the northeast to southwest. This direction is aligned with the predominant winds from the southwest and the more concerning Diablo winds from the northeast. The box canyon shape can funnel the wind downslope into the populated area and as it descends it warms and dries.
- Wild Horse Valley Road canyon: The canyon around Wild Horse Valley Road and the south fork of Murphy Creek originates in the southeastern boundary of the area and runs from the northeast to the southwest. Again, as with the north fork of Murphy Creek box canyon, it provides a path for strong winds from the southwest (most common in the afternoons) and northeast (common during Diablo wind events).

The Coombsville area contains portions of the Spencer Creek (majority of area), Wooden Valley Creek, Green Valley Creek and Fagan Creek watersheds. Several creeks exist in the area. They include: Spencer Creek, Murphy Creek, Kreuse Creek and Tulucay Creek.

More details of the terrain follow in the discussion of weather.

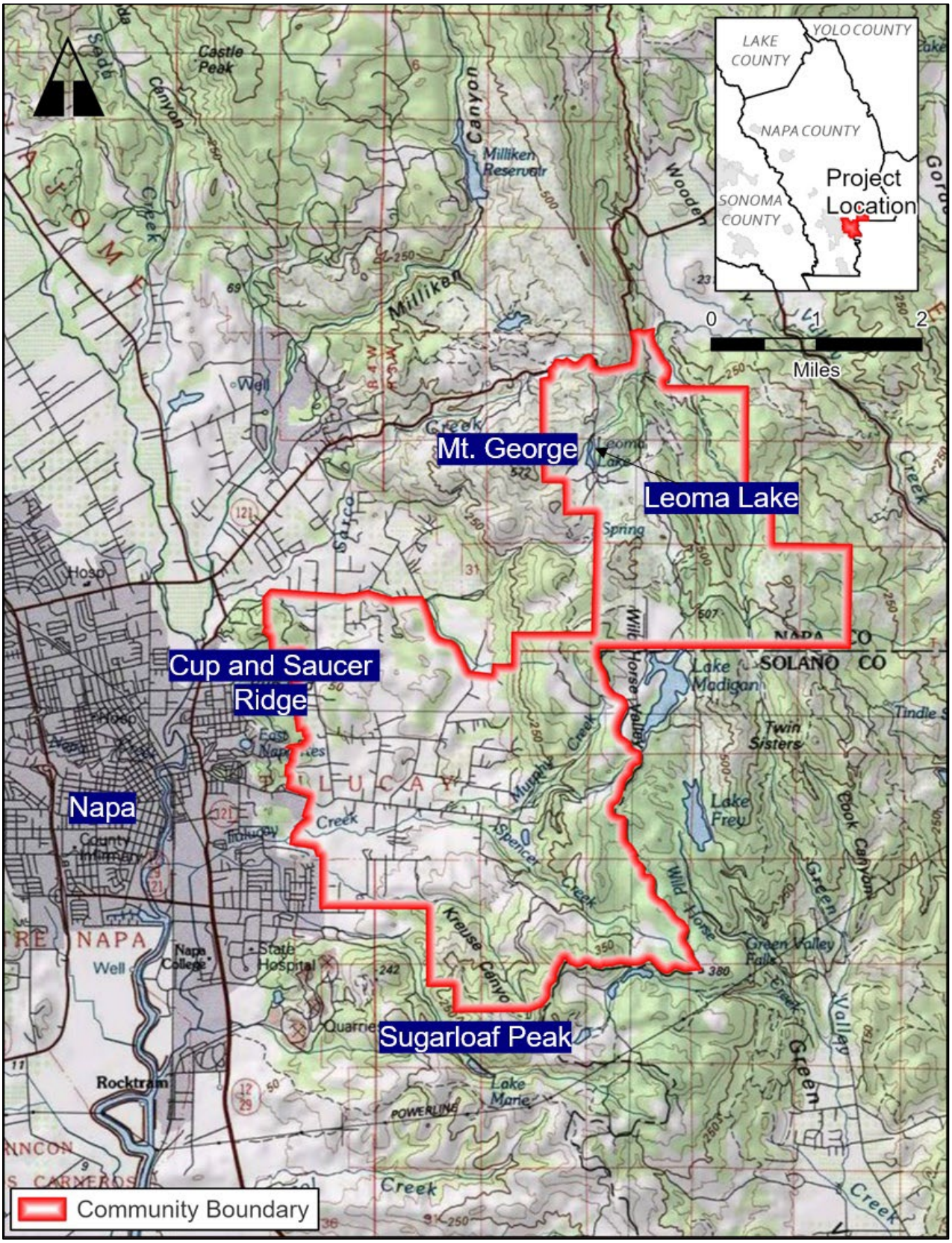

Figure 3. USGS Topographic map of the Coombsville area (boundary shown in red).

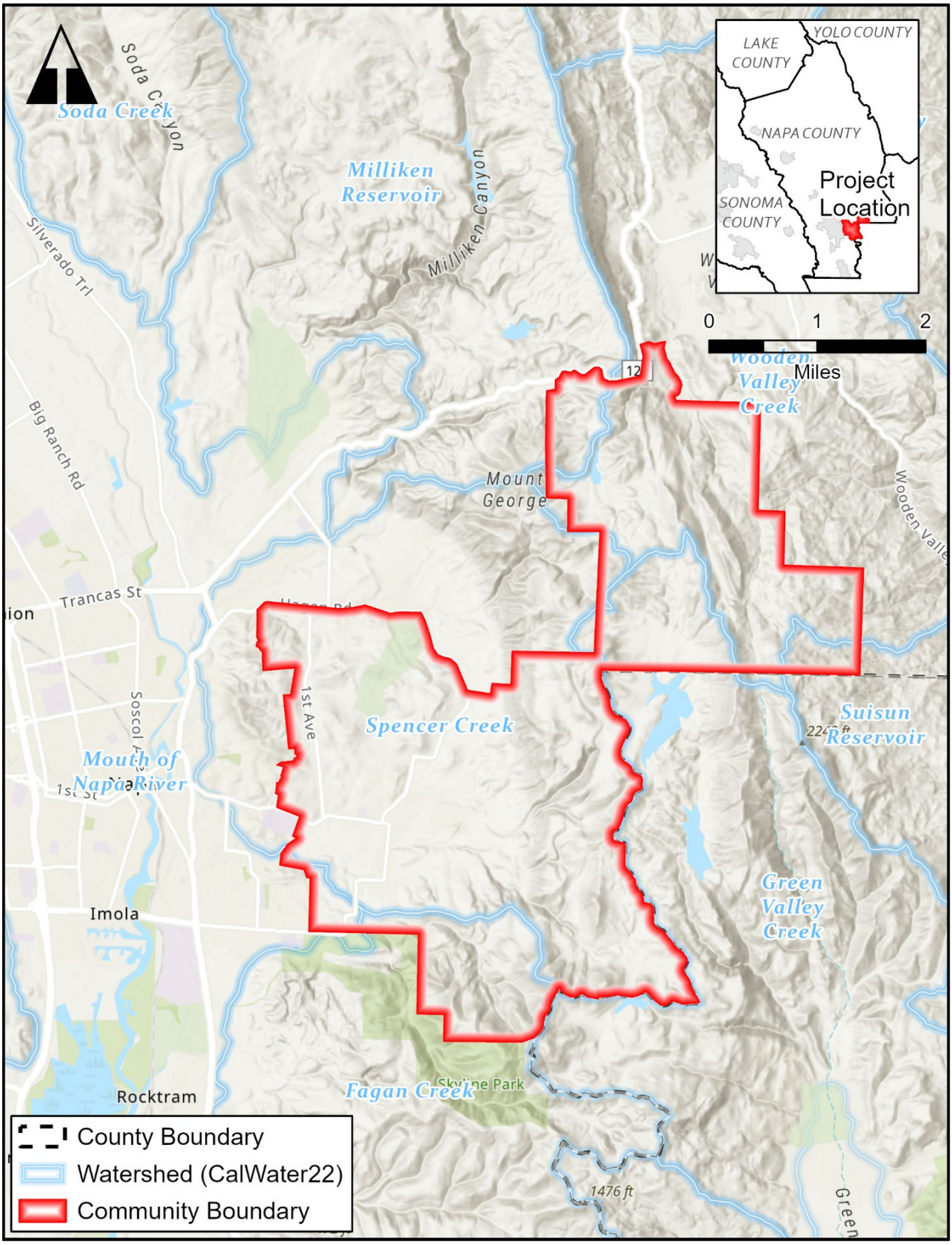

Figure 4. Watershed map of the Coombsville area (boundary shown in red).

