Appendix J:
Wildfire Supporting Information

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J.1 - Wildfire Protection Plan

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MASSON ESTATES

WILDFIRE PROTECTION PLAN

PIERCE ROAD
SARATOGA, CALIFORNIA

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CHTM-59154\2987229.1

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TABLE OF CONTENTS

I. Executive Summary 1
II. Purpose of the Plan 2
III. Project Description 3
a. Proposed Project Location 3
i. General Location of the Project 3
ii. Description of Adjacent Properties 3
b. Description of the Project 3
i. Proposed Access 8
ii. Proposed Water Supply 8
IV. Existing Conditions 10
a. Factors to Consider in the Wildfire Protection Plan 10
i. Topography 10
ii. Climate and Weather 13
iii. Fuels 14
iv. Fire History 18
v. Regulatory Context 20
vi. Fire Response 22
b. Analysis of Wildland Fire Hazard at the Project Site Without Management 23
i. Predicted Fire Behavior 23
1. Flame Length 23
2. Rate of Spread 26
3. Crown Fire Potential 28
ii. Existing Fire Hazard and Risk 31
1. CAL FIRE VHFHSZ Fire Hazard 31
2. Wildfire Hazard Index (Tukman) 33
3. Wildfire Risk to Structures 35
4. Ignition Potential 37
V. Proposed Wildfire Protection Program 38
a. Structure Construction Standards 38
i. Building Materials and Design 38
ii. Projections 39
iii. Accessory Buildings 39
b. Proposed Vegetation Management Program 40
i. Summary of Fuel Management Zones 40
ii. Standards for Residential Defensible Space/Landscaping Zone 42
iii. Standards for Roadside Vegetation Clearance Zone 45
iv. Standards for Fuel-Modification Zone 45
v. Fire-Resistant Landscaping 46
c. Predicted Fire Behavior with Management Measures in Place 47
d. Delegation of Fuel Management Responsibilities 48

i. Schedule of Initial Maintenance Responsibilities and Vegetation Management 48
ii. Frequency of Maintenance 49
iii. Summary of Frequency of Fuel Management 49
VIII. Support for Emergency Responders and Evacuation 51
a. Wildland Fire Response 51
i. Pre-Incident Planning 51
ii. Speedy Detection and Notification 52
b. Pre-Attack Planning 52
c. Signage 52
d. Detection 52
e. Notification 55
f. Evacuation 55
VI. Community Awareness and NFPA Firewise USA Recognition 58
VII. Implementation Mechanisms 59
a. Compliance with the Conditions of Approval 59
i. Declaration of Covenants, Codes, and Restrictions (CC&Rs) 59
b. Delegation of Responsibilities 59
i. Construction Responsibilities 59
ii. Vegetation Management Responsibilities 59
iii. Access 60
iv. Evacuation 60
v. Signage 60
vi. Homeowner Education and Community Engagement 60
c. Phasing of Maintenance Responsibility and Vegetation Management 60
i. Pre-Construction Phase 60
ii. Maintenance Phase 61
d. Mechanisms for Compliance 61
e. Process for Plan Revision 62
VIII. CEQA Considerations 63
a. Thresholds of significance and impacts of the project 63

Appendices

LIST OF ABBREVIATIONS AND ACRONYMS

CAL FIRE	California Department of Forestry and Fire Protection
CC&Rs	Covenants, codes, and restrictions
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CWPP	Community Wildfire Protection Plan
EV	Electric vehicle
FHSZ	Fire Hazard Severity Zone
in	Inch
LRA	Local Responsibility Area
PRC	Public Resources Code
sf	Square foot
SRA	State Responsibility Area
USDA	United States Department of Agriculture
USFS	United States Forest Service

KEY TERMS

Defensible space	The area within the perimeter of a parcel, neighborhood, or community that provides a key point of defense from an approaching wildfire or defense against encroaching wildfires or escaping structure fires.
Canopy	The stratum containing the crowns of the tallest vegetation present (living or dead), usually above 20 feet.
Canopy Base Height	The lowest height above the ground above which there is sufficient canopy fuel to propagate fire vertically. It is a measure of a group of trees, not an individual tree. This measurement incorporates ladder fuels, such as tall shrubs and small trees.
Crown Fire	A fire that advances from top to top of trees or shrubs more or less independent of a surface fire. Crown fires are sometimes classed as running or dependent to distinguish the degree of independence from the surface fire.
Dozer Line	Fireline constructed by the front blade of a dozer.
Fire Behavior	The manner in which a fire reacts to the influences of fuel, weather, and topography.
Fire Hazard Severity	Fire hazard severity zones are based on the combination of vegetation, topography, weather, crown fire potential, ember production and movement, and the likelihood of an area burning. Buildings constructed in Very High Fire Hazard Severity Zones are required to be built using fire-resistive features.
Fire Intensity	The amount of heat released by a fire in an area in any given time period. Fire intensity is usually related to the flame lengths of a fire.
Firebrand	Any source of heat, natural or human made, capable of igniting wildland fuels. Flaming or glowing fuel particles that can be carried naturally by wind, convection currents, or by gravity into unburned fuels. Also known as embers.
Fuel	Anything that will burn easily, such as vegetation or small woody material.

