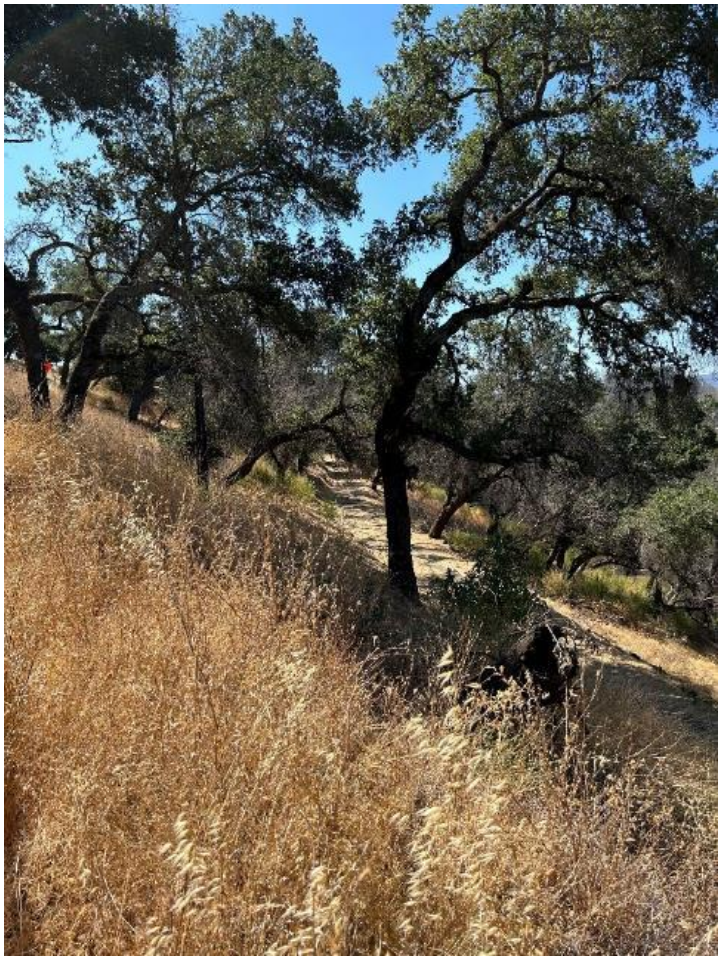
NAPAFIREWISE

Deer Park Fire Safe Council
Community Wildfire Protection Plan
November 2024



Contents

Executive Summary

The Deer Park Fire Safe Council (DPFSC) has developed this Community Wildfire Protection Plan (CWPP); 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 DPFSC 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.

This CWPP acts as an update to the original Deer Park CWPP which was drafted in 2014.

Decision Makers

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

- Deer Park Fire Safe Council
- Napa Communities Firewise Foundation (NCFF)
- CAL FIRE/Napa County Fire Department
- Napa County Board of Supervisors

Community Evaluation

A Community Evaluation was engaged by NCFF and the DPFSC and prepared by Wildland Res Mgt, and includes input from the DPFSC community, including local government, non-profits and local fire authorities. This 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, fire history of the area, along with land use and access compared to the values at risk, and likely scenarios of fire ignition and spread.

Introduction

Fire hazard is a special concern in the Deer Park area in northwestern Napa County. The area is in the interface between wildlands and developed areas where fires spread from wildlands to homes, potentially damaging structures or even threatening lives. Wildlands are subject to increased ignition potential from elevated levels of human activities. Most fires in the coastal mountains are human caused[1].

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

The Deer Park community boundary covers 10,595 acres in northwestern Napa County and is fully within the organized Deer Park Fire Safe Council (Figure 1). The community is sandwiched between Angwin to the east, the St. Helena FSC to the southwest, the Lake Hennessey FSC to the southeast, and the Calistoga FSC to the northwest. The city of St. Helena is nearby to the south.

Within this area, data records show approximately 812 parcels and 1,393 structures. Elevation ranges from 203 feet along the edge of the Napa Valley to over 2,830 feet at the highest point of Three Peaks. The area is best characterized by steep and rugged terrain throughout with a few small valleys spread across the southern half, in and around the town of Deer Park. Bell Canyon Reservoir, a major reservoir for the City of St Helena, is located at the center of the FSC area. The residential areas are situated at a variety of elevations, but they are more present at lower elevations.

There are many rural residents within the Deer Park community boundary. They are mostly concentrated in the south-central portion of the area around the town of Deer Park. Outside the boundary, there are larger residential areas in St. Helena to the south, Angwin to the east, and Calistoga to the west. There are also more dispersed homes scattered throughout Napa Valley west and southwest and Conn Valley to the southeast. All were affected in some way by the 2020 Glass Fire.

More details on each will be presented in the following sections.

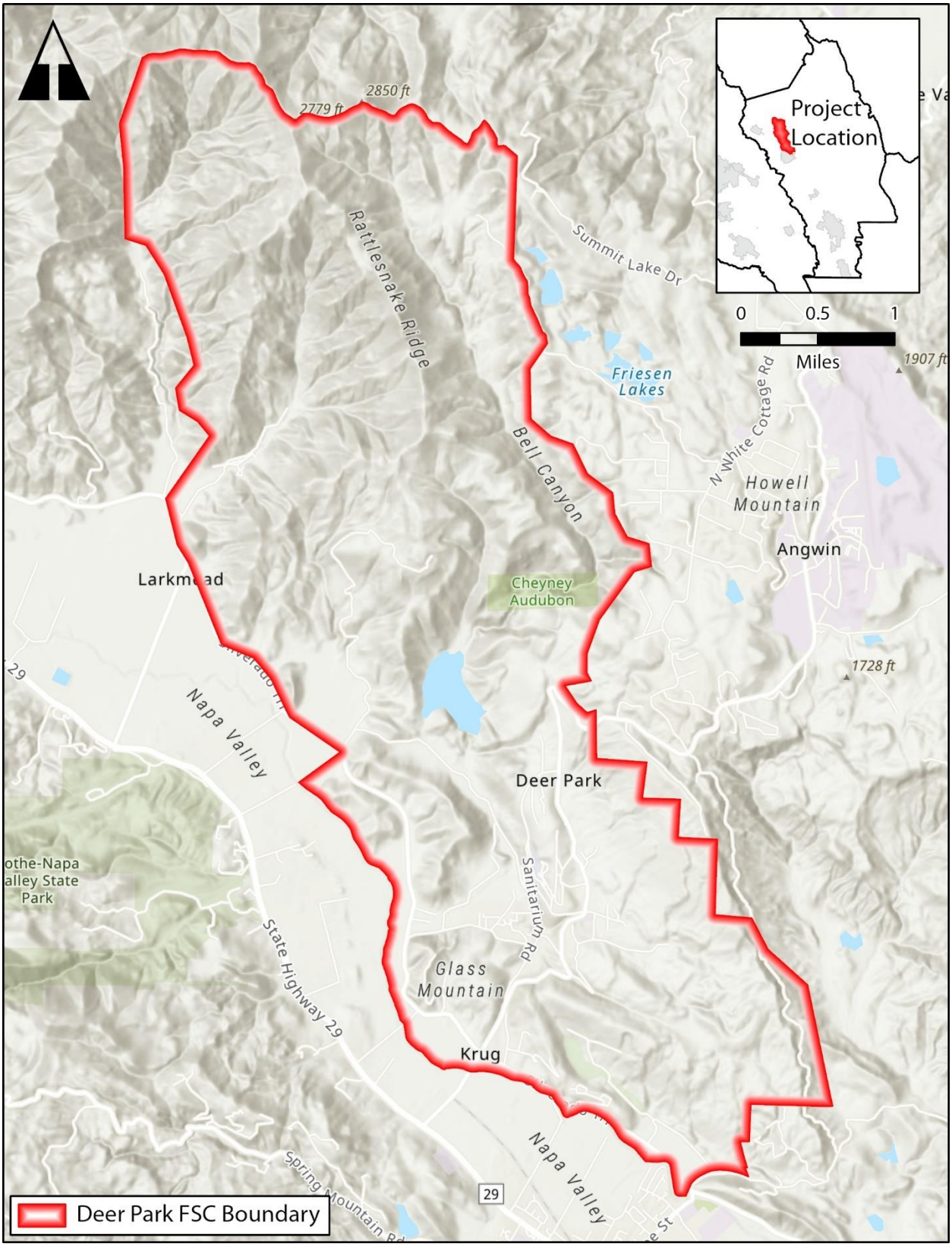


Figure 1. *Area of interest – Deer Park FSC boundary (shown in red).*

Values at Risk

The most important values at risk are life safety, then improvements to property (critical infrastructure, 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 Deer Park community 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: Many residential structures are 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 destroyed by the 2020 Glass fire are being built in conformance with ignition-resistance construction standards. Surviving 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). There are a few short roads that branch off from Howell Mountain Road in the town of Deer Park and connect to most of the structures in the area. Some structures, especially outside of the centrally located neighborhoods near the hospital , have long narrow driveways, often with only one ingress/egress route.

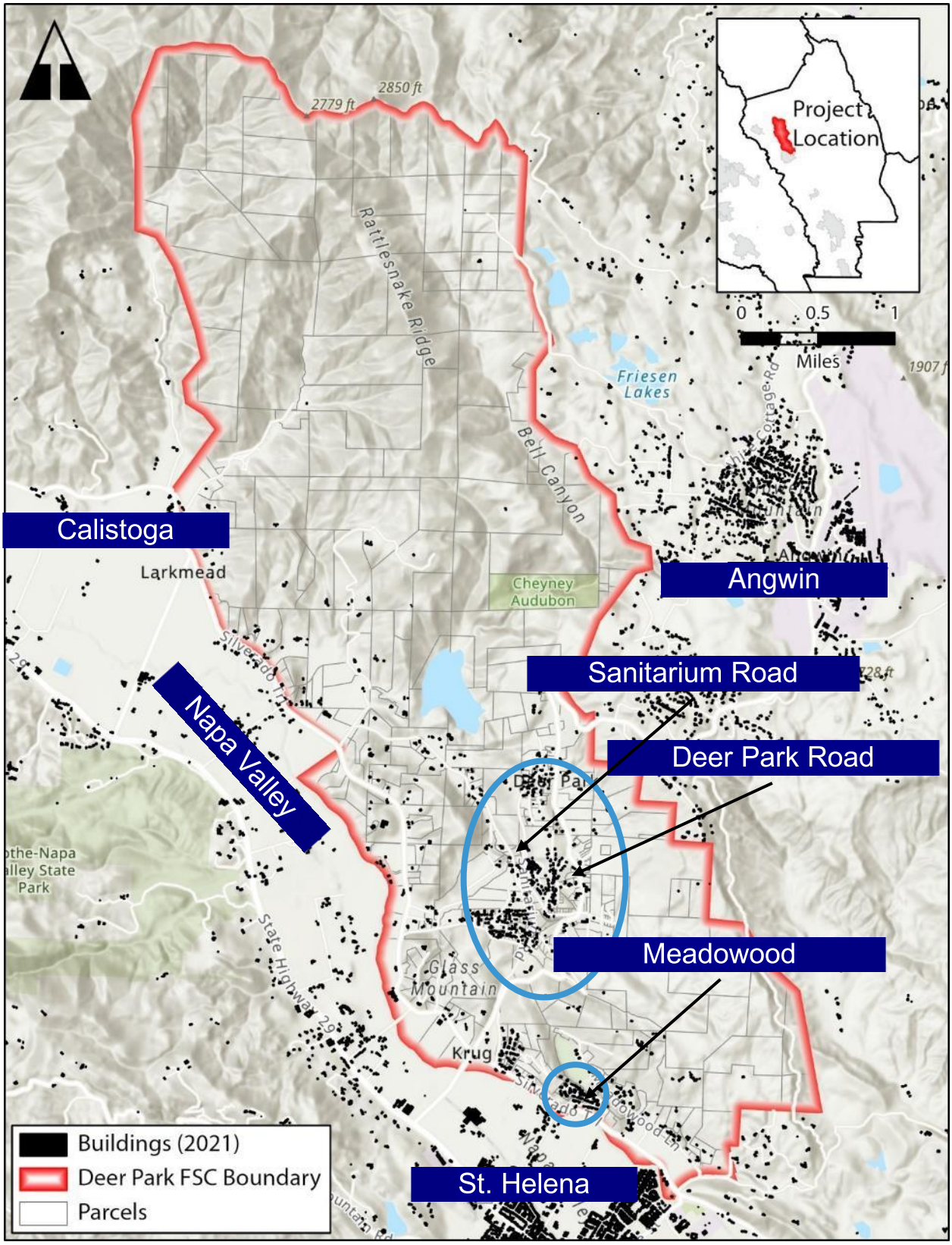


Figure 2. *Structures (shown in black) within the Deer Park community boundary.*

Land Use: The Napa County parcel database shows that Deer Park is dominated by vacant lands (Table 1). Vacant lands account for 54% of the lands within Deer Park and are located throughout the area, but the majority are large parcels clustered in the northern half. 51% of these vacant parcels are rural, with 4% having miscellaneous improvements. Another 2% are non-taxable vacant parcels.

Residential lands account for 17% of the total area. These are largely located in the southern half of Deer Park, especially along Glass Mountain Road and Sanitarium Road. Residential areas are concentrated in the center of Deer Park near the hospital as well as scattered about following winding roads. These lands are critical for fire protection. Additionally, 2% of parcels are designated as commercial. These parcels are mostly improved land, medical offices, and motels.

As of 2021, 25% of parcels fall into the agricultural category; this category is increasing in acreage. These are predominantly vineyards located in the southern and central portions of Deer Park and along the edges of the community on the slopes.

Table 1. *Number of parcels and county land use within the Deer Park area (Napa County GIS Open Data Portal, accessed in July 2021).*

Category	Acres	Parcel Count	Percent (%)
Agricultural	2677	128	25%
Residential	1762	397	17%
Vacant	5761	355	54%
Commercial	233	16	2%

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 encompasses a broad range of slopes and aspects, though the area is mostly rugged. Slopes range from 0% along the eastern side of the Napa River to over 100% on the steep, west-facing hillsides in the north (Figure 3). Deer Park has long slopes eastward from Silverado Trail as well as unbroken slopes to Angwin. With many wide valleys and steep, deep canyon sides.

Rattlesnake Ridge, a steep ridgeline, runs in the northwest-southeast direction through the center of the northern half of the area. This is an important control location for fires. There are several prominent peaks in this area as well, including The Beehive, Old Baldy, Flat Top, and Potato Hill. The Napa River meets the western edge of the FSC boundary near Bell Canyon Reservoir and runs southeast along the boundary.