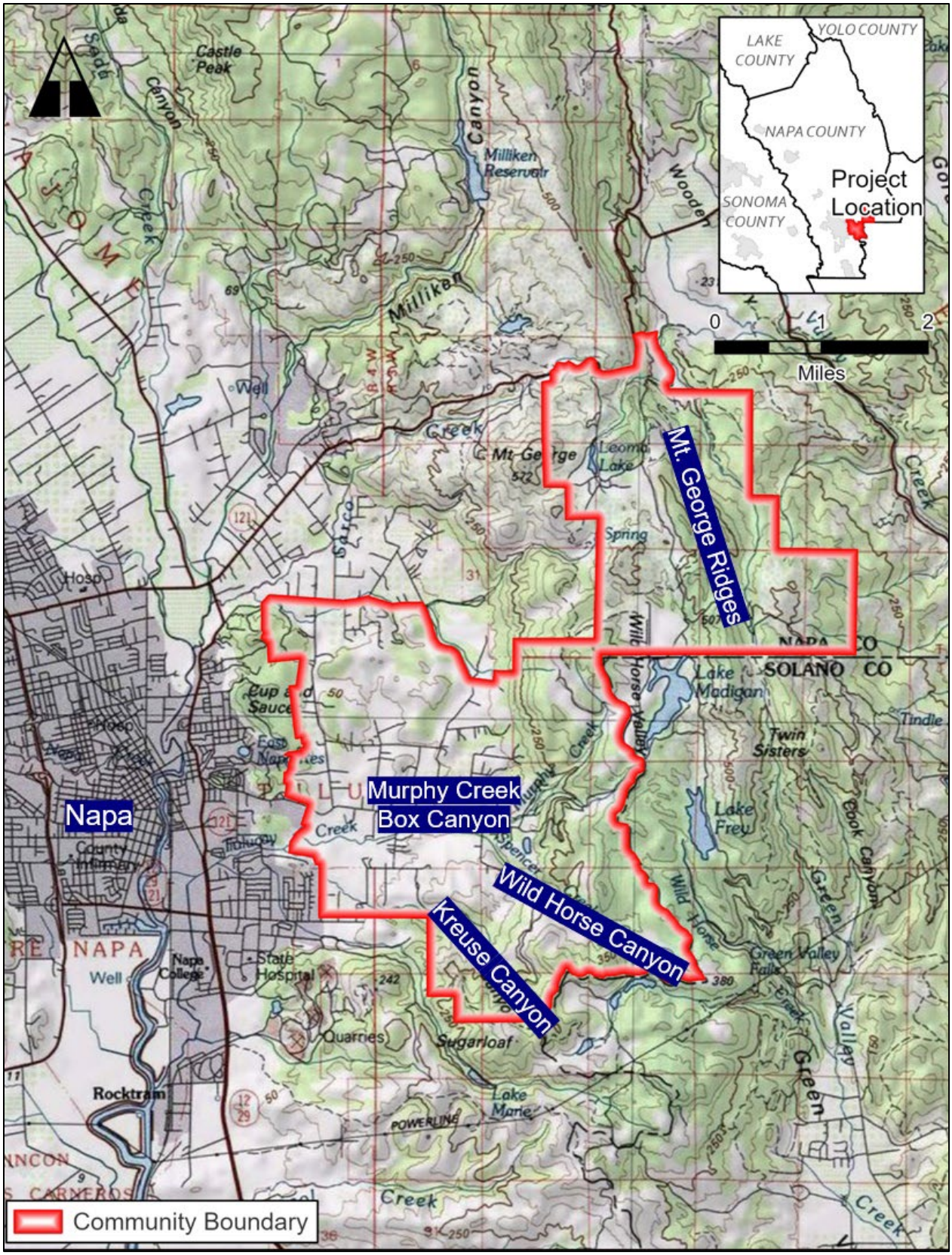

Figure 5. USGS Topographic map of the Coombsville area (boundary shown in red).

Weather

Weather conditions significantly impact both the potential for ignition and the rate, intensity, and direction in which fires burn. The most important weather factors used to predict fire behavior are wind, temperature, and humidity.

Temperatures and Humidities: Characterized by continuous high temperatures and low relative humidity. Summer days are usually warm but comfortable; temperatures normally range from lows in the 40's and to highs in the 90's, with an occasional high reaching a maximum of 105 degrees Fahrenheit. Humidity can drop to the single digits in the summer and fall.

The Coombsville area of interest lies in a relatively protected area and would be subject to occasional episodes of several still, stagnant air formed by stationary highs during summer months. This overall weather pattern -- characterized by continuous high temperatures and low relative humidities -- enhances the possibilities of ignition, extreme fire behavior and extreme resistance to fire control.

Winds: The most important influence on fire behavior is wind. Wind can greatly affect the rate of fire's spread and the output of a fire. Wind increases the flammability of fuels both by removing moisture through evaporation and by angling the flames so that they heat the fuels in the fire's path. The direction and velocity of winds can also control the direction and rate of the fire's spread. Winds can carry embers and firebrands downwind that can ignite spot fires ahead of the primary front. Gusty winds cause a fire to burn erratically and make it more difficult to contain.

Wind will tend to follow the pattern of least resistance and is therefore frequently deflected and divided by landforms (Figures 6 and 7). Canyon slopes produce pronounced daily up-canyon and down-slope winds caused by differential heating and cooling of air during the day. This occurs region-wide and on a local scale.

There are two distinct regions that divide the Coombsville area: the northeastern section (east of Mount George) and the southwestern section. The northeastern section has pronounced northwest-to-southeast aligned ridges. These ridges slow the regionally dominated southwesterly winds. However, strong winds from the northeast could produce strong up slope and erratic winds.

The southwestern section has many small canyons and valleys that are aligned with the predominate wind direction (southwest-northeast), acting as funnels for strong afternoon winds or the less common Diablo winds from the northeast.

The winds that create the most severe fire danger typically blow from the north, usually in October. Winds from the east and north bring low humidity and elevated fire danger and can wreak havoc on the forested and chaparral covered areas, causing fire to spread to the south. These winds are the same ones that blew during the largest fires in Napa County; an unnamed fire in 1939 follows the pattern of larger fires influenced by these northeasterly winds. Those larger fires include the C. Hanly fire in 1964 along with its companion fire in 1965, the PG&E #10 fire. Again, in 1976 and 1982, two fires, the Ida Clayton fire and the Silverado fire also started under these conditions. More recently, the Tubbs and Nuns fire in 2017 and the Glass

fire in 2020 also followed this pattern and burned substantial parts of Napa County, very near and in the Coombsville area as well as surrounding lands.

These northeasterly events generally last from 15 to 35 hours, but in 2000, 2003, 2005, 2017, 2018, 2019, and 2020 these events in October and November lasted for 5 to 14 days. This type of wind could “push” a fire from the upper eastern slopes of Napa Valley down across into the vineyards on the valley floor to the higher slopes to the west and beyond into Sonoma County.

Any southwestern-facing aspect of the Coombsville area can exacerbate its risk from the Diablo winds. This is because these foehn or subsiding winds accelerate with decreasing elevation.