Fuel Model	Simulated fuel complex for which all fuel descriptors required for the solution of a mathematical rate of spread model have been specified. Vegetation is grouped into a set of distinctive species, form, size, arrangement, or other characteristics that will cause a predictable rate of spread or resistance to control under specified weather conditions.
Fuel Modification	Manipulation or removal of fuels to reduce the likelihood of ignition and/or to lessen potential damage and resistance to control (e.g., lopping, chipping, crushing, piling, and burning).
Fuel Reduction	Manipulation, including combustion, or removal of fuels to reduce the likelihood of ignition and/or to lessen potential damage and resistance to control.
Fuel Type	An identifiable association of fuel elements of distinctive species, form, size, arrangement, or other characteristics that will cause a predictable rate of spread or resistance to control under specified weather conditions.
Fuelbreak	A man-made area with a reduced fuel load that act as barriers to stop or slow down fire spread. Fuelbreaks are also designed to provide firefighters access and to act as a retreat for personnel and equipment to escape injury.
Hazard	An event or physical condition (fire) that has the potential to cause fatalities, injuries, property damage, infrastructure damage, agricultural loss, damage to the environment, interruption of business, or other types of harm or loss.
Rate of Spread	The relative activity of a fire in extending its horizontal dimensions. It is expressed as rate of increase of the total perimeter of the fire, as rate of forward spread of the fire front, or as rate of increase in area, depending on the intended use of the information. Usually, it is expressed in chains or acres per hour for a specific period in the fire's history.
Response Time	The time between notification of a wildfire and the arrival of firefighters at the scene.
Retardant	A substance or chemical agent which reduces the flammability of combustibles.

Risk	Risk, or fire risk case, is defined as the likelihood that a threat (fire) will harm an asset with some severity of consequences.
Shaded Fuel Break	Fuel breaks built in timbered areas where the trees on the break are thinned and pruned to reduce the fire potential yet retain enough crown canopy to make a less favorable microclimate for surface fires.
Spotting	Behavior of a fire producing sparks or embers that are carried by the wind and which start new fires beyond the zone of direct ignition by the main fire.
Topography	Geographic elements on an area, such as slope steepness, aspect, existence of hills, canyons, and rough terrain.
Torching	The burning of the foliage of a single tree or a small group of trees, from the bottom up.
Vegetation Treatment	Activities that modify the vegetation, often to reduce the fire hazard. Manual labor, machinery, prescribed fire and herbicide use are all used as vegetation treatments. Vegetation treatment may achieve several types of goals, such as the installation of defensible space, shade fuelbreaks, or firebreaks.
Wildland	Areas which are not developed or farmed.

I. EXECUTIVE SUMMARY

The property owner, Chateau Masson, LLC, proposes to subdivide the 72.45-acre parcel and develop 25 homes and related infrastructure. Development would be focused in the northern 18.38-acre portion of the parcel (Development Area); the southern 54.06 portion (Remainder Area) would remain undeveloped with the exception of emergency access roads. Homes would consist of 1 to 3 stories, and streets would be designed to ensure the homes are screened by vegetation and landscaping to reduce their visual prominence.

The proposed project is being processed pursuant to state housing laws including SB 330, the HAA, and the Builder's Remedy contained therein, and would construct 20 market-rate and five affordable, single-family homes, thereby providing 20 percent of the units for lower-income households. The proposed homes would range from 2,375 to 7,091 square feet on lots ranging from 2,086 to 86,351 square feet. Lots 1–4 and 8 would be affordable 2,375-square-feet single-family homes with 4 bedrooms, 2 baths, and 2-car garages. Lots 5-7 would be the same product type as the affordable units, but sold at market rate. Lots 9-25 would be market-rate 4-bedroom 4-bath single-family houses of up to 7,091 square feet with 3 to 4 car garages. The proposed project would also include improvements to the existing emergency access road.