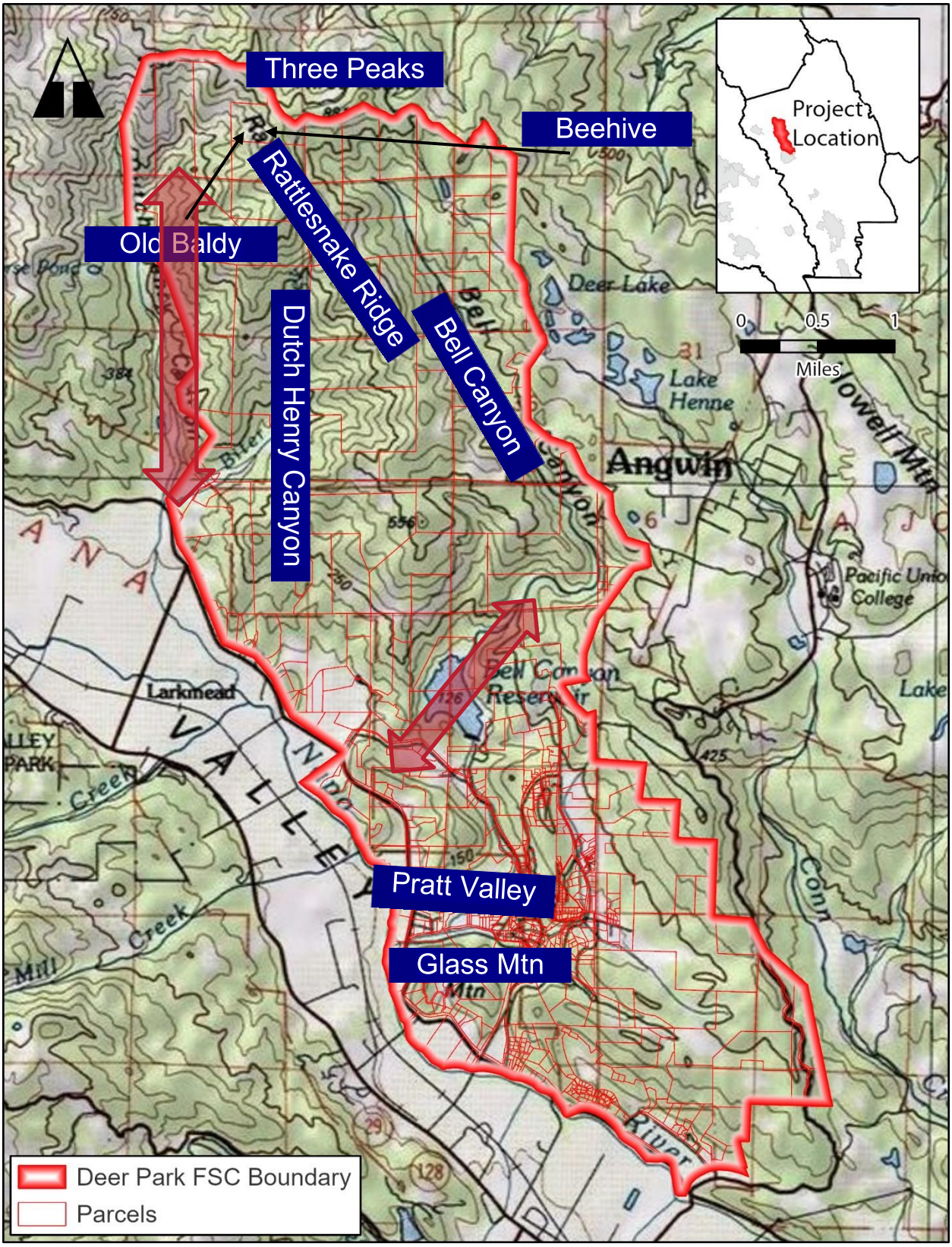


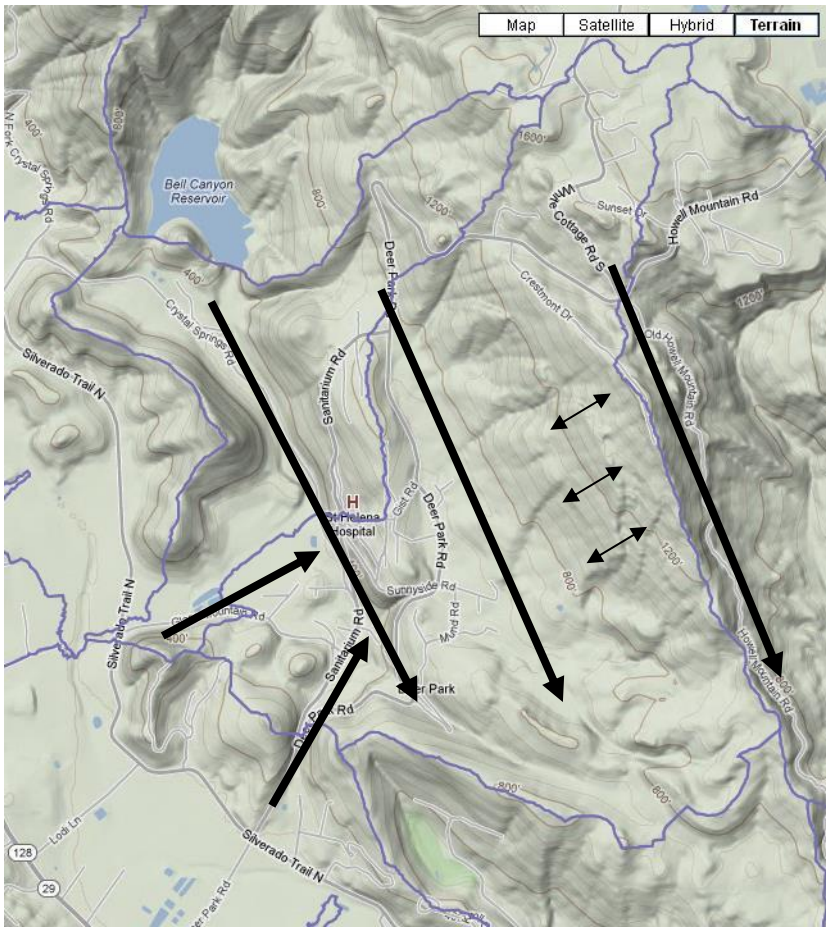
Figure 3. *USGS Topographic map of the Deer Park FSC (boundary shown in red).*

<u>Watersheds and Orientation of Canyons</u>:

- Bell Canyon: This canyon runs in the northwest-southeast direction through the northeastern corner of the area, parallel to Rattlesnake Ridge. It is located just west of Angwin.
- Biter Creek Canyon: Biter Creek runs through the middle of this northeast-southwest canyon, which intersects Dutch Henry Canyon near the Silverado Trail. This direction is aligned with the predominant winds from the southwest and the more concerning Diablo winds from the northeast.
- Dutch Henry Canyon: This canyon, which is roughly oriented in the north-south direction, lies mostly outside of the Deer Park FSC boundary but crosses into the FSC area in the northwest. Miller Flat is located at its northern end.
- Pratt Valley: Pratt Valley is a short valley that runs in the northeast-southwest direction just north of Glass Mountain. It connects to the Napa Valley to the west.

The area of the Deer Park Fire Safe Council is mostly in the Bell Canyon Reservoir Watershed (Figure 4). Multiple creeks exist in the area. They include Biter Creek, Cañon Creek, and several seasonal creeks.

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



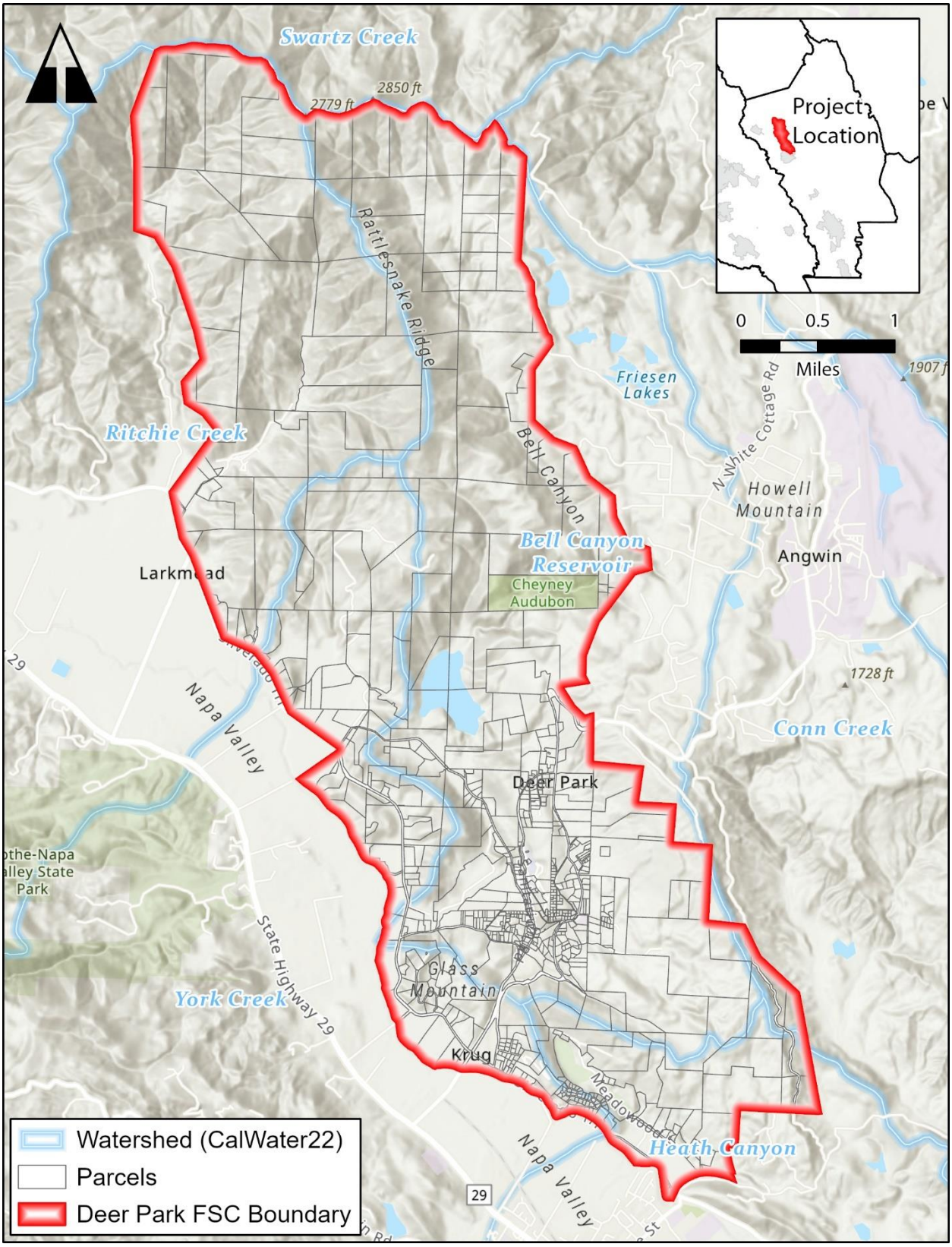


Figure 4. *Watershed map of the Deer Park area (boundary shown in red).*

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: Summer days are usually warm but comfortable; temperatures normally range from lows in the 40's 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 area of the Deer Park Fire Safe Council lies in a relatively protected loccation 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 preheat 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. 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.

Most of the area is characterized by northwest-to-southeast aligned ridges with several peaks clustered in the northern portion of the area. These ridges slow the regionally dominated southwesterly winds. However, strong winds from the northeast could produce strong up slope and erratic winds. There are several peaks throughout that can align with the predominant wind direction (southwest-northeast), acting as funnels for strong afternoon winds or the less common Diablo winds from the northeast. The canyon ending at Bell Canyon Reservoir is an example of this alignment.

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 P.G. & 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 – which started in the DPFSC - also followed this pattern and burned substantial parts of Napa County, including parts of the Deer Park area of interest as well as surrounding lands. In contrast, closer to Deer Park, the 1983 HOWELL MOUNTAIN fire burned under less pronounced wind conditions.

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 Deer Park area can exacerbate its risk from the Diablo winds. This is because these foehn or subsiding winds accelerate with decreasing elevation.

Vegetation

The most recent vegetation map of Napa County[2] (updated in 2016 from the 2004 version) was used as reference for this evaluation. There are seven main vegetation categories within the Deer Park area along with three non-veg types (rock outcrop, developed, and streams and reservoirs). The major vegetation categories mapped are listed in Table 2.

The Deer Park community's vegetation can be defined overall as being diverse and changing. Forests, comprised of Douglas fir and or oak woodlands, comprise the majority of land in the DFSC. Grass can be found both under oaks and in small patches. Shrublands are common on west-facing slopes, some previously burned areas. In unburned locations, conifer forests take over oaks. Vineyards are located mostly on the southern half of the DFSC.

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

Vegetation Major Category	Acres	Percent (%)
Agriculture	952	9%
Coniferous forest	3011	28%
Developed	617	6%
Grassland	272	3%
Oak woodlands	3458	33%
Riparian woodland	171	2%
Rock outcrop	85	1%
Shrubland	1919	18%
Streams and reservoirs	95	1%

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

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

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 (Figure 5a).