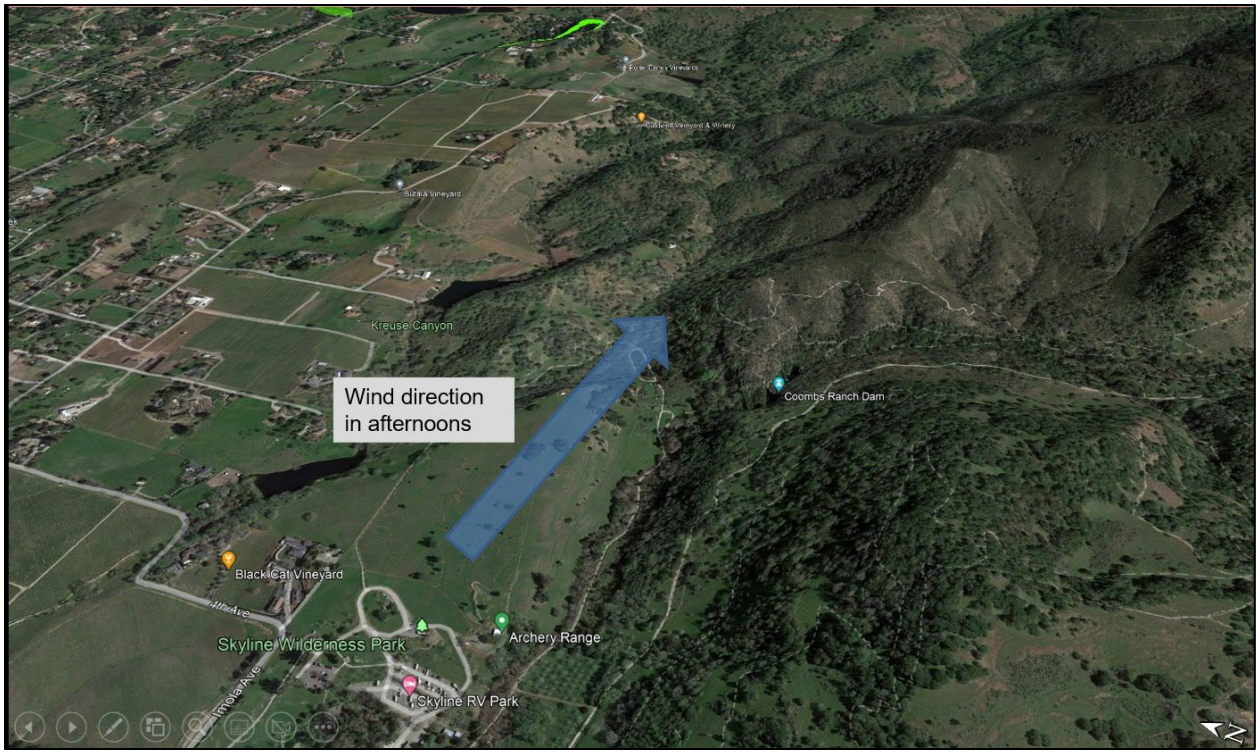

Figure 6. Wind pattern and direction of the Coombsville area (boundary shown in red).

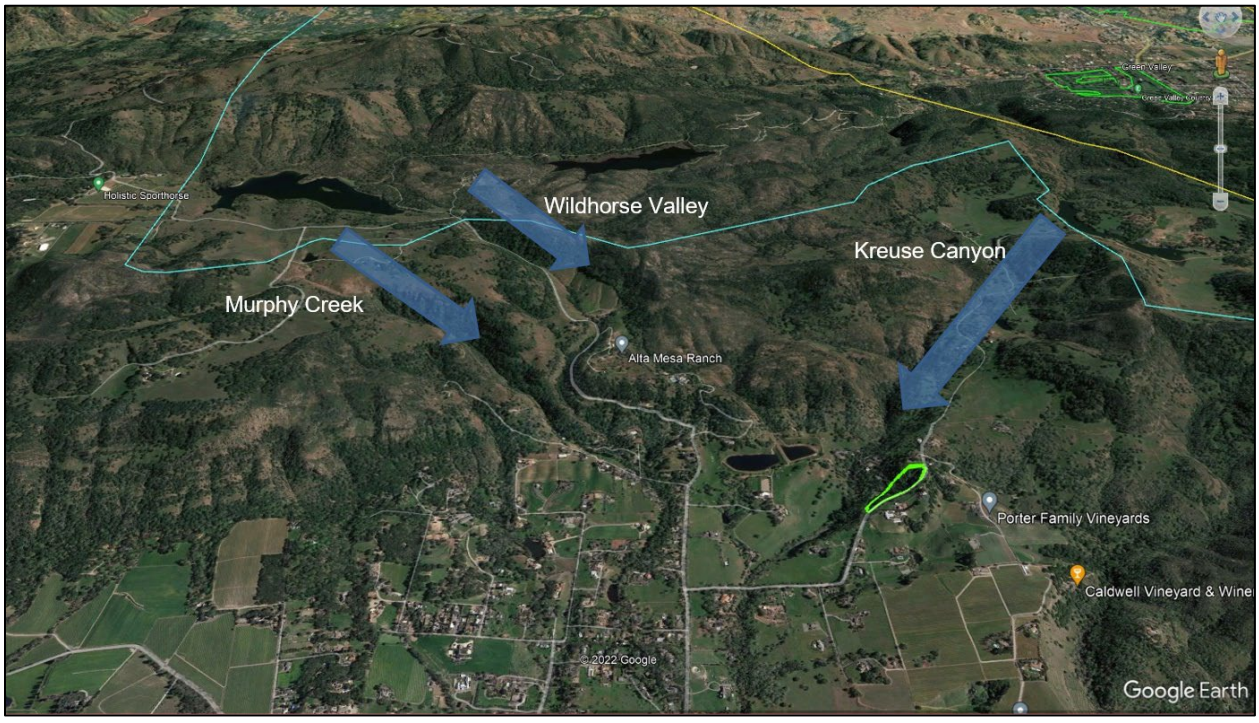

Figure 7. Orientation of canyons of the Coombsville area (boundary shown in red).

Vegetation

The 2016 Vegetation Map of Napa County[2] (updated from the 2004 version) was used as reference for this evaluation (Figure 8). There are seven main vegetation categories within the Coombsville area along with four non-veg types (rock outcrop, developed, streams and reservoirs, and other). The major vegetation categories mapped are listed in Table 2 below.

In addition, the landscaped environment surrounding buildings and homes includes vegetation not captured in the vegetation.

Each vegetation type burns differently, based on the amount of biomass available to burn, the distribution of biomass in the vegetation, as well as the moisture and oil content of the foliage and dead material. A discussion on each major type follows the map on the next page.

Note: the tables and maps presented here reflect pre-2020 conditions.

Table 2. Vegetation acres by major vegetation categories within the Coombsville area (Vegetation Map of Napa County).

Vegetation Major Category	Acres	Percent
Agriculture	1,672.38	15.4%
Developed	2,958.69	11.7%
Grassland	1,393.36	12.6%
Oak woodlands	6,223.01	44.2%
Other	26.12	0.3%
Riparian woodland	237.04	1.6%
Rock Outcrop	7.88	0.0%
Shrubland	1,614.79	13.4%
Streams and reservoirs	65.30	0.6%
Wetlands	7.60	0.1%

[2] https://data-cdfw.opendata.arcgis.com/datasets/b9855bea85c14190ab030da86441301c_0/explore

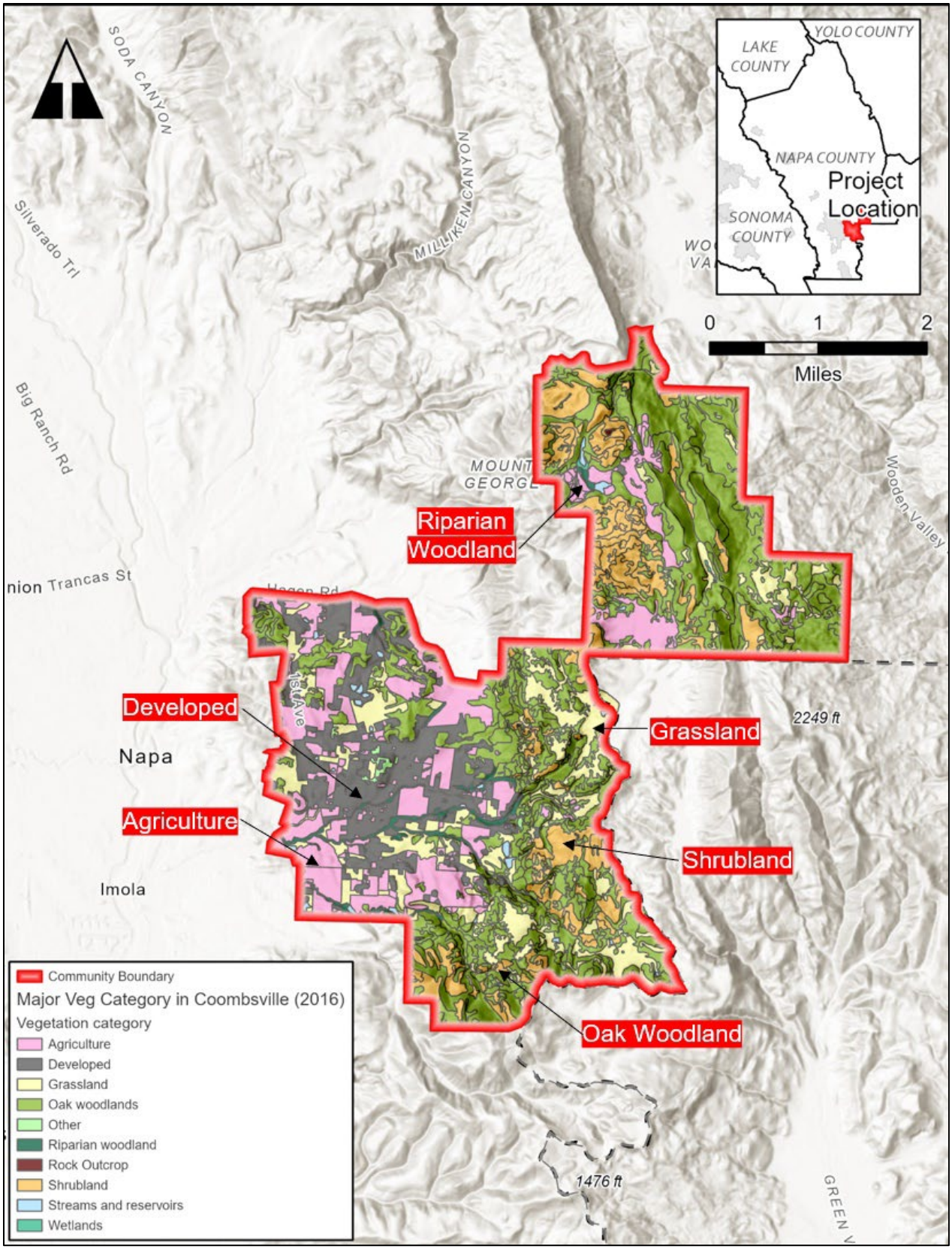

Figure 8. Vegetation map – Coombsville area (boundary shown in red) (Napa Vegetation Map, 2016).