The Wildfire Protection Plan describes the proposed project, and the current physical conditions of the site that influence potential damage from wildfire, and the regulatory and context and wildfire response. The Wildfire Protection Plan analyses the current wildland fire hazard in terms of predicted fire behavior, hazard, and risk.

A wildfire protection program is presented that spans construction standards, vegetation management, and support for emergency responders and evacuation, along with Community awareness and recognition as a Firewise USA community. Mechanisms for implementation of the plan are detailed, including designation of responsibilities for various components of the wildfire protection plan.

The various elements of the fuel management portion of the plan (e.g., fuels, access, water supply and construction) all comply with or exceed applicable state and local laws. Protective measures that enhance wildland fire safety include evacuation planning and practice; enhanced wildfire detection and notification; and the development of a FireWise USA community. When developed - with defensible space, access and water supply in place - the fire hazard and possible damage from wildfire from this site is expected to be less than under current conditions. Because of less ignitable and flammable fuels, possible ignitions due to increased human activity is expected to be inconsequential. Should a wildfire start to spread, flame lengths are predicted to be shorter than two feet within 100-feet of structures, resulting in a wildfire that is easily contained.

II. PURPOSE OF THE PLAN

This Wildfire Protection Plan (WPP) for the proposed Masson Estates housing development project is intended to ensure that, as a minimum, the project meets the applicable requirements established by state and local law. It is designed to provide protection against wildfire ignition and severe adverse outcomes by describing actions needed to prevent ignitions, maintain vegetative fuels in a fire-safe condition, and provide adequate fire response and evacuation opportunities. Specifically, the WPP recommends mitigation measures, defined in detail below, in the following categories: fuel reduction; ignition-resistant construction; water supply; emergency vehicle access; evacuation planning and practice; enhanced wildfire detection and notification; and the development of a FireWise USA community.

The various elements of the fuel management portion of the plan (e.g., fuels, access, and construction) all comply with applicable state and local laws. All buildings will have interior fire extinguishing sprinklers. Consistent with the requirements of the California Fire Code and Saratoga Fire Code, construction will be of ignition-resistant materials and design, based on non-combustible, or large dimension materials. Access and water supply are similarly compliant with applicable laws and anticipated emergency water demands.

III. PROJECT DESCRIPTION

PROPOSED PROJECT LOCATION

General Location of the Project

The 18.38-acre Masson Estates project site (Assessor's Parcel Number 503-46-005) is located at the eastern end of a long swath of steep northwest-trending slopes abutting western Saratoga, bounded by Pierce Road to the east and just due north of Big Basin Way, the area's major thoroughfare. The site is currently undeveloped and is covered with a diverse range of fuel types, dominated by high-volume forest-shrub fuels with large patches of grass, shrub, and low-volume forest-shrub fuel types.

All but the southwest corner of the proposed subdivision lies within the city limits of the City of Saratoga. Besides residential land uses within Saratoga to the site's west, southwest, and south, the property is surrounded by low-density hillside residential uses to the north, east, and south, and by Mountain Winery to the west and it abuts large swaths of wildlands extending from Table Mountain to the site's west, northwest, and south. The wildland areas to the west and northwest include two nature preserves – Foothills Nature Preserve and Pearson-Arastradero Preserve – and are covered with numerous and regularly-used public foot trails.

Description of Adjacent Properties

Adjacent land uses span single-family residential properties, agriculture in the form of vineyards, vacant wildlands and a commercial concert venue and winery. Single-family residential properties on generally .5 - 5 acres in size are located to the north and east of the site; the concert venue, vineyard and winery is located south and west.

DESCRIPTION OF THE PROJECT

The property owner, Chateau Masson, LLC, proposes to subdivide the 72.45-acre parcel and develop 25 homes and related infrastructure. Development would be focused in the northern 18.38-acre portion of the parcel (Development Area); the southern 54.06 portion (Remainder Area) would remain undeveloped with the exception of emergency access roads. Homes would consist of 1 to 3 stories, and streets would be designed to ensure the homes are screened by vegetation and landscaping to reduce their visual prominence.

The proposed project is being processed pursuant to state housing laws such as SB 330, the HAA, and the Builder's Remedy contained therein, and would construct 20 market-rate and five affordable, single-family homes, thereby providing 20 percent of the units for lower-income households. The proposed homes would range from 2,375 to 7,091 square feet on lots ranging from 2,086 to 86,351 square feet. Lots 1–4 and 8 would be affordable 2,375-square-feet single-family homes with 4 bedrooms, 2 baths, and 2-car garages. Lots 5-7 would be the same product type as the affordable, but sold at market rate. Lots 9-25 would be market-rate 4-bedroom 4-bath single-family

houses of up to 7,091 square feet with 3 to 4 car garages. The proposed project would also include improvements to the existing emergency access road.