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

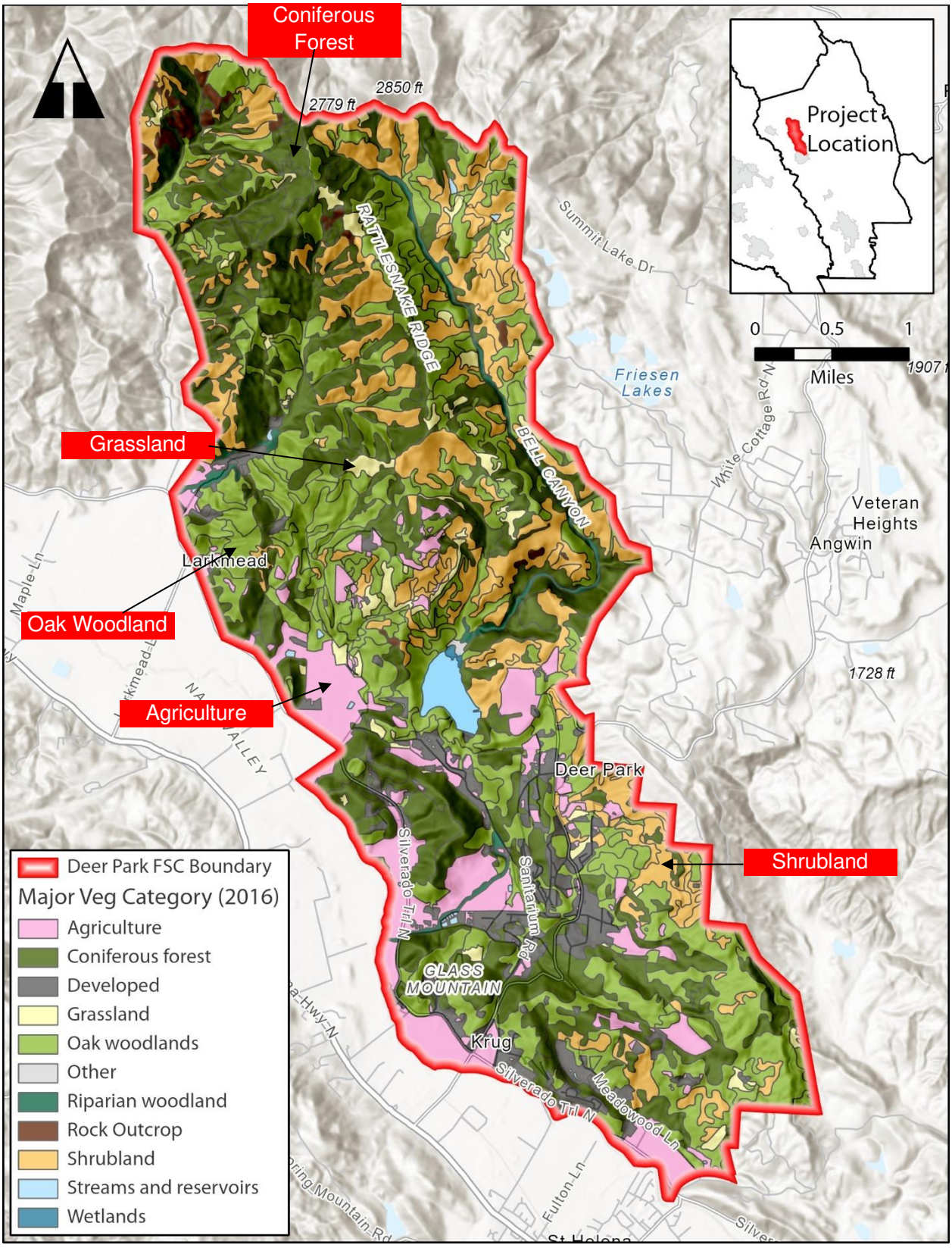


Figure 5a. *Vegetation map – Deer Park FSC area (boundary shown in red) (Napa Vegetation Map, 2016).*

Oak Woodland: 33% of the Deer Park 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 these oak woodlands is dominated by mixed oak patches, but also includes coast live oak, California bay, madrone, coast live oak, black oak, blue oak, canyon live oak, valley oak, and occasional pines and big leaf maples. In more exposed areas, where the canopy opens up, shrubs are dominant 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 crown

s. Foliage of both bay and coast live oak can be very flammable when fire reaches the crowns. Currently, many of the oak woodlands are recovering from the 2020 fire and are sprouting from the base. Few trees were left unscorched, and standing dead trunks are the norm. The sprouts are in the form of bushes, with many stems. Grass and shorter shrubs are interspersed between the oaks.

If a fire were to occur in the area within the next decade, the vegetation can be expected to burn as a grassy shrubland until trees grow in height and form a more closed canopy. Because the foliage of the tree sprouts and chaparral is all new, a fire would be dampened by the live growth but propelled by the grass in and amongst the re-sprouting trees.

Shrubland: Shrubland occupies 18% of the Deer Park area and can be found abundantly on the hillsides of the eastern half of the area of interest, with some present in the northwestern corner as well. They are also interspersed with patches of oak woodland and coniferous forest throughout the center of Deer Park. 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:

- California Bay - Leather Oak - (Rhamnus spp. (Foothill Pine)) Mesic Serpentine
- Chamise Alliance
- Chamise - Wedgeleaf Ceanothus
- Leather Oak - California Bay - Rhamnus spp. Mesic Serpentine Chaparral
- Mixed Manzanita - (Interior Live Oak -California Bay - Chamise) West County
- Sclerophyllous Shrubland

- White Leaf Manzanita - Leather Oak - (Chamise - Ceanothus spp. (Foothill Pine)) Xeric Serpentine

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 contributes 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.

Currently, the brush is growing rapidly, from re-sprouts and seeds. The new foliage will act to dampen fire spread and heat output, but any dead sticks remaining from the 2017 fires will speed fire spread. The hazard posed by this vegetation type is not great now but will increase every year. When the plants grow together, sticks and twigs will die from too much shade, and the hazard will grow.

Agriculture (Cropland/Vineyards): 9% of the land in the Deer Park area is mapped as agriculture. This occurs in small sections in the southern and central parts of the area of interest. Almost all of the 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, Nuns, 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): Prior to the Glass fire in 2020 grass accounted for 3% of the Deer Park area, annual grasslands were mapped throughout as scattered pockets in oak woodlands, confer forests, and shrublands. This vegetation type is much more common, found between oaks and under open stands of Douglas fir. Grasses are flashy fuels and fire spread can be rapid through herbaceous areas, but these fires can be easy to spot and contain.

Conifer forest: Coniferous forests occur throughout the Deer Park area, particularly in the western half (Figure 5b). Together, they constitute 28% of the total area. The specific mapped conifer forest includes:

- Douglas-fir
- Douglas-fir - Ponderosa Pine
- Foothill Pine
- Knobcone Pine

- Ponderosa Pine - Douglas fir forest

Knobcone pines (*Pinus attenuata*) are native to the region, but they proliferated in the Mayacamas after they were aerially seeded after the 1964 fire. Knobcone pines actually require fire to reproduce in great quantity. They often grow as dense even-aged stands after a fire, and burn as entire stands, intensifying and accelerating fire behavior. Monterey pine (*Pinus radiata*), another fire pine, is another flammable species that was introduced to our area.

Conifer forests are often found on north-facing slopes and do not pose a significant fire hazard under normal conditions. However, when hot, dry weather occurs, these forests offer a large fuel load to burn and exhibit greater fire intensity. Of all the vegetation types in the Deer Park area, dense, coniferous forests burned as a crown fire. When a fire reaches tree crowns, embers are distributed throughout adjacent areas (including vulnerable residential areas). Dead material from dying oaks increases fire intensity.

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

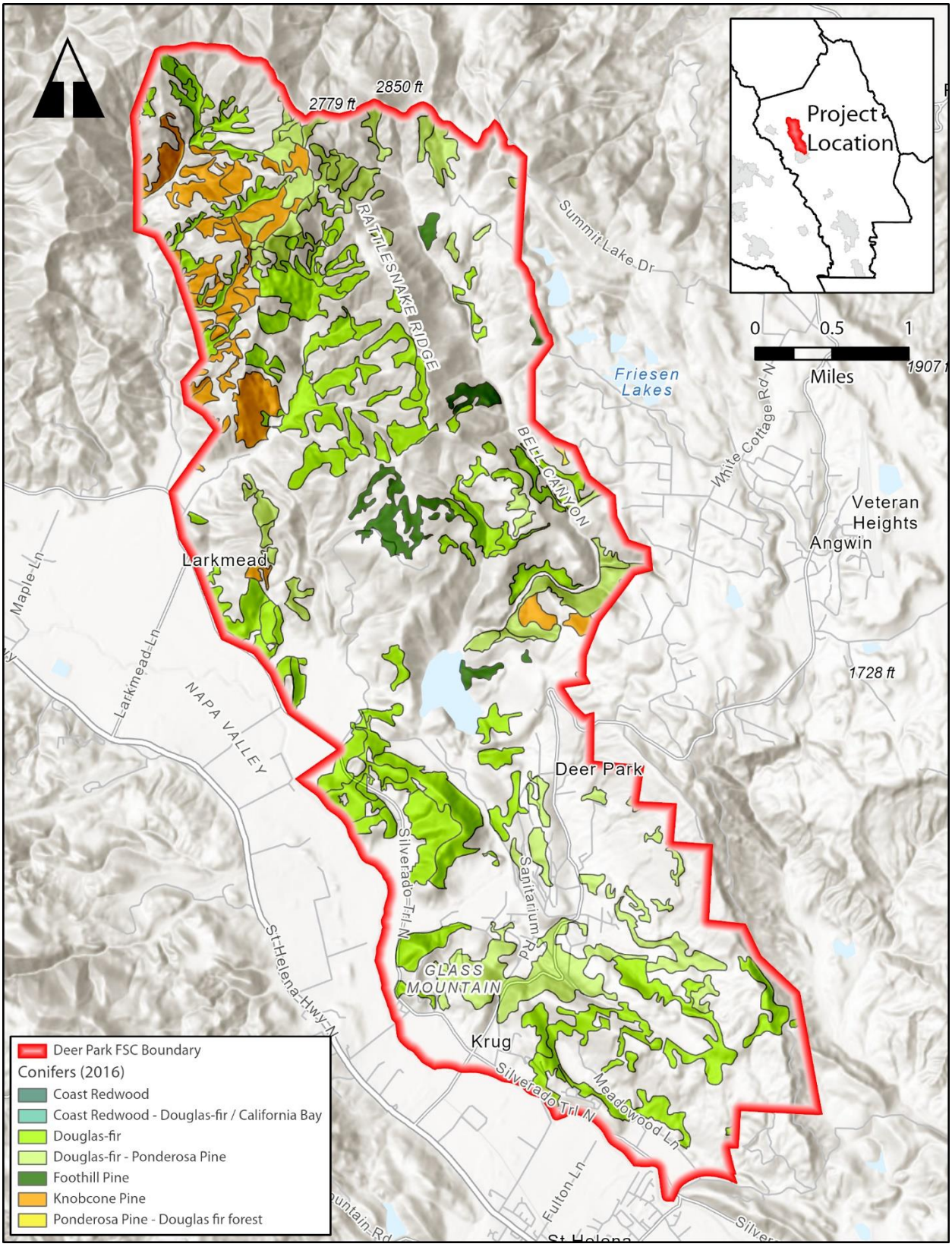


Figure 5b. *Conifer map – Deer Park FSC area (boundary shown in red) (Napa Vegetation Map, 2016).*

Predicted Fire Behavior

While the vegetation descriptions are based on 2016 data, the vegetative fuel characteristics (on which the fire behavior predictions are based) were updated to represent conditions after the 2020 Glass Fire.

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].

Predicted Flame Lengths: Long flame lengths can be expected in dense conifer and oak forests where understory is present, especially on steep terrain. 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.

32% of the area has a predicted flame length of over 8 feet when predicting for a northeasterly wind at 15 miles per hour (Table 3). This leaves about 68% of the area predicted to have less than 8-foot flame lengths. Of those areas, 60% are predicted to have less than 4-foot flame lengths.

The higher flame lengths are concentrated in the shrublands throughout Deer Park and are especially abundant in the steep terrain of the eastern portion of the area (Figure 6). The lower flame lengths are distributed throughout the entire area but are especially present in the western half, occurring mostly in grasslands, conifer forests, and oak woodlands as well as locations with some shelter from winds.

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

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

Predicted Flame Length	Acres	Percent (%)
No predicted fire	1332	13%
Less than 4 ft	4983	47 %
4.1 – 8 ft	872	8%
8.1 – 12 ft	552	5%
Greater than 12 ft	2849	27%

[3] https://www.firelab.org/document/flammap-software
[4] https://ncff-cwpp-dms-usa.hub.arcgis.com/maps/b2de24b3562e4e27b0fbea2921e2c9e4/explore

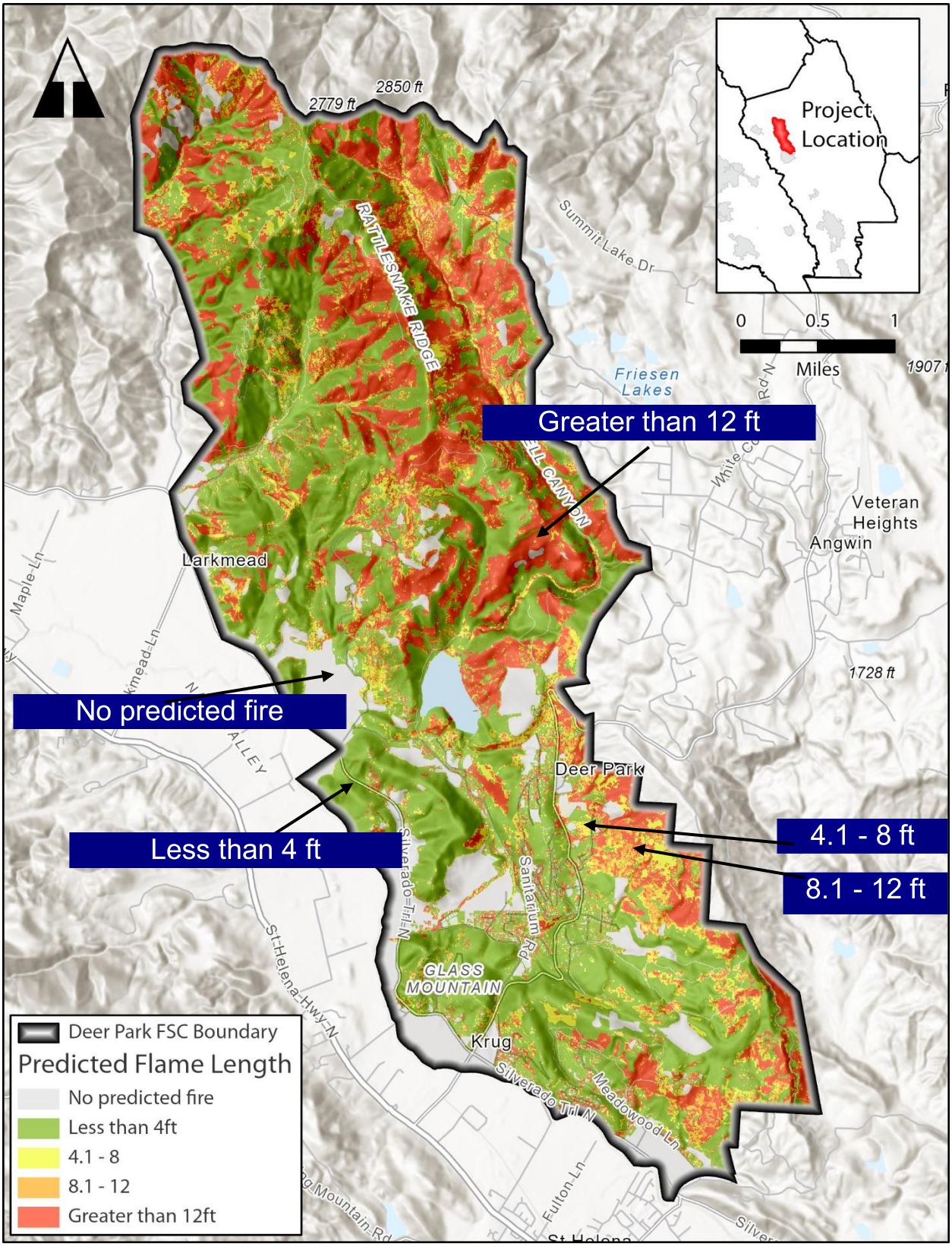


Figure 6. *Predicted flame length (feet) map (based on Napa Veg Map-based landscape version 2-2021 - Northeast wind at 15 mph and low fuel moistures). Deer Park area boundary (in red).*

Predicted Crown Fire Activity: While both the coniferous and 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 Deer Park area, a relatively small area is predicted to have fire spread within the tree canopy (tree-to-tree or crown fire), which is rare and virtually unheard of in hardwoods (Figure 7). Areas with higher density of coniferous forests are most at risk of torching and crown fires. These areas are particularly concentrated in the northern half of the area of interest and persist on steep ridges.