Oak Woodland: 44% of the Coombsville area is mapped as Oak Woodland, which occurs on the flanks of hillsides and ridgetops throughout the area. In most areas, dense canopies, with little or no grass or shrubs under the canopies, typify these oak woodlands. The tree canopy in the lower reaches of the drainages is dominated by Coast live oak, but also includes California bay, madrone, Black oak, Blue oak, Oregon white oak, Canyon live oak, valley oak, interior live oak, Douglas fir and occasional pines. In more exposed areas, where the canopy opens up, shrubs dominate in the understory.

Fire intensity, flame lengths, and scorch heights are usually low in oak woodlands. Slow-burning surface fires (approximately two-feet per minute) are carried in the compact leaf litter layer. Low flame heights (less than one foot) are the rule. Only under severe weather conditions involving high temperatures, low humidities, and high winds do the fuels pose fire hazards in this vegetation type. Leisurely spread rates, combined with the relatively short flame lengths of the predicted fire behavior produce a manageable, moderate fire hazard.

However, when shrubs are allowed to develop under the hardwoods, these fuels can pose fire hazards under severe weather conditions, e.g. those conditions involving high temperatures, low humidities, and high winds. If the shrubs develop under oaks, torching is likely to occur because of the ladder fuels that allow a fire to burn from the shrub to the tree crowns. Foliage of bay can be very flammable when fire reaches the tree crown, coast live oak is less so, particularly late in the fire season.

Shrubland: Shrubland occupies 13% of the Coombsville area and can be found at the lower hillsides transitioning between the conifer forests/oak woodlands to the grasslands at the valley floors. While these distinct areas were mapped as Shrubland, brush exists throughout and often contributes to other vegetation types described in this document. The specific mapped alliances include:

- Chamise Alliance
- Mixed Manzanita - (Interior Live Oak -California Bay - Chamise) West County
- Sclerophyllous Shrubland
- Scrub Interior Live Oak - Scrub Oak - (California Bay - California Ash - Birch Leaf Mountain Mahogany - Toyon - California Buckeye) Mesic East County

Brush produces severe fire behavior, with flames longer than 20 feet in length. Intense, fast-spreading fires in chaparral burn the foliage as well as the live and dead fine woody material in the brush crowns. The foliage is highly flammable and dead woody material in the stands significantly contribute to increased fire intensity.

This fuel type constitutes the highest hazard. Direct attack is not possible, and containment efforts would need to rely on backfiring or suppression strategies other than line building because the perimeter of the fire is likely to grow faster than a line could be built. In addition, spotting is likely in chaparral which will present even more challenges to suppression efforts.

Agriculture (Cropland/Vineyards): 15% of the land in the Coombsville area is mapped as agriculture. These occur in large sections, mostly in the center and western parts of the area of interest. Most of these agricultural areas are vineyards.

Fires are usually benign in croplands or vineyards. In the case of vineyards, biomass is concentrated in live vines, with a mowed or bare soil surface. A fire can spread quickly through the vineyard where there is a ground cover. However, this situation is rare. Vineyards were instrumental in stopping the Howell Mountain fire in 1983, and formed the edges of fires in the Tubbs, Nunns, and Kincade Fires, but were part of the contagion in the Cavedale Fire in Napa in 1996. Vineyards often have access roads on the perimeter and within the interior, further aiding containment. With all that said, however, in the Glass fire of 2020, many vineyards were burned through.

Annual Grasslands (Herbaceous): Accounting for 13% of the Coombsville area, annual grasslands were mapped along the edges of vineyards or as pockets in oak woodlands. Grasses are flash fuels and fire spread can be rapid through herbaceous areas, but these fires can be easy to spot and contain.

Landscaping: Landscaped areas -- being closest to homes -- may make the greatest impact on survivability of a house during a fire arising in wildlands. Landscaped areas either (1) are moist, thus will not likely burn; (2) contain large amounts of fuel which will burn with great intensity; or (3) are landscaped with fire resistant plants, and only burn slowly with little heat release.

While research results regarding fire resistance of landscape plants are meager, several important generalities have surfaced. First, the overall volume of biomass as well as the spacing and design of the garden is more critical than the species selected. Horizontal spaces between planting masses and the house are important components of a fire safe landscape. Similarly, vertical spacing between tree branches, shrubs, ground cover and the structure (particularly windows) are also part of a well-designed garden.

Maintenance of landscaped areas is necessary to remove dead material and to maintain vertical and horizontal spaces. Neglect of landscape maintenance can lead to a significant worsening of the fire hazard closest to the structure.

Landscaping in the Coombsville FSC is generally consistent with fire safety principles. A few residences in each neighborhood have abundant vegetation that can endanger adjacent and nearby residents if they are within a few hundred feet of each other.

Predicted Fire Behavior

The distribution within an area of expected flame lengths can be predicted using public-domain software and data. FlamMap[3] was used to model fire behavior using a county-wide dataset developed from the Napa County Vegetation Map[4]. The fuel models used to predict the fire behavior were updated after the 2020 files using Lidar data and satellite sensors of post-fire conditions and can be considered fairly current.

Using this predictive software, the majority of the area is predicted to burn with flames shorter than four feet. Flame lengths are expected to be high (over 12 feet) because of the combination

[3] https://www.firelab.org/document/flammap-software

[4] https://ncff-cwpp-dms-usa.hub.arcgis.com/maps/b2de24b3562e4e27b0fbea2921e2c9e4/explore

of heavy fuels, especially in the mixed forest and chaparral. Where a well-developed understory is present under the oak canopies, fires are also expected to burn with high intensity.

Fires can also be expected to burn fast when they are propelled by dry grass and chaparral. Vineyards can moderate both the fire intensity and fire spread but would not provide good suppression opportunities for safe evacuation because they are small in comparison to the tracts of uninterrupted vegetation.

Predicted Flame Lengths: Long flame lengths can be expected in dense oak forests where understory is present (Figure 9 and Table 3). Vineyards and areas of well-maintained defensible space can be expected to burn with low intensity even under the most extreme conditions. Flame length most directly relates to the ability of a firefighter to safely attack a fire; flames longer than eight feet prevent safe, effective direct attack. Flame length is also most closely related to structural damage – the higher the flame length, the more likely a structure could be lost.

Twenty-nine percent of the area has a predicted flame length of over 8 feet when predicting for a northeasterly wind at 15 miles per hour. This leaves about 71% of the area predicted to have less than 8-foot flame lengths. Of those areas, 37% is predicted to have less than 4-foot flame lengths.

The higher flame lengths are concentrated on the steep canyon walls of Kreuse Canyon, Spencer Creek, the Murphy Creek box canyon, and the slopes of Mt. George, Sugarloaf and Jenkins Rock and other ridgetops within the Coombsville area of interest. The lower flame lengths are similarly distributed, but in areas of lower slope and in more sheltered locations and more importantly surrounding the vineyards (which no fire is predicted due to the limitations of the predictive software).

Note that the no predicted fire category accounts for agriculture and developed areas (includes vegetation in residential parcels) that may indeed burn – as evidenced in many of the recent fires in Napa County. In particular, no-till vineyards provide more potential fuels than vineyards with bare earth.