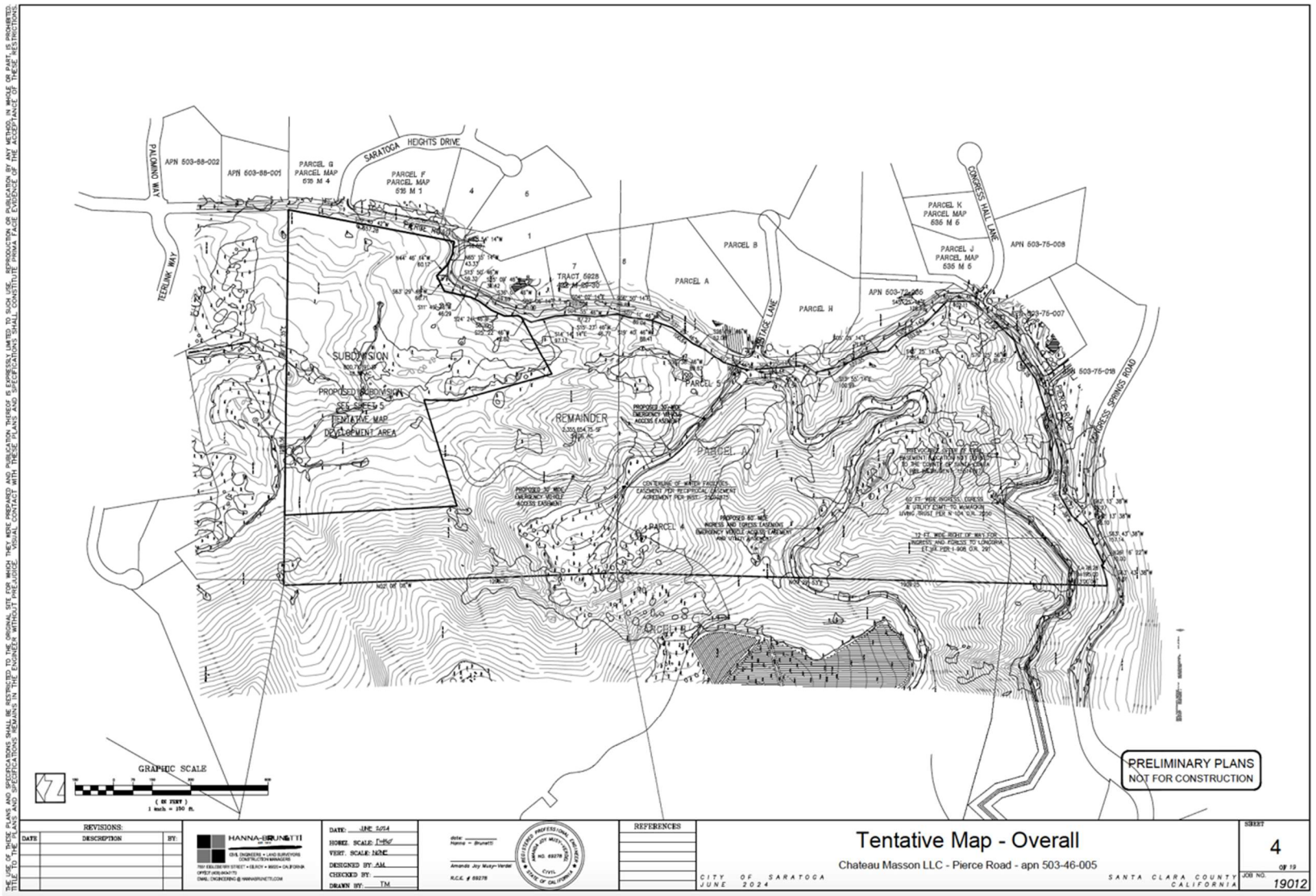

Figure 1. Overall parcel map of the Masson Estates property.