A combination of no predicted fire and surface fire in a canopy cover of less than 20% accounts for approximately 16% of the Deer Park area (Table 4). These areas are concentrated in the developed parts of Deer Park as well as in vineyards, rock outcrops, and small patches in oak woodlands.

Of the places 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 account for 54% of the predicted surface fire. Places where torching is predicted account for 19% of the area. These areas occur across most of the Deer Park FSC, especially on steep mid-slopes and places where the vegetation is not protected from strong winds. They are often adjacent to vineyards but are most abundant in vacant rural areas. And lastly 10% of the area is predicted to have active crown fire. While this is a relatively low number, in comparison to other communities, this is high. Field verification is recommended. Active crown fire is predicted on the steepest north- and east-facing slopes throughout the area, but it is concentrated in the area northeast of Bell Canyon Reservoir, along Rattlesnake Ridge, and at the intersection of Biter Creek and Dutch Henry canyons.

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

Crown Fire Activity	Acres	Percent (%)
No predicted fire	1309	12%
Surface fire canopy cover < 20%	470	4%
Surface fire with canopy > 20%	5741	54%
Torching fire (passive crown fire)	2012	19%
Crown fire	1057	10%

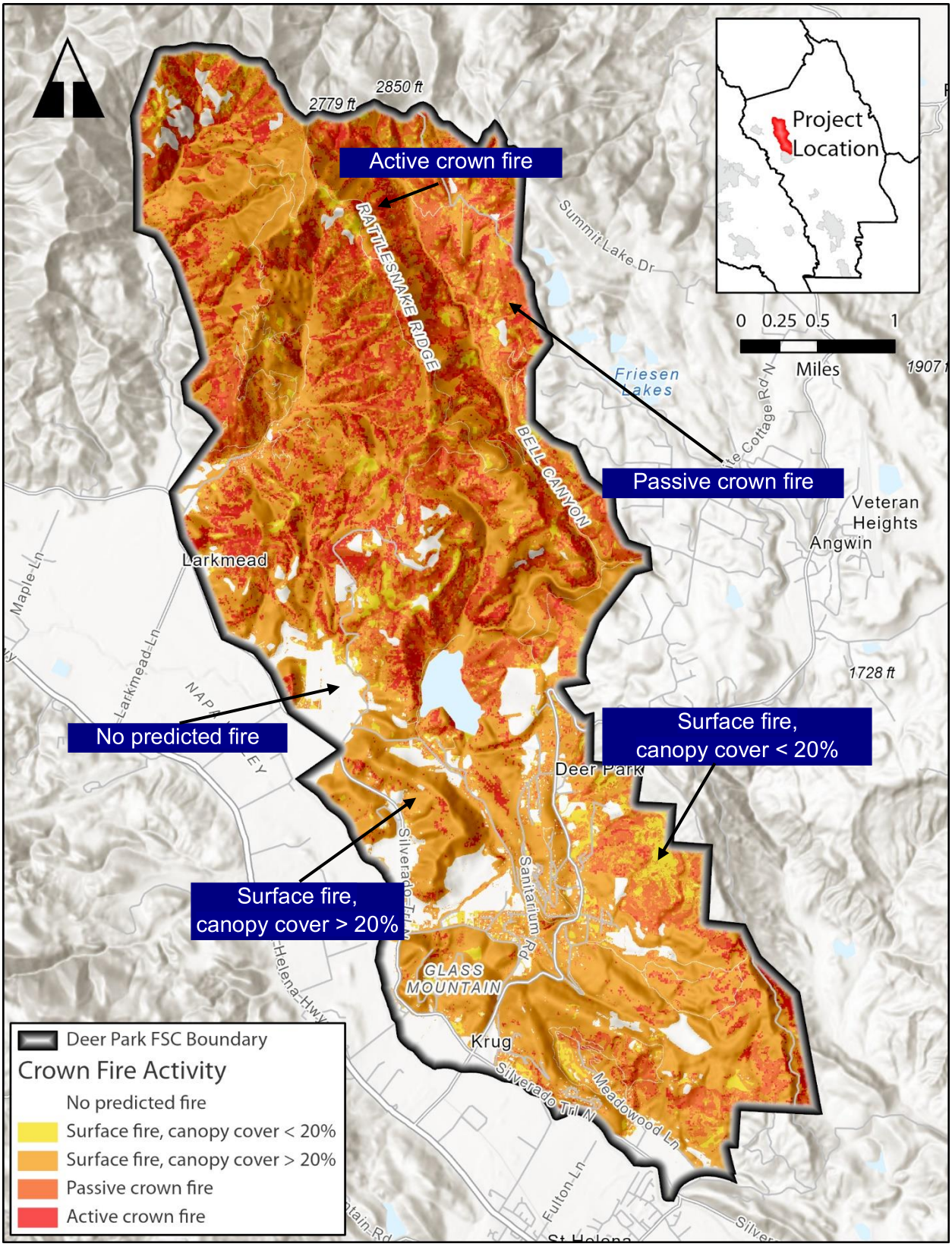


Figure 7. *Predicted crown fire activity map (based on LANDFIRE landscape version 2.0 with a Northeast wind at 15 mph with low fuel moistures). Deer Park area boundary (shown in red).*

Fire History

In the past decades, 16 fires have been recorded occurring near the Deer Park area (Table 5). Most notable are the large and wide-ranging Hennessy and Glass fires of 2020, the Howell Mountain fire of 1983, the C. Hanly fire of 1964, and the Oat Hill Mine fire of 1952. The Crystal Fire is the most recent fire, burning 60 acres near Bell Canyon Reservoir in 2024.

Large fires have directly impacted most of the area within the Deer Park neighborhood (Figure 8). The fire history map shows that the vast majority of the neighborhood was visited by fire in 2020, suggesting a relatively lower fuel load than in other areas that have not experienced fire recently.

Table 5. *List of recorded fires near the Deer Park FSC area (CAL FIRE, 2020).*

Year	Month	Date	Fire Name	Cause	Acres
1952	October	10/3/1952	OAT HILL MINE	Unknown/ Unidentified	2,666.6
1957	September	9/21/1957	C. SCOTT	Unknown/ Unidentified	273.6
1959	October	10/29/1959	G. HEIBEL	Unknown/ Unidentified	1,411.6
1959	June	6/27/1959	C. SAVIEZ	Unknown/ Unidentified	205.4
1964	June	6/25/1964	ROADSIDE #14	Unknown/ Unidentified	230.8
1964	September	9/19/1964	C. HANLY	Unknown/ Unidentified	55,960.7
1983	January		HOWELL MTN. FIRE	Unknown/ Unidentified	2,353.6
2003	October	10/29/2003	SILVERADO	Power Line	69.3
2008	October	10/10/2008	DEER	Vehicle	233.1
2013	April	4/24/2013	SUMMIT	Power Line	2.2
2016	June	6/17/2016	HILLCREST	Unknown/ Unidentified	17.3
2017	September	9/23/2017	CLOVER	Unknown/ Unidentified	13.9
2020	August	8/17/2020	HENNESSEY	Lightning	305,351.9
2020	July	7/26/2020	MOBILE	Equipment Use	1.1
2020	September	9/27/2020	GLASS	Unknown/ Unidentified	67,484.4
2021	January	1/19/2021	SPRING	Debris	1.0
2024	June	6/05/2024	CRYSTAL	Under Investigation	60

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.

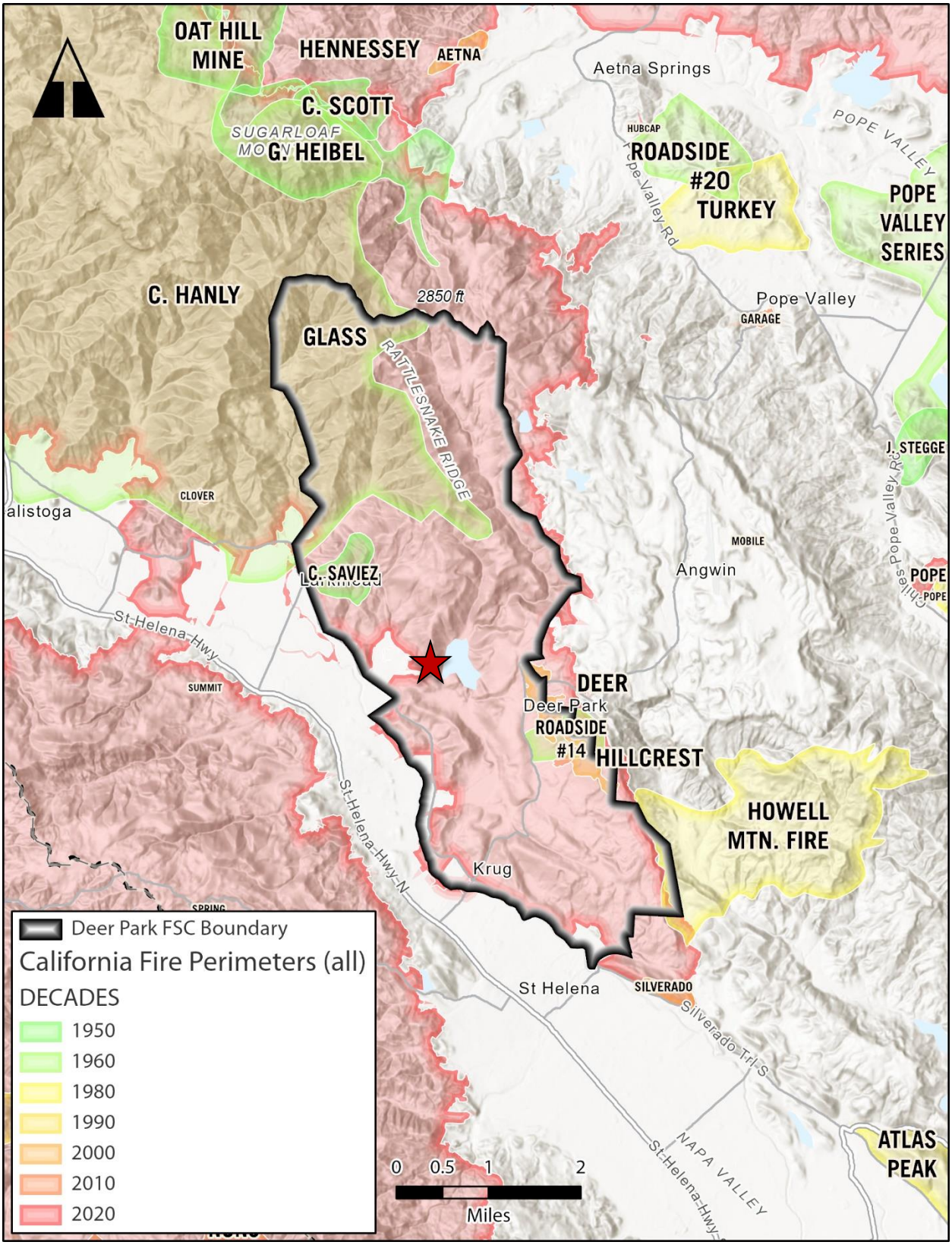
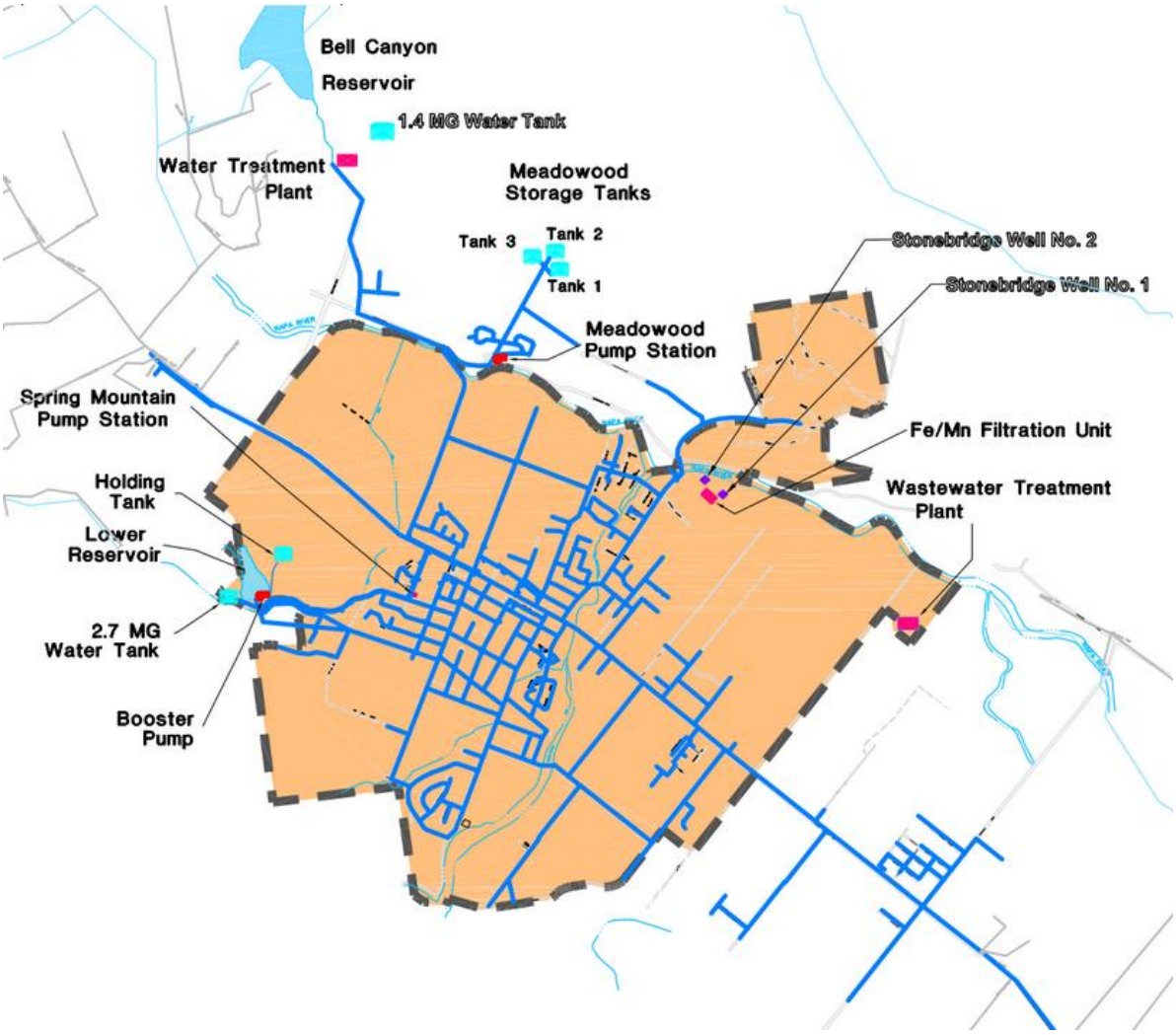


Figure 8. *Fire perimeters/fire history map of Deer Park FSC area (CALFIRE FRAP, 2023). Star indicates the location of the 2024 Crystal Fire.*

Water Supply

The following diagram represents the location of water lines and critical facilities that supply water to the community of Deer Park.

While the system generally is adequate for fire protection – as tested in the 2020 Glass Fire – the performance was tenuous at times indicating the benefit for improvement.