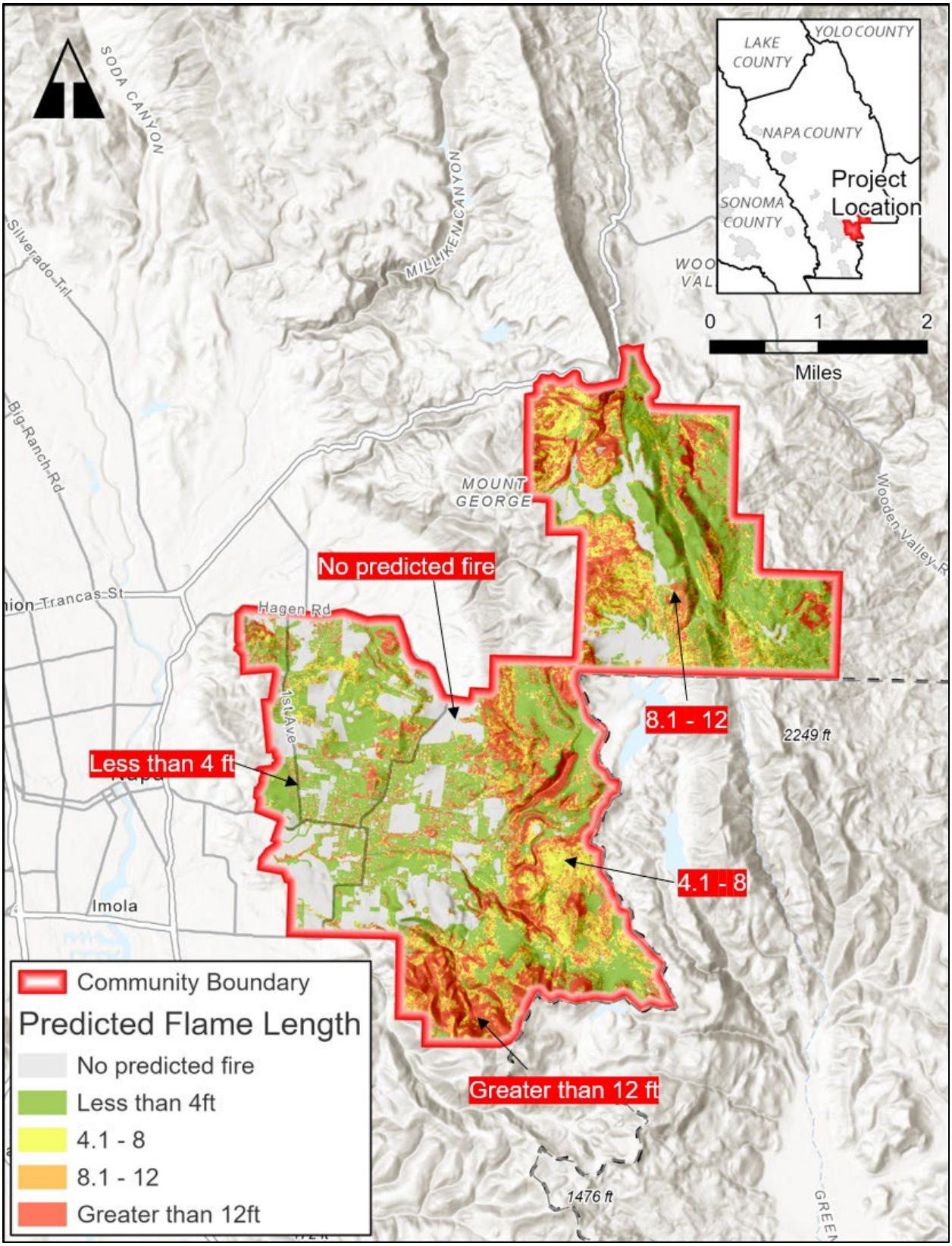

Figure 9. Predicted flame length (feet) map (based on Napa Veg Map-based landscape version 2-2021 with a Northeast wind at 15mph with low fuel moistures). Coombsville area boundary (shown in red).

Table 3. Predicted flame length by category and area (in acres) within the Coombsville area (based on Napa Veg Map-based landscape version 2-2021 with a Northeast wind at 15mph with low fuel moistures).

Predicted Flame Length	Acres	Percent
No predicted fire	1829	18%
Less than 4 ft	3824	37%
4.1-8 ft	1667	16%
8.1-12 ft	652	6%
Greater than 12 ft	2338	23%

Predicted Crown Fire Activity: While the oak forests can torch, hardwoods are less likely to have fire reach to the tree crowns, unless vegetation is burning underneath. Crowning potential is crucial. When fires spread into crowns, thousands of embers are produced and lofted into ignitable fuels, often overwhelming fire suppression personnel.

For the Coombsville area, a relatively small area is predicted to have fire spread within the tree canopy (tree-to-tree or crown fire), which is actually pretty rare and virtually un-heard of in hardwoods. Areas with higher density of coniferous forests are most at risk to torching and to crown fires, but no significant area of conifer forest exists in the Coombsville area.

A combination of no predicted fire and surface fire in a canopy cover of less than 20% accounts for approximately 40% of the Coombsville area (Figure 10 and Table 4). These areas are concentrated in the agricultural fields along Coombsville as well as areas of shrubland and grassland.

Of the area predicted to have only a surface fire, we identified those areas with a higher canopy (over 20%) to highlight areas that do not torch but are likely to. These areas accounted for 49% of the predicted surface fire.

Areas where torching is predicted account for 9% of the area. These areas are predominately on mid-slopes and places where the vegetation is not protected from strong winds. They occur throughout the Coombsville area, surrounding the vineyards and residential areas.

While crown fire is not expected to be a major issue in this area except in the Kreuse Canyon, Murphy Creek box canyon, and Jenkins Rock area, under conditions of increased fuels and weather conditions of strong dry winds, the risk of crown fire increases.

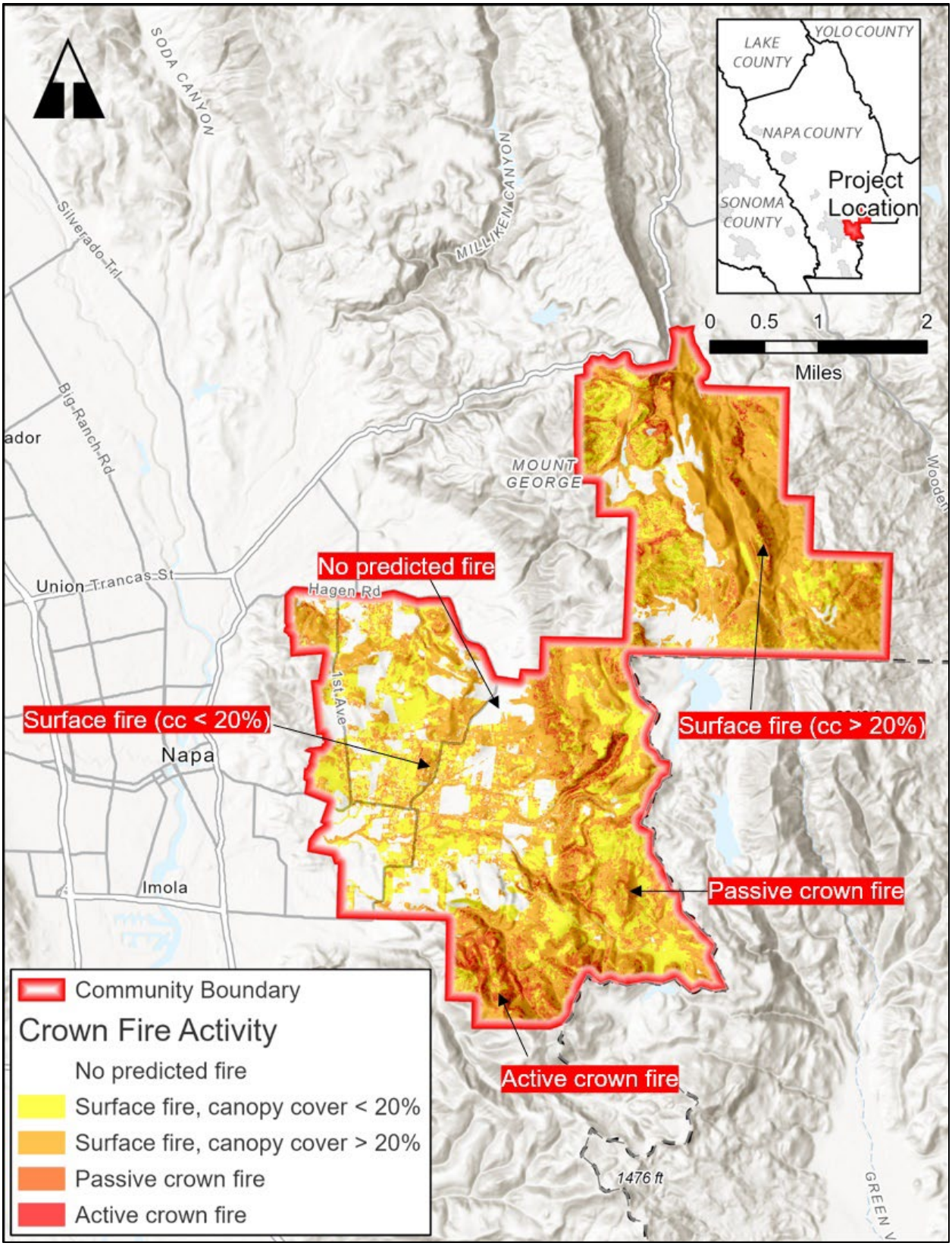

Figure 10. Predicted crown fire activity map (map (based on Napa Veg Map-based landscape version 2-2021 with a Northeast wind at 15mph with low fuel moistures). Coombsville area boundary (shown in red).