Access

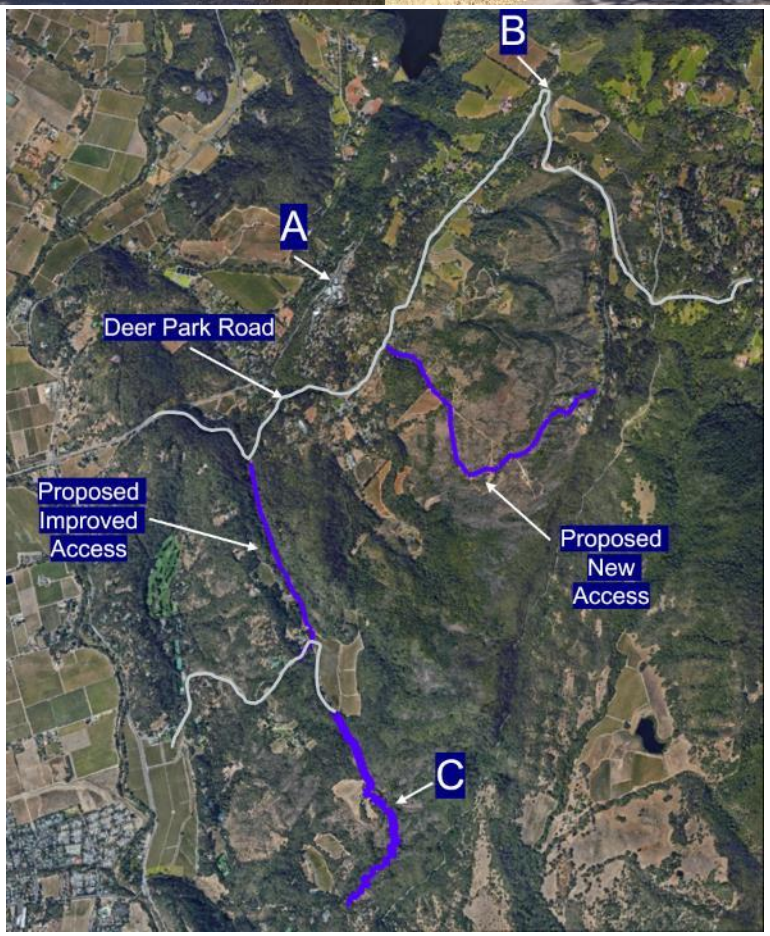
In general, access to the southern half of the Deer Park area is good while access to the northern half is poor. Deer Park Road, Sanitarium Road, and Crystal Springs Road are the main ingress/egress roads into the community of Deer Park (Figure 9). Deer Park Road runs in the northeast-southwest direction across the FSC area, while Sanitarium Road forms a loop with

Deer Park Road and connects Sanitarium Road to the Silverado Trail on the western edge. The Silverado Trail is the primary boundary road, linking the west of the Deer Park FSC to Napa in the south and Highway 29 in the north. There are several smaller local roads that lead into small neighborhoods from the major roads, allowing for limited interior access. However, many of these interior roads are narrow, winding, constrained by terrain, and dead ends. There are no other means of egress other than fire roads that may or may not be maintained.

The Silverado Trail is a wide and well-maintained two-lane road, but most other roads are barely two lanes with no shoulders. Pavement (road surface) is generally in good shape. Some curves are simultaneously sharp and steep. Several residences are served by long shared driveways, some behind locked gates. Locked gates can further delay emergency response and 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 Deer Park area and could prove significant in the event of a fire.


B
A
Deer Park Road
Proposed
Improved
Access
Proposed
New
Access
C

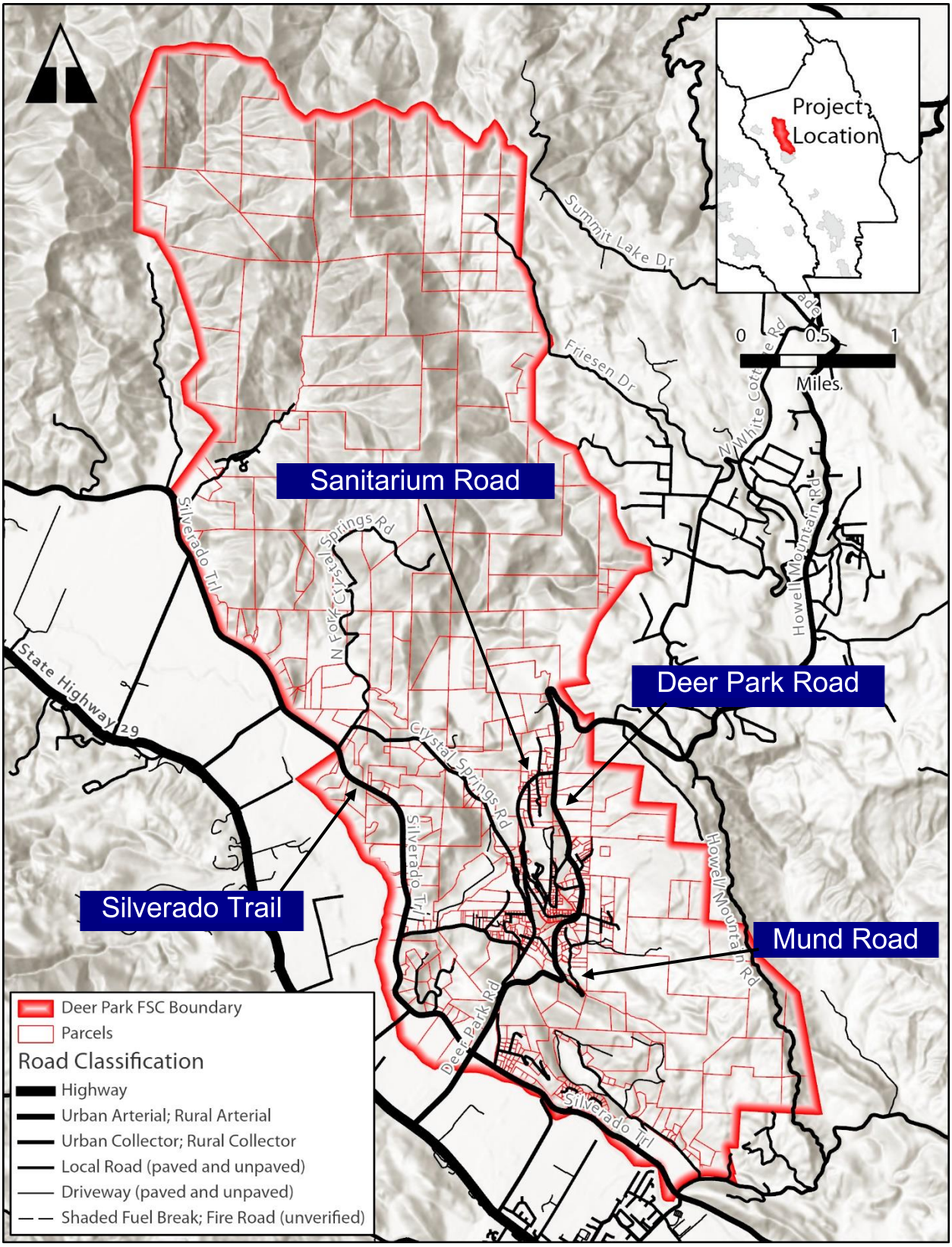


Figure 9. *Access and street map of Deer Park FSC area (shown with red outline).*

Hazard Ranking

The majority of the Deer Park area is within CAL FIRE's State Responsibility Area (SRA). 6% is not within the SRA (Table 6). The area not within the SRA is designated as a Local Responsibility Area (LRA).

For the SRA portions of the Deer Park area where CAL FIRE determined a fire hazard assessment, they show 87% of the area is categorized as a **Very High Fire Hazard Severity Zone** (Figure 10). A smaller area was classified as High (.01%), with the remainder categorized as Moderate (.03%).

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

Fire Hazard Severity Zone	Acres	Percent (%)
Moderate	315	**0.03%**
High	88	.01
Very High	9,298	87%
Low Hazard or Outside of SRA	87	.01%
Not Zoned	807	.13

An updated overlay map of fire hazard ranking from 2023 shows that fire hazard has increased across the entire community since 2007 (Figure 11). Now, almost all of the area is classified as a **Very High Fire Hazard Severity Zone**.

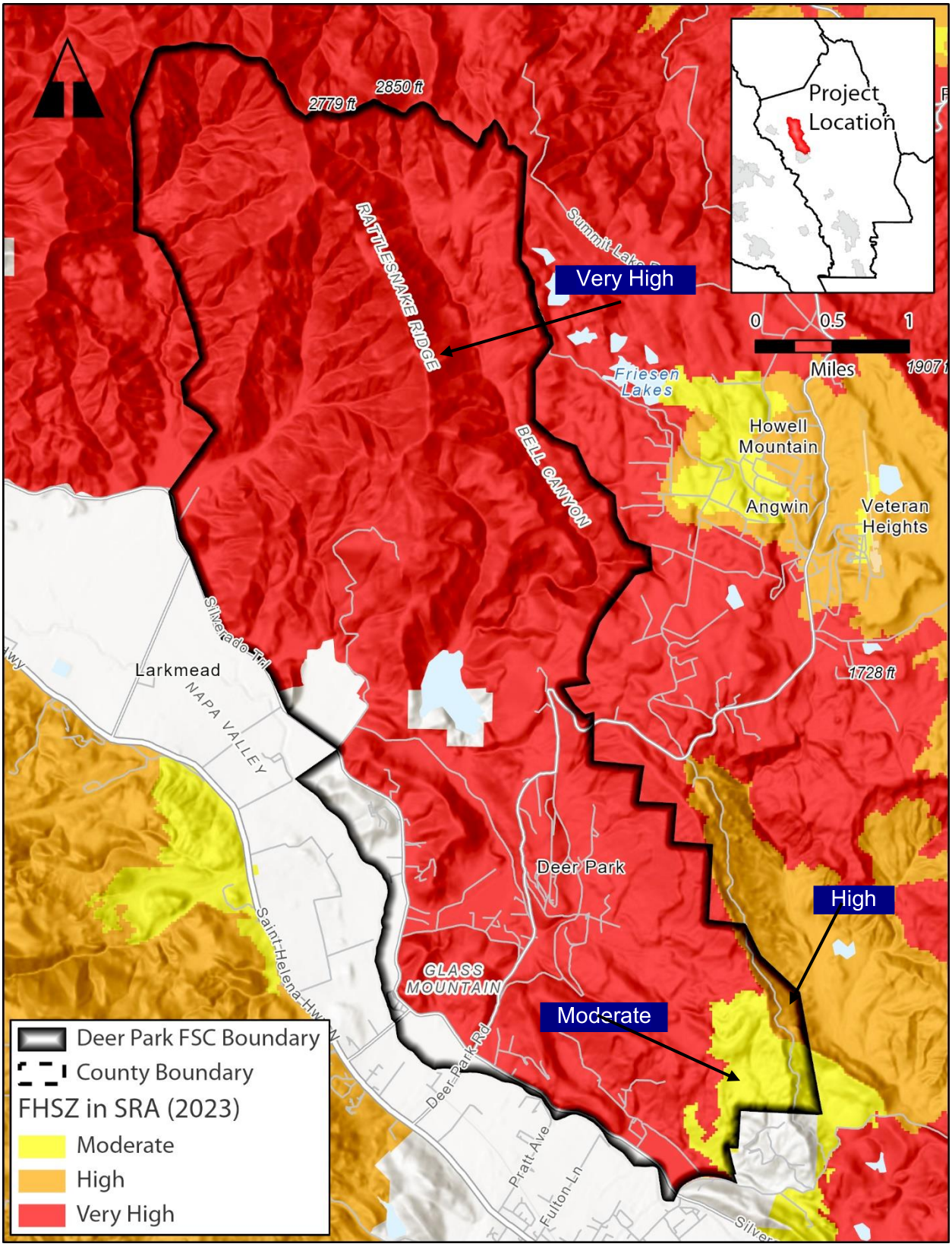


Figure 10. *Distribution of Fire Hazard Severity Zones (CALFIRE, 2007).*

The Plan

The elements of this Plan have been arrived at through a collaborative process, with the understanding that some elements of this Plan will require outside funding, that some elements will be easier to accomplish than others, and that all elements will take some time.

When developing the 2014 CWPP, the DPFSC created and prioritized a list of projects to help make the community more defendable in a wildfire. The list included fuel reduction projects along roadsides (both ROW and expanded), fuel breaks, and forest health projects. Several high priority fuel reduction projects from the 2014 list have now been completed, or are in progress, with more planned or proposed.

Projects from Previous CWPP

DEER PARK FIRE SAFE COUNCIL PROJECTS				
Project ID	**Project Description**	**Project Type**	**Status**	**In CWPP?**
DPFSC-1	Crestmont Fuelbreak	FuB	Planned	Previous CWPP
DPFSC-2	Crestmont Roadside work	Rd	Planned	Previous CWPP
DPFSC-3	East end of Mund Rd	FuB	Planned	??
DPFSC-4	Glass Mountain forest	Other	Planned	Previous CWPP
DPFSC-5	Hospital Community Fuelbreak	FuB	Planned	Previous CWPP
DPFSC-6	Hospital Fuelbreak North	FuB	Planned	??
DPFSC-7	Sanitarium Rd. Roadside work	Rd	Planned	Previous CWPP
DPFSC-8	Sunnyside East Project	FuB	Planned	Previous CWPP
DPFSC-9	Reduce fuels Hairpin turn	Rd	Planned	Previous CWPP
DPFSC-10	Thin roadside vegetation Silverado Trail by Bournmouth	Rd	Planned	Previous CWPP
DPFSC-11	Fuel reduction Staples Ridge to Four Corners	FuB	Planned	Previous CWPP

Completed and In-Progress Projects

Owing to NCFF funding sources, a variety of fuel management projects including defensible space, WUI, roadside treatments, and forest health projects have been accomplished. Completed and in progress projects include: Hospital Defensible Space and Evacuation, Hospital WUI projects; roadside (and expanded) projects on Sanitarium Road, Glass Mountain Road, Deer Park Road, and Sunnyside Road; and a Glass Mountain and Hospital Forest Health project. These are shown on Figure 11.

Mapped Projects

Planned, completed, and proposed fuel management projects have been mapped for the for the DPFSC and fall into the following categories: Infrastructure (Water Supply Protection), Watershed Protection, Forest Health, Fuel Break, Roadside Expanded, Defensible Space, Grazing, and Roadside ROW. Several of these projects are in the area surrounding the hospital.

Figure 11 shows the mapped fuel management projects planned, proposed, and completed for Deer Park FSC. Maps of additional projects not found on Figure 11 follow.

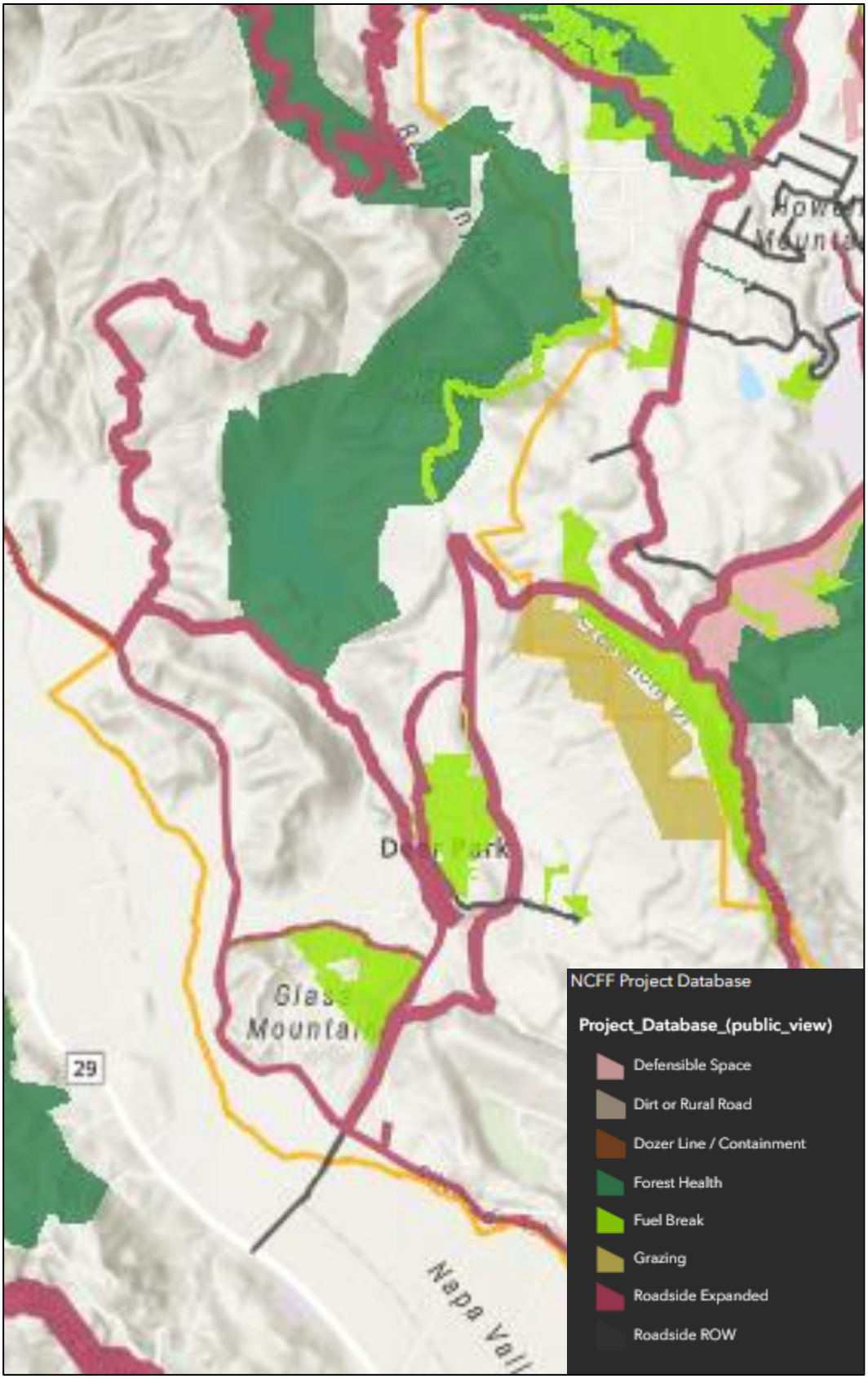


Figure 11. *Deer Park FSC fuel reduction projects.*

Proposed Projects

Firewise Certification: During the process of developing the Community Evaluation for the CWPP, the NFPA Risk Assessment form was drafted and circulated for comment (Appendix A). Similarly, the NFPA process for compiling an Action Plan was folded into the process of prioritizing projects to accomplish. Suggested actions were presented and circulated, and a poll was taken to prioritize those actions. New suggestions for actions were incorporated and the Action Plan was finalized (Appendix B). Volunteer hours and funding dedicated to Firewise efforts were compiled. The application is being reviewed by CAL FIRE.

NEW PROJECT IDEAS

In addition to the actions identified in the NFPA Firewise USA Action Plan, a new suite of projects encompasses vegetation treatments, access improvements and water supply improvements. The types of vegetation treatments include expanded roadside treatments, creation of defensible space and shaded fuelbreaks, restoration of native oak woodlands, landscape-scale treatments for forest health. Access improvements are comprised of various dozer lines and improved dirt roads. Water supply improvements include installation of water tanks replacement of above-ground pipes, and hydrant clearances.

Vegetation Treatment Projects

- Sunnyside Fuel Treatments
- Mund Road Restoration
- Hospital Fuelbreak
- Forest Health Grant Extension
- Shaded Fuel Break Crestmont to Old Howell Mountain
- Restoration N
- Balancing Rock Trail
- Madrone Knolls – Fawn Park Defensible Space

Access Improvement Projects

- Upper Crystal Springs
- Bournemouth + Swanson Access
- Deer Park Rd to Private Driveway off Meadowood Lane
- Crystal Springs Access Dozer Line
- Bell Reservoir to Viader Dozer Line
- Deer Park to Crestmont Dozer Line

Water Supply Projects

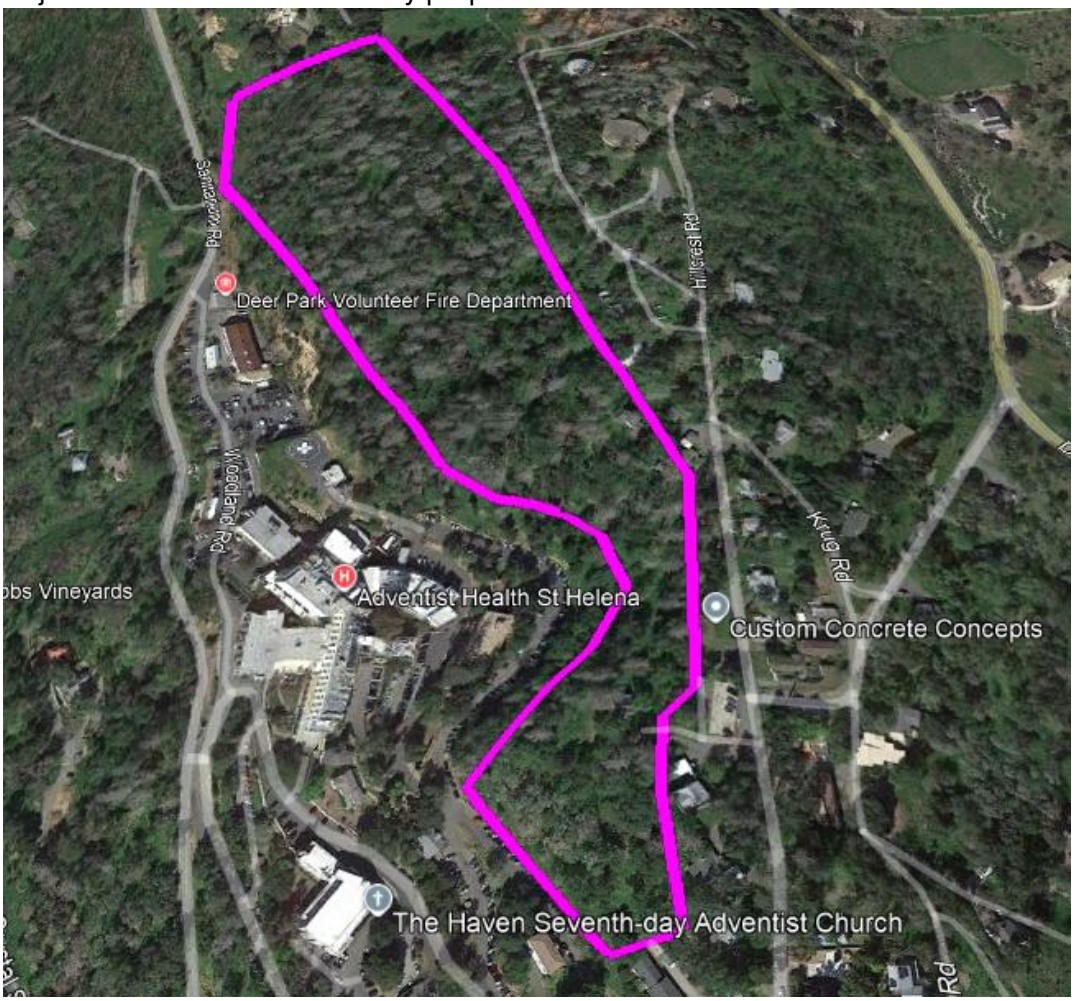
- For Howell Mtn: improve hydrant spatial database, maintain vegetation clearance, visibility.
- For Hospital:
  - Glass Mountain Standpipe + Water Tank
  - Provide Emergency Power to Water Tanks
  - Replace above-ground Plastic Water Main Pipe
  - Construct a second water storage tank by hospital
  - Harden storage tanks and hydrants to wildfire

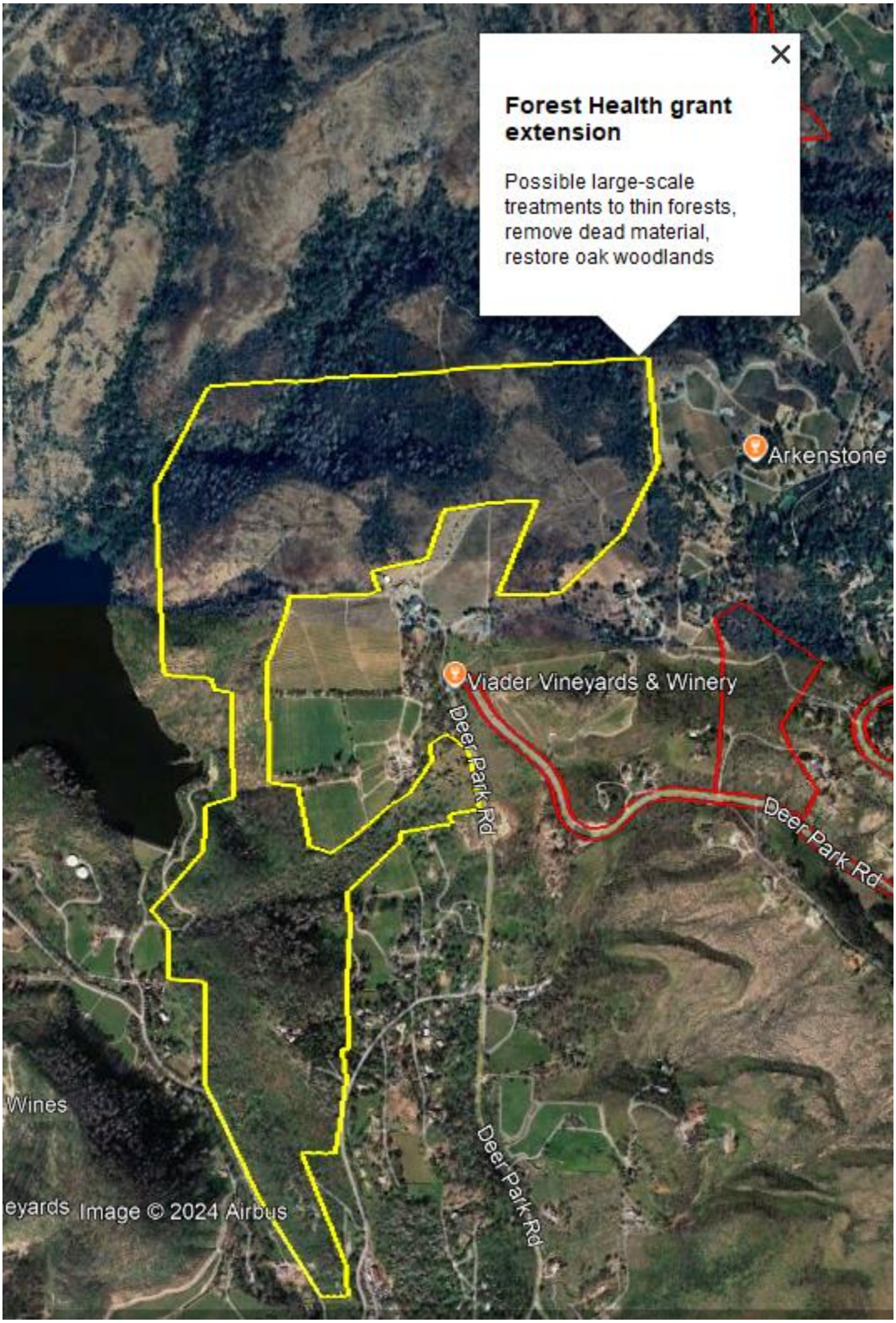
Mund Rd Restoration

Fuels with lower hazard helps slow fire moving east or west
Offers enhanced containment opportunities

Hospital Fuelbreak

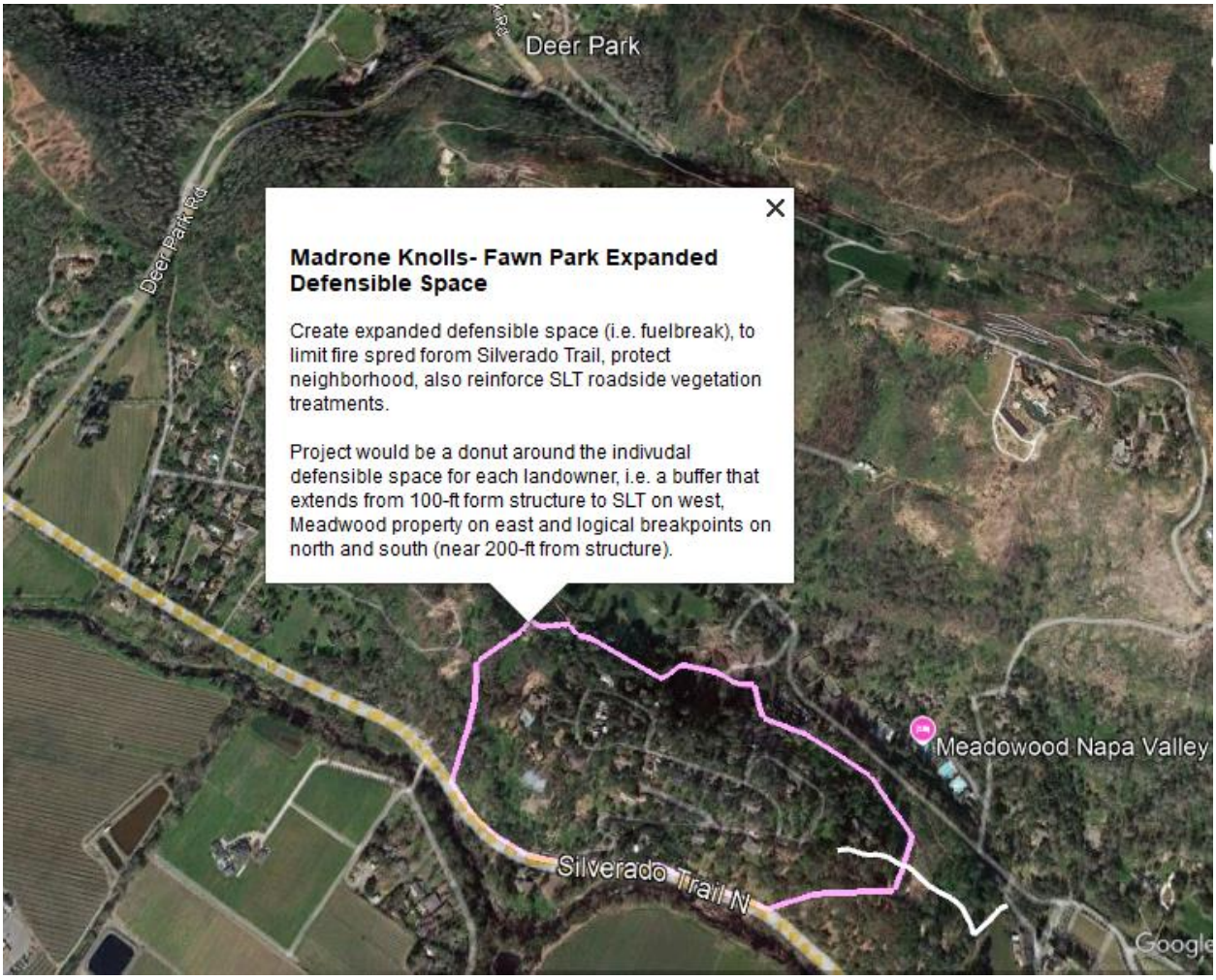
Adjoins fuelbreak that is already proposed