Table 4. Predicted crown fire activity (or fire type) by category and area (in acres) within the Coombsville area (based on Napa Veg Map-based landscape version 2-2021 with a Northeast wind at 15mph with low fuel moistures).

Crown Fire Activity	Acres	Percent
No predicted fire	1816.10	18%
Surface fire canopy cover < 20%	2268.87	22%
Surface fire with canopy > 20%	5102.00	49%
Torching fire (passive crown fire)	976.93	9%
Crown fire	146.09	1%

Fire History

In the past decade, four fires have been recorded occurring within or near the Coombsville area (Figure 11). These include the large and wide-ranging Hennessey fire of 2020, the Atlas fire of 2017, the Atlas Peak fire of 1981, and further north, the R. Wilson fire in 1959 (Table 5).

Large fires have directly and indirectly impacted most of the areas within the Coombsville area. The fire history map shows that the more developed areas of Coombsville area have not been visited by fire in the last 100 years.

Table 5. List of recorded fires near the Coombsville area (CAL FIRE, 2020).

YEAR	MONTH	DATE	FIRE NAME	CAUSE	ACRES	COMMENTS
1959	December	12/3/1959	R. WILSON	Unknown/ Unidentified	3,504.41	
1981	June	6/22/1981	ATLAS PEAK	Arson	33,606.40	
2017	October	10/8/2017	ATLAS	Unknown/ Unidentified	51,624.70	Southern Complex
2020	August	8/17/2020	HENNESSEY	Lightning	305,352.00	LNU LIGHTNING COMPLEX

A recurring history of large fires (over 10,000 acres in size), which typically burn for several days, has been well established in Napa County. The typical period between such large fires is approximately 20-30 years. Like much of California, fires in Napa County are almost entirely caused by human-related accidental ignitions. With that said, in 2020, several lightning-strike fires burned in Napa County and west into Sonoma County.

In the past, fires did not involve large numbers of structures because of the historic rural nature of Napa County; however, structure damage is now a common concern whenever wildland fires of any size occur.

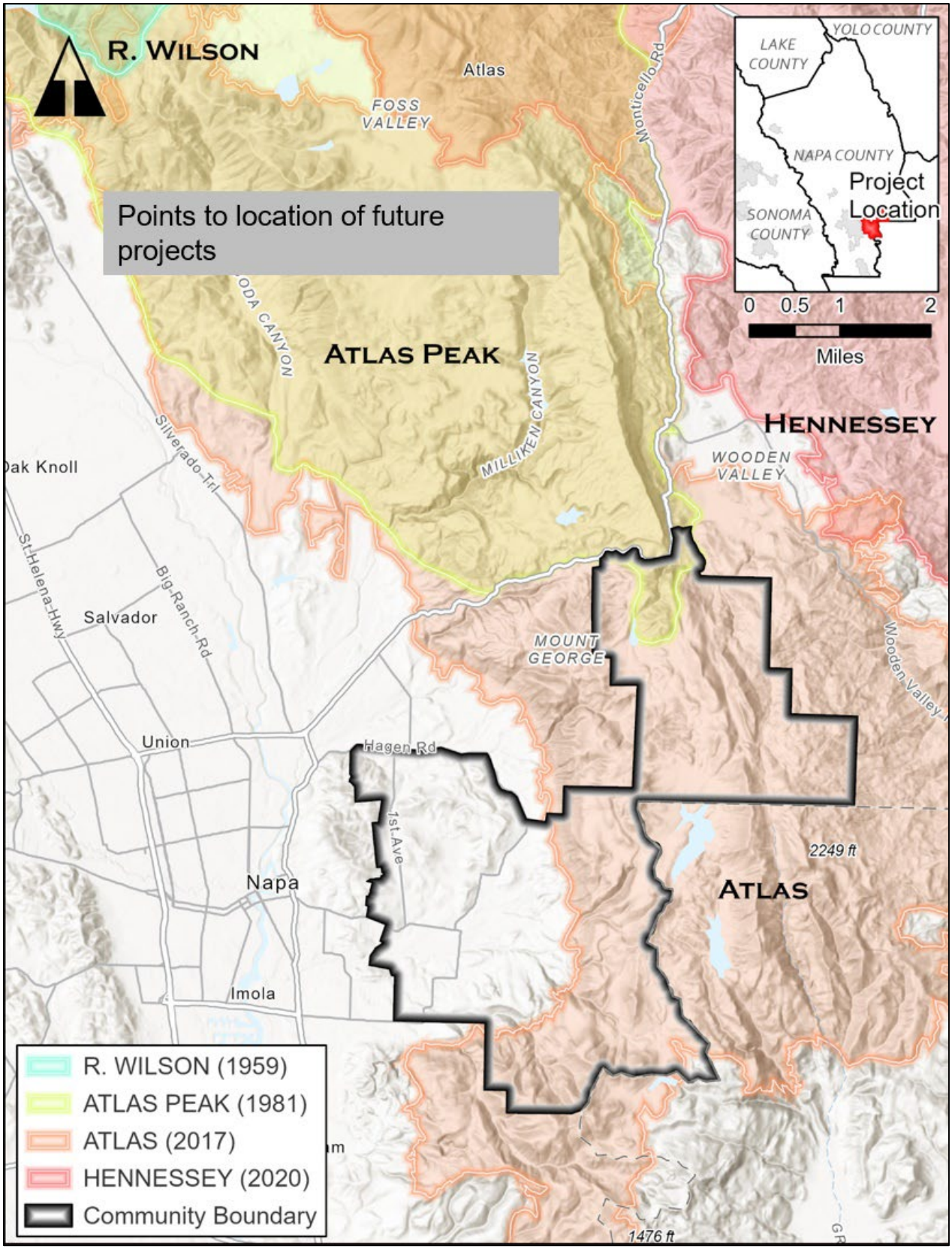

Figure 11. Fire perimeters/fire history map of Coombsville area (CALFIRE FRAP, 2019).

Access

In general, access to the southwestern portion of the Coombsville area is good and access to the southeast and northeast is fairly poor (Figure 12). Coombsville Road, 3rd Avenue, 2nd Avenue, and 1st Avenue access wineries and residences in the southwestern area of interest. Green Valley Road and Wild Horse Valley Road provide limited access to the more remote areas in the southwest and northwest.

However, these driveways into the interior of the region are dead ends. There are no other means of egress other than fire roads that may or may not be maintained. There is no easy access from the east (Solano County).

Coombsville Road, First Avenue, Second Avenue, Third Avenue and Wild Horse Valley Road are well-paved and wide roads (sometimes with a limited shoulder). All other roads are barely two lanes with no shoulders. Pavement (road surface) is generally in good shape, some curves are simultaneously sharp and steep. Driveways are generally long. Some residences are served by long shared driveways behind locked gates. Locked gates are common and can further delay emergency response. Locked gates also discourage/prevent inspection by local fire authorities.

Regardless of the condition of the roadbed, access can be blocked by roadside vegetation. Trees can fall, blocking passage or vegetation can burn with such intensity that emergency response and evacuation cannot occur.

Most roadsides have abundant roadside vegetation. This vegetation could block the road while burning, and after, as trees fall (a common event during a fire). Roadside vegetation has not been maintained on many of the roads or driveways within the Coombsville area and could prove significant in the event of a fire.

See Figure 12.

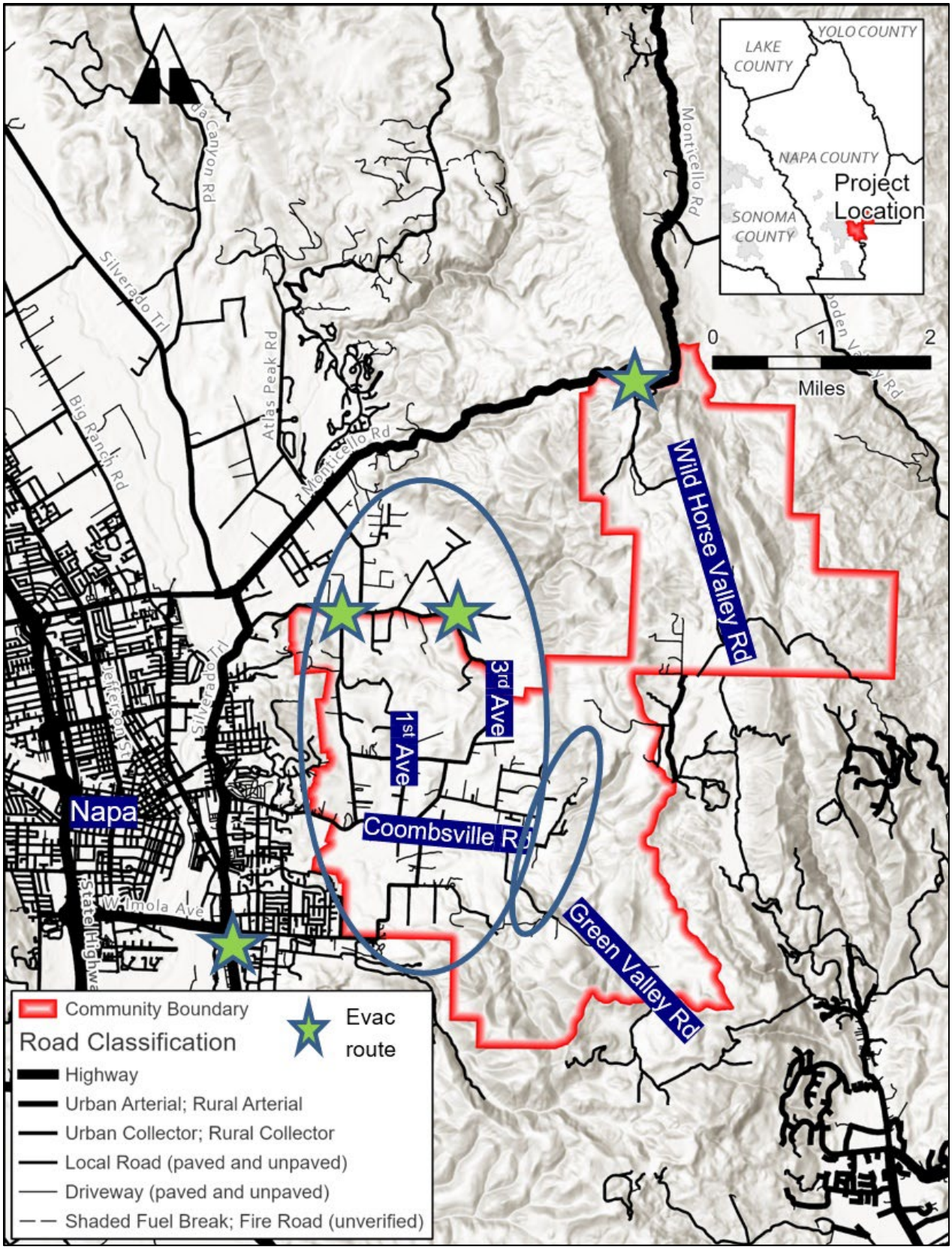

Figure 12. Access and street map of Coombsville area (shown with red outline).

Hazard Ranking

The majority of the Coombsville area is within CAL FIRE's State Responsibility Area (SRA). 22% is not within the SRA (Table 6). The area not within SRA is the city of Napa in LRA.

For the SRA portions of the Coombsville area where CAL FIRE determined a fire hazard assessment, they show 13% of the area is categorized as a **Very High Fire Hazard Severity Zone** (Figure 13). A similar sized area was classified as High (23%) with the remainder categorized as Moderate (43%).

Table 6. Fire hazard severity zone by area (acres) within Coombsville area boundary (CAL FIRE, 2007 – current version).

Fire Hazard Severity Zone (CAL FIRE)	Acres	Percent
Moderate	4,431.49	43%
High	2,321.00	23%
Very High	1,300.73	13%
Non-SRA	2,256.78	22%

See Figure 13.

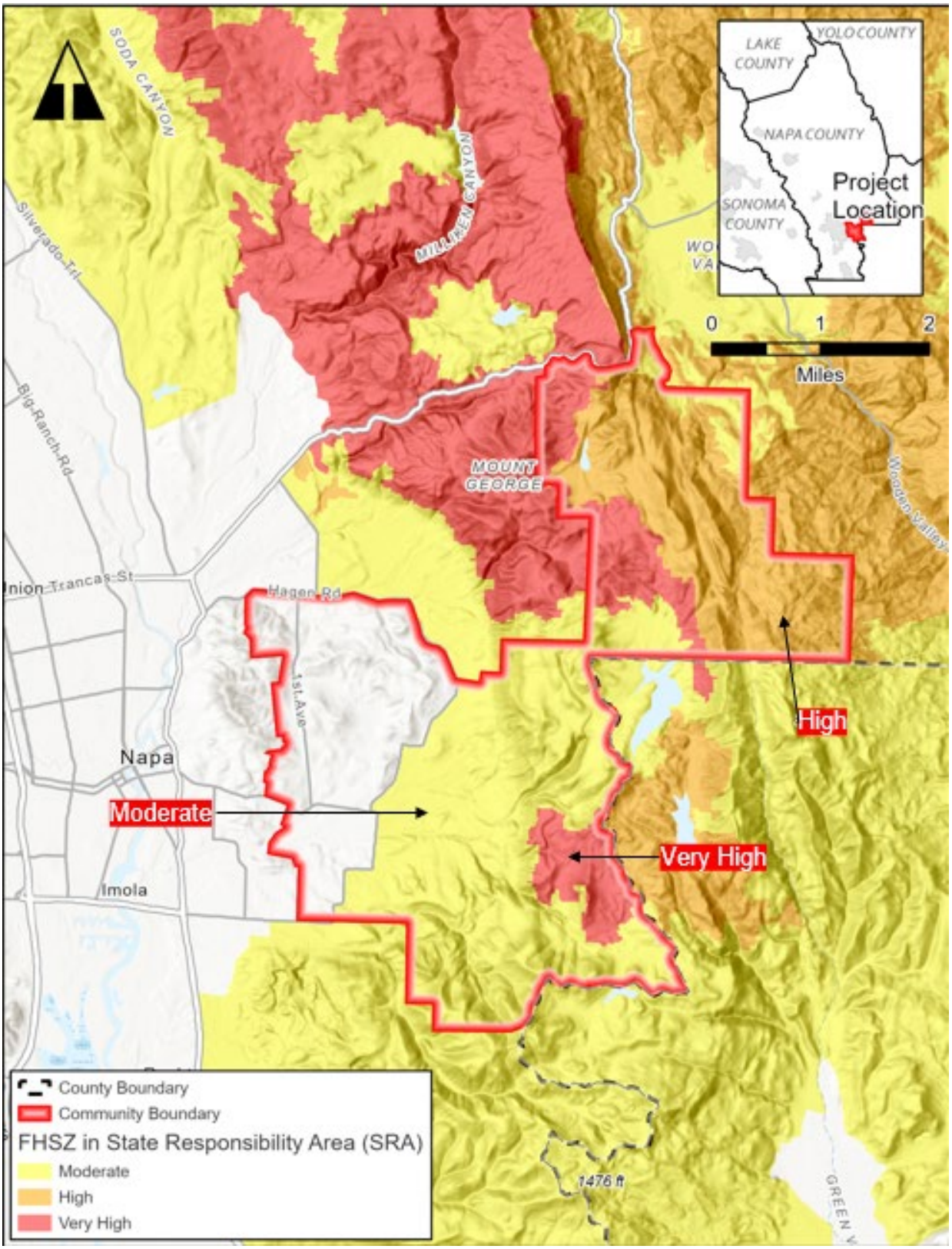

Figure 13. Distribution of Fire Hazard Severity Zones (CALFIRE, 2007).