Forest Health grant extension
Possible large-scale treatments to thin forests, remove dead material, restore oak woodlands
Arkenstone
Viader Vineyards & Winery
Deer Park Rd
Deer Park Rd
Deer Park Rd
Wines
eyards
Image © 2024 Airbus

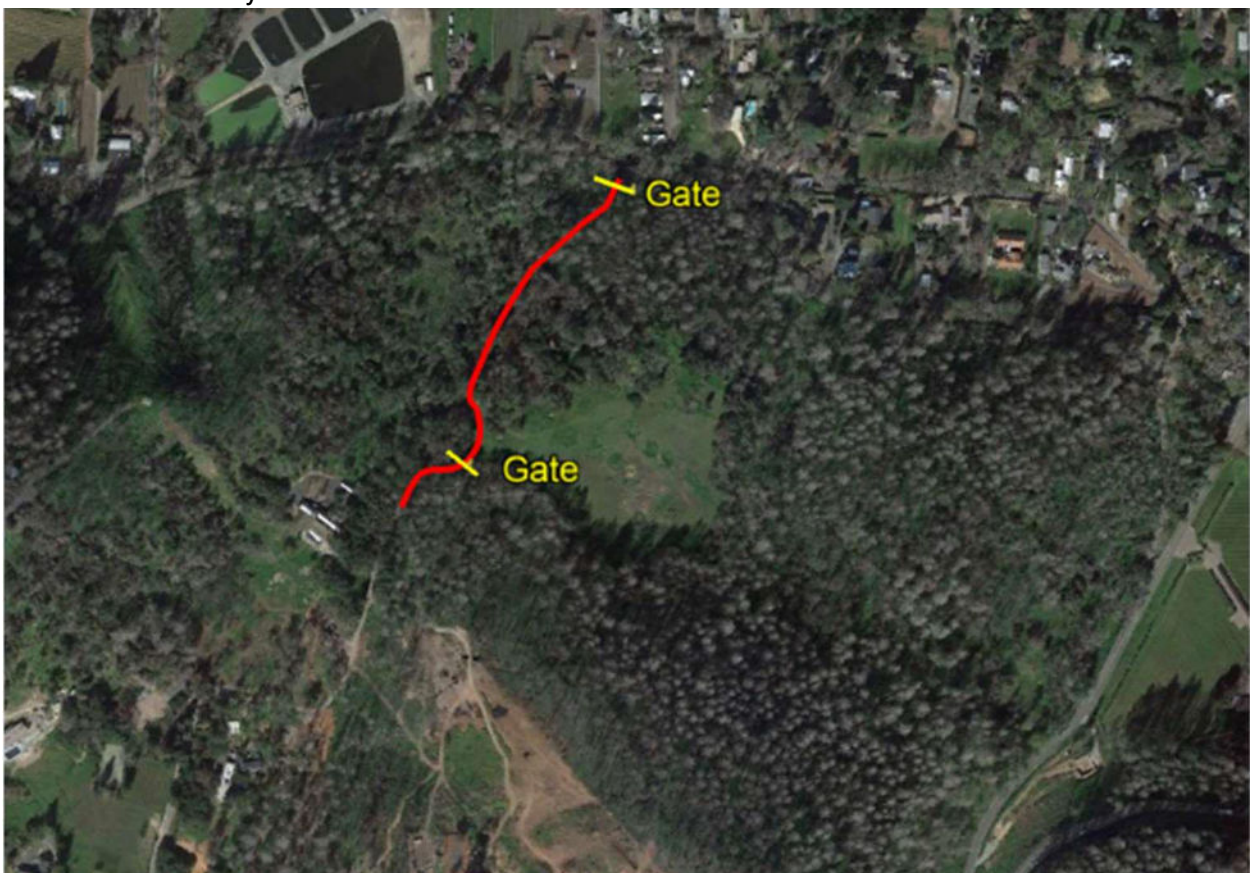

Deer Park Rd
Deer Park to Crestmont
Dozer line and 40-50 ft on both sides
shaded fubk Crestmont-OldHowellMtn
Shaded fuelbreak along Crestmont - Old Howell Mtn Rd

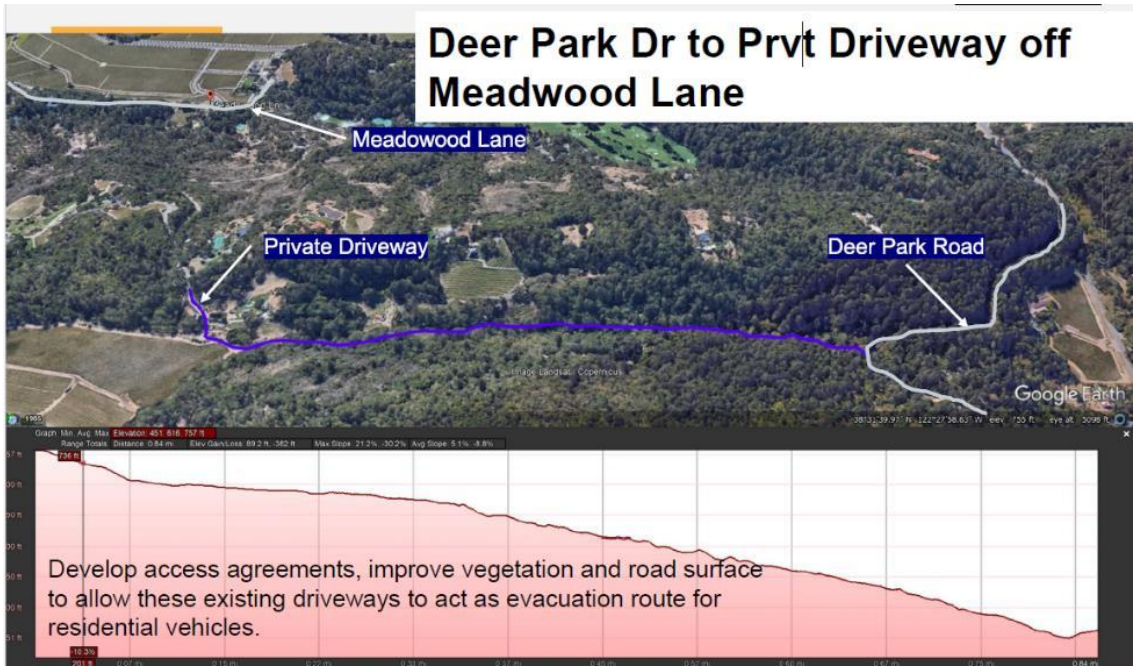

Balancing Rock trail
Slope nearest Old Howell Mtn Rd is steep terrain. There is a paved road from the end of Mund to ridge above Old Howell Mtn Rd.
Deer Park Rd
Deer Park


Deer Park
Deer Park Rd
Madrone Knolls- Fawn Park Expanded Defensible Space
Create expanded defensible space (i.e. fuelbreak), to limit fire spred forom Silverado Trail, protect neighborhood, also reinforce SLT roadside vegetation treatments.
Project would be a donut around the indivudal defensible space for each landowner, i.e. a buffer that extends from 100-ft form structure to SLT on west, Meadwood property on east and logical breakpoints on north and south (near 200-ft from structure).
Meadowood Napa Valley
Silverado Trail N
Google

Bournemouth + Swanson Access

Provides secondary access to Bournemouth +Swanson

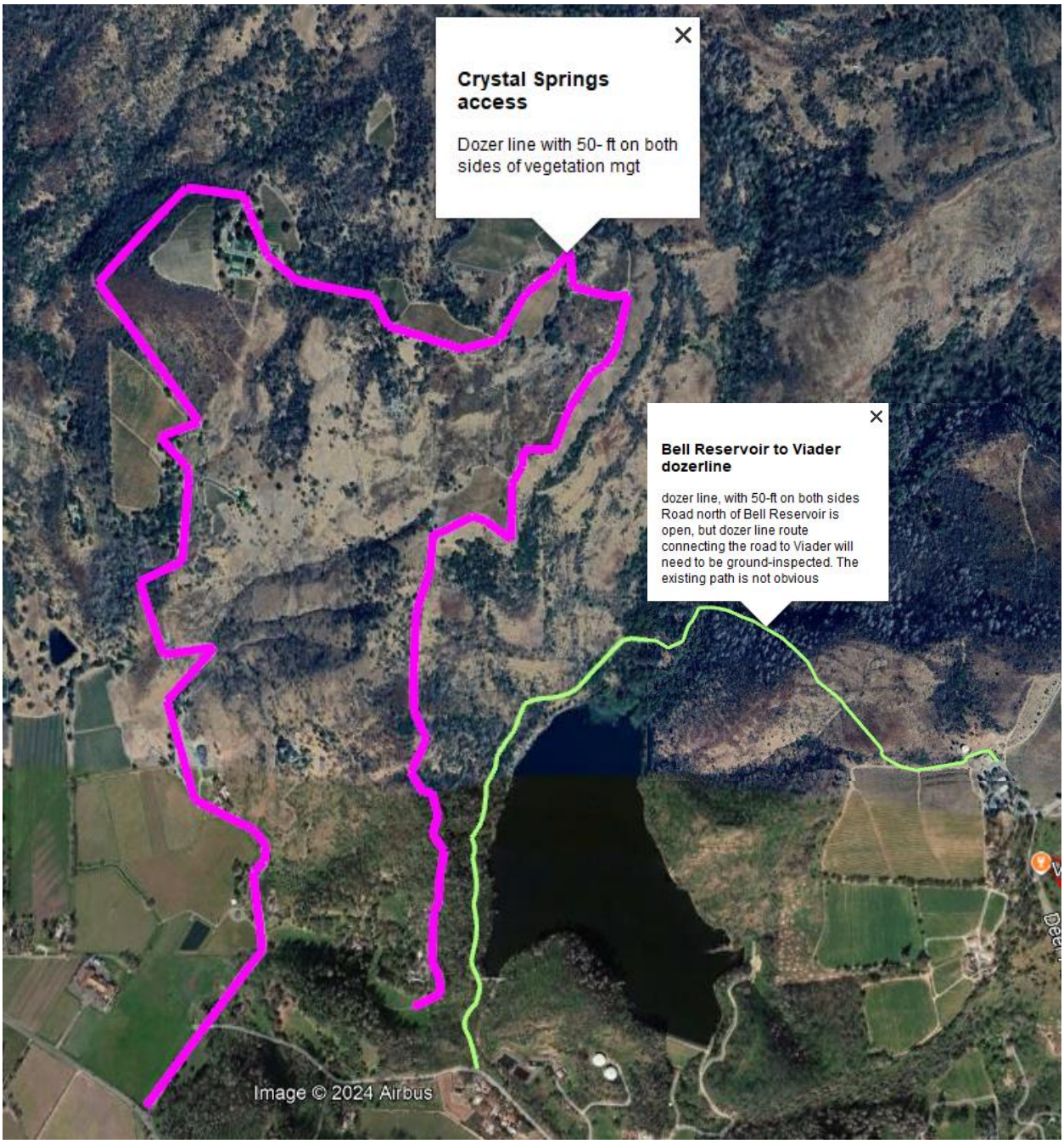




Deer Park Rd to Private Driveway off Meadowood Lane

Average slope is 5% Total distance is 0.84 miles

Upper Crystal Springs Access
Provides access to slopes
Offers enhanced containment opportunities



WATER SYSTEMS PROJECTS

HOWELL MOUNTAIN

-At Hydrants:

-Confirm flow/pressure

-Maintain vegetation clearance

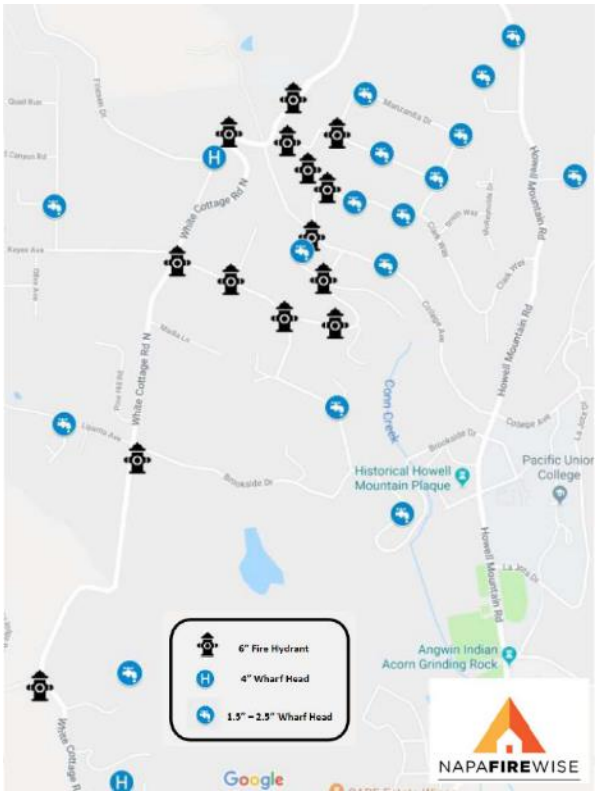
-Improve visibility and road markers

-Confirm location of hydrants and add fire service connections not mapped here

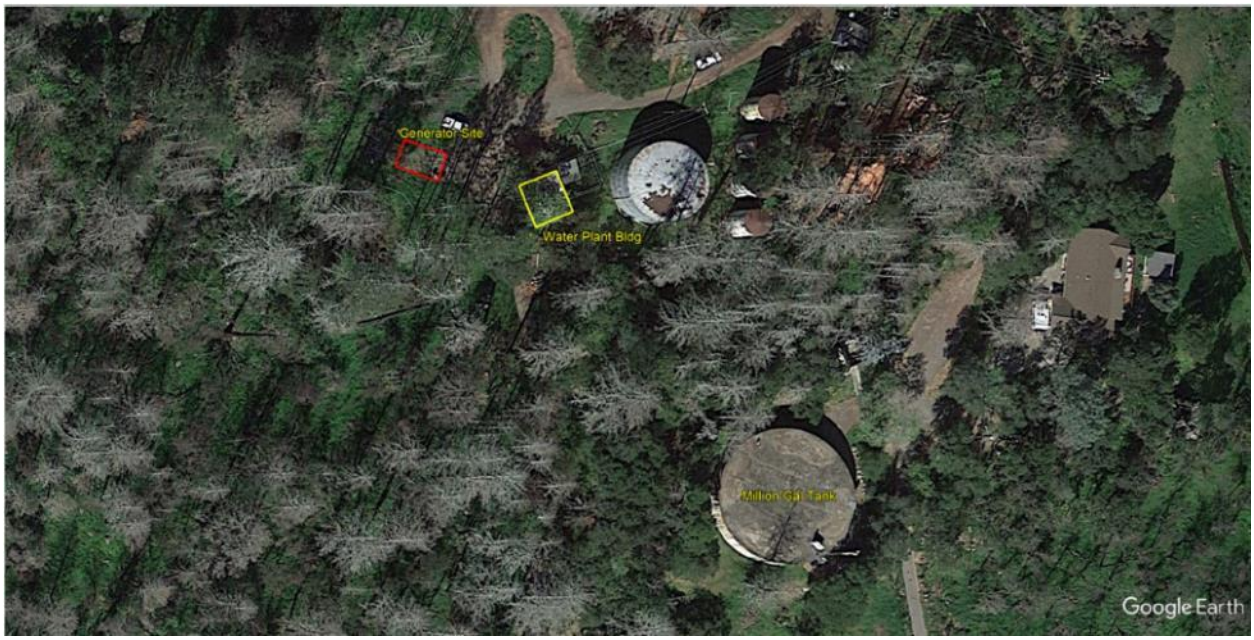
-Evaluate options to harden storage tanks and hydrants to wildfire

-Maintain vegetation clearance to storage tanks and other facilities

-Provide public maps of hydrant locations within Deer Park FSC

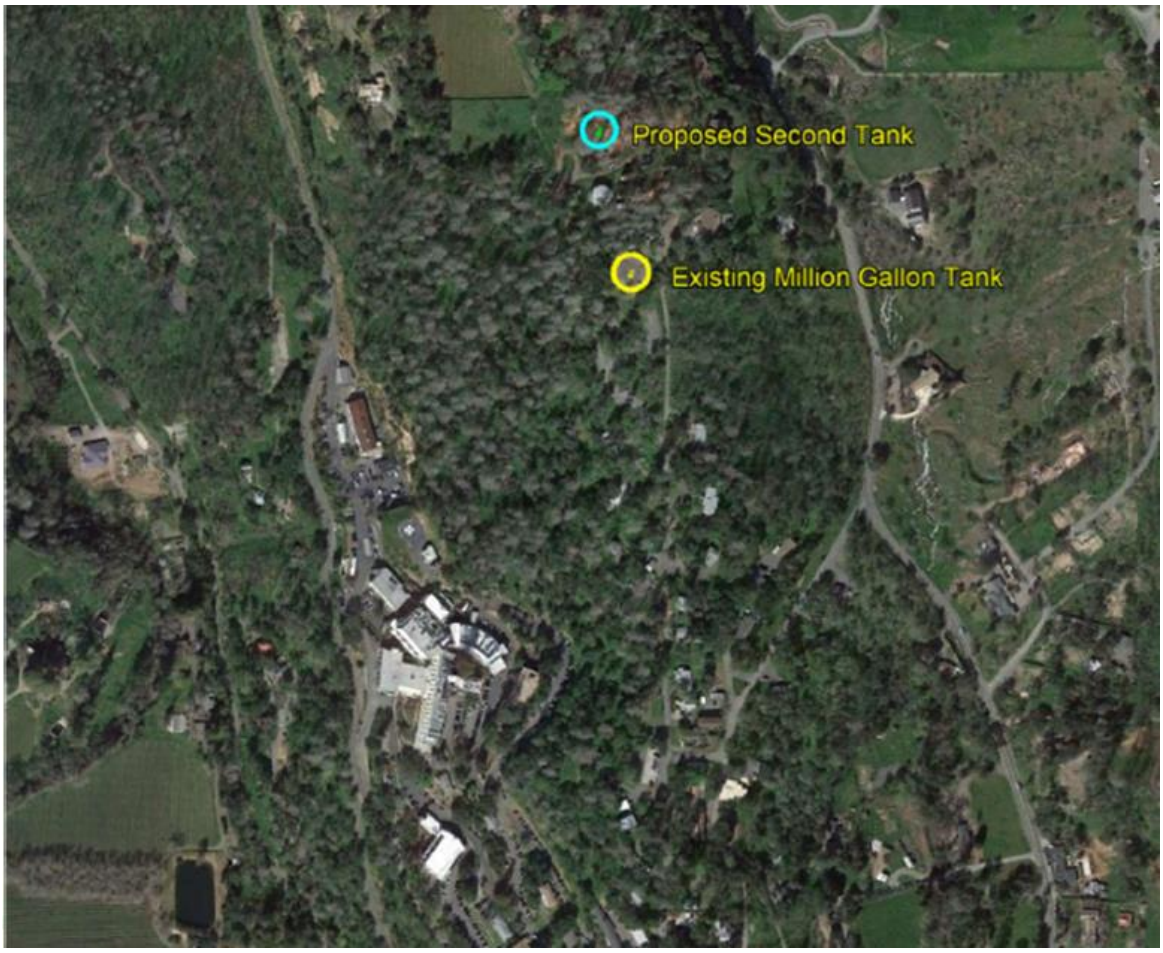


Glass Mountain Standpipe + Water Tank



Provide Emergency Power to Water Tanks

Replace above-ground Plastic Water Main Pipe



Construct a second water storage tank by hospital

Approval Signatures

The Deer Park 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 Deer Park community.

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

The following entities acknowledge the receipt of this Community Wildfire Protection Plan:

Acknowledged: Anne Cottrell Anne Cottrell (Feb 28, 2025 21:03 EST) Date: 02/28/2025
Anne Cottrell, Supervisor, Napa County District 3

Acknowledged: Matt Ryan Date: 02/28/2025
Matt Ryan, Unit Chief, CAL FIRE and Fire Chief, Napa County Fire Department

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

Agreed: Christopher Thompson (Feb 28, 2025 20:49 PST) Date: 02/28/2025
Christopher Thompson, Chairman of The Board, Napa Communities Firewise Foundation

Agreed: Deborah Russell Broman Deborah Russell Broman (Mar 7, 2025 09:54 PST) Date: 03/07/2025
Deborah Broman, Co-Lead, Deer Park Fire Safe Council

Agreed: Alison Bowyer (Mar 7, 2025 10:03 PST) Date: 03/07/2025
Ali Bowyer, Co-Lead, Deer Park Fire Safe Council

Appendix A

ACTION PLAN FOR NATIONAL FIRE PROTECTION ASSSOCIATION FIREWISE USA RECOGNITION

Year 1 – 2024
Education and Outreach Goals
1. Obtain and distribute educational information on defensible space, home hardening and preparation for fire emergencies. **2.** Develop database of conditions assisting fire response and provide them to fire fighters, e.g. water sources, access condition. **3.** Update FSC's public-facing webpage with informational and educational materials. **4.** Participate in one wildfire-related education/information meeting with a subject matter expert to improve awareness of wildfire risks; convey salient points to FSC. **5.** Convene at least one community meeting to update on the latest fire-related programs and activities. Convene at least two DPFSC steering committee meeting to review programs and plans. **6.** Convene at least two DPFSC steering committee meeting to review programs and plans. 7. Establish area subgroups within the DPFSC and appoint representatives to the steering committee from those areas to develop education and action programs tailored to their needs. 8. Conduct voluntary evaluations of residences in the DPFSC area regarding defensible space and fire-resistant landscaping choices, and retrofit options.

Home Hardening Goals
1. Obtain and post educational materials on webpage and in newsletter of best practices for structure retrofitting. **2.** Inform residents about possible financial incentives through PG&E, NCFF, Napa County for hardening homes. **3.** Showcase good examples of home hardening and defensible space throughout the community. 4. Provide outreach for residents to attend local Fire Resources Fairs, to access home hardening information, materials, and resources

Defensible Space / Fuel Reduction Goals

1. Expand and maintain roadside vegetation treatments along key access routes.

2. Identify other landscape modification actions that would provide protection against wildfire spread and collaborate with Napa Firewise and other community partners to plan funding and implementation.

3. Work with NCFF to continue to remove roadside vegetation and create shaded fuel break

4. Work with NCFF to continue to remove hazard trees along roads.

5. Neighborhood Clean-up and work party once a year followed by County Free chipping program.

6. Identify neighbors in need of assistance with defensible space and utilize volunteers to complete work.

7. Help secure landowner agreements for fuel reduction work.

Evacuation Planning (Ex. Preparedness and Routing) and Wildfire Preparedness

1. Work with local officials to develop evacuation plans.

2. Share the Evacuation Plan with homeowners and fine-tune based on the assessment and needs of individual neighborhoods.

3. Lead installation of 911-compliant reflective address signage and add additional informational signs or resource stickers for first responders, indicating swimming pools, tanks and hydrants.

4. Reduce vegetation along alternative routes for evacuation.

5. Develop additional alternative routes for evacuation: Identify and obtain approval for use of private vineyard roads in emergency.

6. Explore alternative communication systems in case cell signal is lost, including Call'em All or possibly GMRS Radio System.

Year 2 - 2025

Education and Outreach Goals

1. Install firewise community signage at visible locations.

2. Continue to obtain and distribute educational information on defensible space, home hardening and preparation for fire emergencies.

3. Continue to revise and add to database of conditions assisting fire response and provide them to fire fighters, e.g. water sources, access condition.

4. Update Deer Park's public-facing webpage with informational and educational materials.

5. Participate in one wildfire-related education/information meeting with a subject matter expert to improve awareness of wildfire risks; convey salient points to FSC.

6. Convene at least one community meeting to update on the latest fire-related programs and activities.

7. Convene at least two Deer Park steering committee meetings to review programs and plans.

8. Refine area subgroups within the DPFSC and update as needed representatives to the steering committee from those areas to develop education and action programs tailored to their needs.

9. Conduct voluntary evaluations of residences in the DPFSC area regarding defensible space and fire-resistant landscaping choices, and retrofit options.

Home Hardening Goals

1. Continually update educational materials on webpage of best practices for structure retrofitting.

2. Update residents about possible financial incentives through PG&E, NCFF, Napa County and other sources for hardening homes.

3. Continue to showcase good examples of home hardening and defensible space throughout the community.

4. Continue to provide outreach for residents to attend local Fire Resources Fairs, to access home hardening information, materials, and resources.

Fuel Reduction Goals

1. Expand and maintain roadside vegetation treatments along key access routes.

2. Continue to identify other landscape modification actions that would provide protection against wildfire spread and collaborate with Napa Firewise and other community partners to plan funding and implementation.

3. Continue collaboration with NCFF on removal of roadside vegetation and creation of a shaded fuel break.

4. Continue to work with NCFF on hazard tree removal along roads.

5. Annual - neighborhood clean-up and work party followed by County Free Chipping program.

6. Reach out to neighbors in need of assistance with defensible space and utilize volunteers to complete work.

7. Continue to assist in securing landowner agreements for fuel reduction work.

Evacuation Planning (Ex. Preparedness and Routing) and Wildfire Preparedness

1. Update evacuation plans, working with local officials as needed.

2. Communicate the Evacuation Plan with homeowners and fine-tune based on the assessment and needs of individual neighborhoods.

3. Maintain 911-compliant reflective address signage and update informational signs or resource stickers for first responders, indicating swimming pools, tanks and hydrants as needed.

4. Maintain vegetation reduction along alternative routes for evacuation.

5. Maintain private vineyard roads for use as evacuation routes in emergency.

6. Implement alternative communications system.

Year 3 - 2026

Education and Outreach Goals

1. Continue to obtain and distribute educational information on defensible space, home hardening and preparation for fire emergencies.

2. Continue to revise and add to database of conditions assisting fire response and provide them to fire fighters, e.g. water sources, access conditions as needed.

3. Continually update Deer Park's public-facing webpage with informational and educational materials.

4. Participate in one wildfire-related education/information meeting with a subject matter expert to improve awareness of wildfire risks; convey salient points to FSC.

5. Convene at least one community meeting to update on the latest fire-related programs and activities.

6. Convene at least two Deer Park steering committee meetings to review programs and plans.

8. Appoint new representatives (if needed) to the steering committee from subgroup areas to develop education and action programs tailored to their needs.

9. Continue to conduct voluntary evaluations of residences in the DPFSC area regarding defensible space and fire-resistant landscaping choices and retrofit options.

Home Hardening Goals

1. Continually update educational materials on webpage of best practices for structure retrofitting.

2. Update residents about possible financial incentives through PG&E, NCFF, Napa County and other sources for hardening homes.

3. Continue to showcase good examples of home hardening and defensible space throughout the community.

4. Continue to provide outreach for residents to attend local Fire Resources Fairs, to access home hardening information, materials, and resources.

Fuel Reduction Goals

1. Continue to maintain roadside vegetation treatments along key access routes.

2. Continue to identify landscape modification actions that would provide protection against wildfire spread and collaborate with Napa Firewise and other community partners to plan funding and implementation.

3. Continue collaboration with NCFF on removal of roadside vegetation and maintenance of shaded fuel break.

4. Continue to work with NCFF on hazard tree removal along roads as needed.

5. Annual - neighborhood clean-up and work party followed by County Free Chipping program.

6. Reach out to neighbors in need of assistance with defensible space and utilize volunteers to complete work.

7. Continue to assist in securing landowner agreements for fuel reduction work.

Evacuation Planning (Ex. Preparedness and Routing) and Wildfire Preparedness

1. Continually update evacuation plans, working with local officials as needed.

2. Continue to fine-tune the Evacuation Plan based on the assessment and needs of individual neighborhoods.

3. Continually maintain 911-compliant reflective address signage and update informational signs or resource stickers for first responders, indicating swimming pools, tanks and hydrants as needed.

4. Maintain vegetation reduction along alternative routes for evacuation.

5. Maintain private vineyard roads for use as evacuation routes in emergency.

6. Review and practice alternative communications system.

DPFSC CWPP Final for signature

Final Audit Report 2025-03-07

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By:	Sharon Gardner (shari@napafirewise.org)
Status:	Signed
Transaction ID:	CBJCHBCAABAAN6jEiWrQarCZBxwwuQoFBGzowv8XjcKg

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