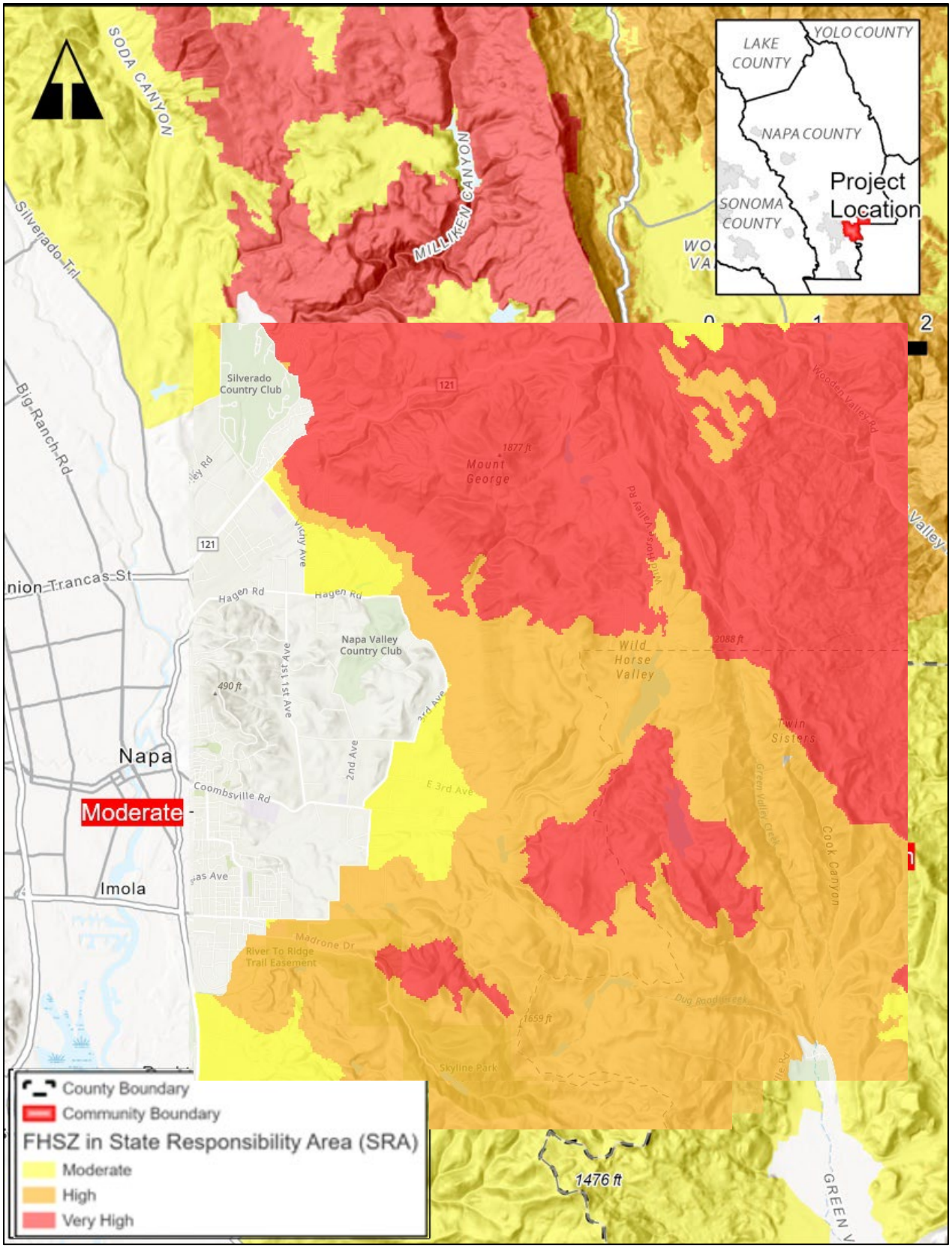

Figure 14. Distribution of proposed Fire Hazard Severity Zones (CALFIRE, 2022). The proposed zonation is overlayed on map taken from Figure 13.

Recommended Projects

Several projects were highlighted during the community evaluation and recommended to enhance fire safety within the Coombsville area. Some span the entirety of the study area, while others are specific to a neighborhood. There are 10 recommended hazardous fuel reduction projects and multiple projects related to community preparedness, spanning communication, community organizing and fire response. These projects include actions such as installation of compliant signs, widening roads in places to create turnouts, establishing alternative evacuation routes, establishing a communication system, and identifying temporary refuge areas for residents along the main roads as well as establishing a 'neighbors in need' program. One project targets increasing education about fire safe landscaping and retrofitting options. The following table indicates the justification of treatments in terms of specific goals, spanning from Assist Evacuation and Emergency Response, Reduce Ignition Potential, Reduce Property Damage, to Assist Fire Containment. Most projects are aimed at helping evacuation and emergency response and supporting fire containment.

Community Preparedness Projects

1. Participate in the 'Reflect to Protect' signage program to install CAL FIRE-compliant green reflective signs
2. Develop a Neighbors in Need program to solicit private donations to assist qualifying residents with Defensible Space work.
    a. Nominate homeowners
    b. CWFSC to contact homeowner, arrange contractor to perform treatments
    c. CWFSC cost-shares expenses
3. Educate homeowners of government cost-share programs
    a. Retrofitting older homes (through NCFF: Ignition Resistant Construction and Defensible Space)
    b. Forest management cost-shares (NRCS EQIP , NBFIP , prescribed burning association)
    c. Creation of water supply via tax incentives or Hardening/resiliency measures that double as efficiency measures (PACE)
4. Educate residents on the criteria on where safe-to-stay places on properties might be, as a last resort
    a. Alternate egress locations
    b. Vineyards e.g. off of Wildhorse or Blue Oak
5. Establish communication means (assume no cell phone communications): Call 'Em All or radio repeaters or Ham Operators, cellphone boosters, Google groups
6. Develop a set of best management practices for wildland fire, train vineyard workers on those practices
    a. Operation changes during times of high fire danger
    b. Support efforts to improve notification/communication between vineyard workers
    c. Obtain Ag Passes for vineyard workers
    d. Establish evacuation protocols for worker

Hazardous Fuel Reduction Projects

See next page:

Location	Project Action	Goal	Justification
Wildhorse Valley Roadside Fuelbreak	Creat a low-fuel volume zone along Wildhorse Valley Road	Evacuation support/access AND Containment Support, Ignition Prevention:	Roaside treatments could help prevent accidents and associated wildfires, and could help prevent ignitions from careless smokers. Treatments could allow safer evacaution and access, and assist containment efforts
Murphy Creek near Mustang Rd	Bridge and veg treatment in creek by roads/ houses	Evacuation/access support	This bridge needs to be rated, and the vegetation in Murphys Creek should be reduced to allow passage on road
Mustang Rd-ShadyBrook	Evacuation preparedness - demonstration projects, to include information regarding notification, comilation of a Go Bag, neighbor-to-neighbor communication	Evacuation/access support	The area has substandard roads, feed multple structures, evacuation preparedness is needed since options for road improvement are limited
Creek along 3rd Ave	Work with CDFW to obtain guidance for appropriate fuels treatment along/in creek (remove invasives first). Consider a demonstration project	Evacuation/access support	3rd Ave is an important evacuation route for the entirety of CWFSC, along with 1st Ave and Coombville Rd.
Green Valley Rdside veg treatment	Treat vegetation in swale/drainage east of Green Valley Rd to enable evacuation and emergency access	Evacuation/access support	This single stretch of road should be treated as the heavy vegetation in the drainage could burn with intensity to block the road
Tree Trimming on 1st Ave	Trim branches/ remove hazard trees along major evac routes	Evacuation support/access	Tree limbs could block major evacuation routes - target work on 1st Ave., 3rd Ave., and Coombsville Wildhorse Valley
Dozer line from Goss to Wildhorse Vlly Rd	Improve dozer line connecting plateau on Goss land to Wildhorse Vally Rd	Containment Support	This dozer line provides additional containment access leading from ridgeline locations to strategic roads
Connect City streets W of 1st Ave	Develop/improve dozer trails to connect Montecito and Clark to 1st Ave via Ashlar	Evacuation support/access	Emergency vehicular access would allow faster containment and easier emergency access as major routes are filled with residents leaving
Wildhorse Valley to Skyline Park fuel break ($750K)	Develop a fuelbreak from Wildhorse Valley to Skyline Park	Evacuation support/access AND Containment Support, Ignition Prevention:	The Wildhorse Valley area outside of Coombsville experienced an isolated wildland fire in 2008 that spanned over 4,000 acres. This area was once again damaged in 2017 by the Wine Country fires. A fuel break extending from Wildhorse Valley to Skyline Park will help assist in minimizing the spread of future fires and protect residents during evacuations.
FEMA Project - in County application (supercedes project noted above)	Develop a fuelbreak from Wildhorse Valley to Monticello Rd	Evacuation support/access AND Containment Support, Ignition Prevention:	This project will support containment at the border between rural and suburban portions of the FireSafe Council, and offer evacuation routes between Coombsville Rd and Monticello Rd.

Approval Signatures

The Coombsville Community Wildfire Protection Plan was developed collaboratively and in consultation with interested parties, including Napa Communities Firewise Foundation, Napa County Fire Department, CAL FIRE, and the residents of the Coombsville community.

The Plan identifies and prioritizes areas for hazardous fuel reduction treatments and recommends other types and methods of treatments that will protect the Coombsville Community.

The following entities mutually agree with the contents of this Community Wildfire Protection Plan:

The following letters of support have been requested and are PENDING from:

Jason Martin, Fire Chief, Napa County Fire Department
Christopher Thompson, President, Napa Communities Firewise Foundation
Alfredo Pedroza, Napa County Supervisor, District 4
Belia Ramos, Napa County Supervisor, District 5
Eileen Pereira, President, Coombsville Wildhorse Fire Safe Council