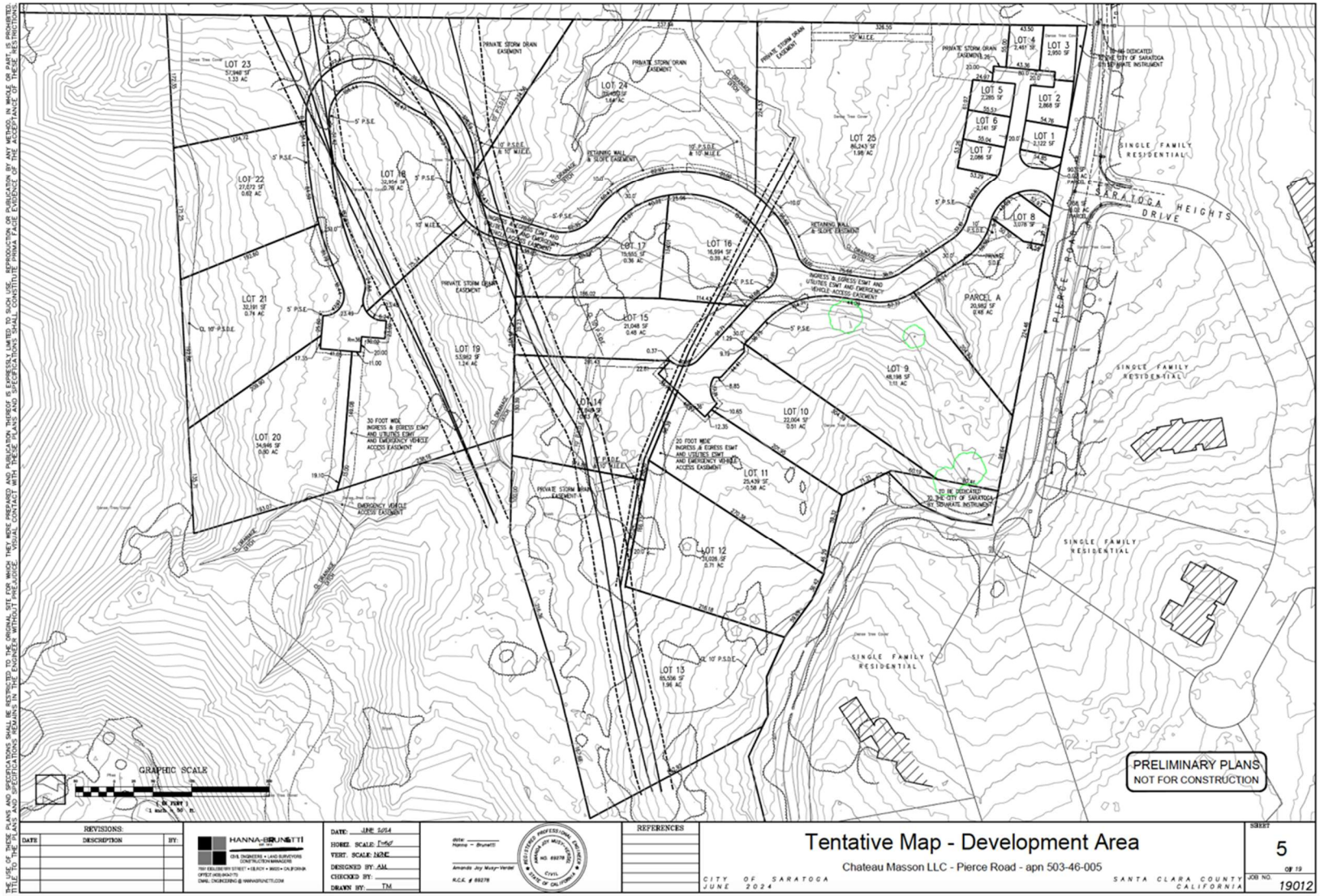

Figure 2. Lot map of the Masson Estates proposed subdivision.



Figure 3. Development plan of the Masson Estates proposed subdivision.

Proposed Access

As shown in Figures 2 and 3, the Masson Estates project site is primarily accessible by automobile via Pierce Road, which marks the site's eastern border. Pierce Road connects to Big Basin Way, the area's major thoroughfare, just southeast of the project site. An additional emergency access road – which the proposed project seeks to improve – extends southward from the subdivision's southwest quadrant into the non-residential part of the property before turning east to ultimately reconnect with Pierce Road.

As shown in Figures 2 and 3, the project also intends to construct an internal road, Masson Estates Way, that snakes through the subdivision and around which the residential lots are arranged. Lots 1-7 are concentrated around an unnamed court at the northeast corner of the developed area, while Lots 9-11 and 14-16 concentrate around a second, larger court – Masson Estates Court – that extends southwesterly from Masson Estates Way.

Proposed Water Supply

The Masson Estates project site is adjacent to but not currently serviced by utilities. Development on the project would involve the installation of new utilities and services, including an 8-inch water main to be extended from Pierce Road and installed under Masson Estates Way and Masson Estates Court, as shown below in Figure 4. Water services will be supplied by the San Jose Water Company.

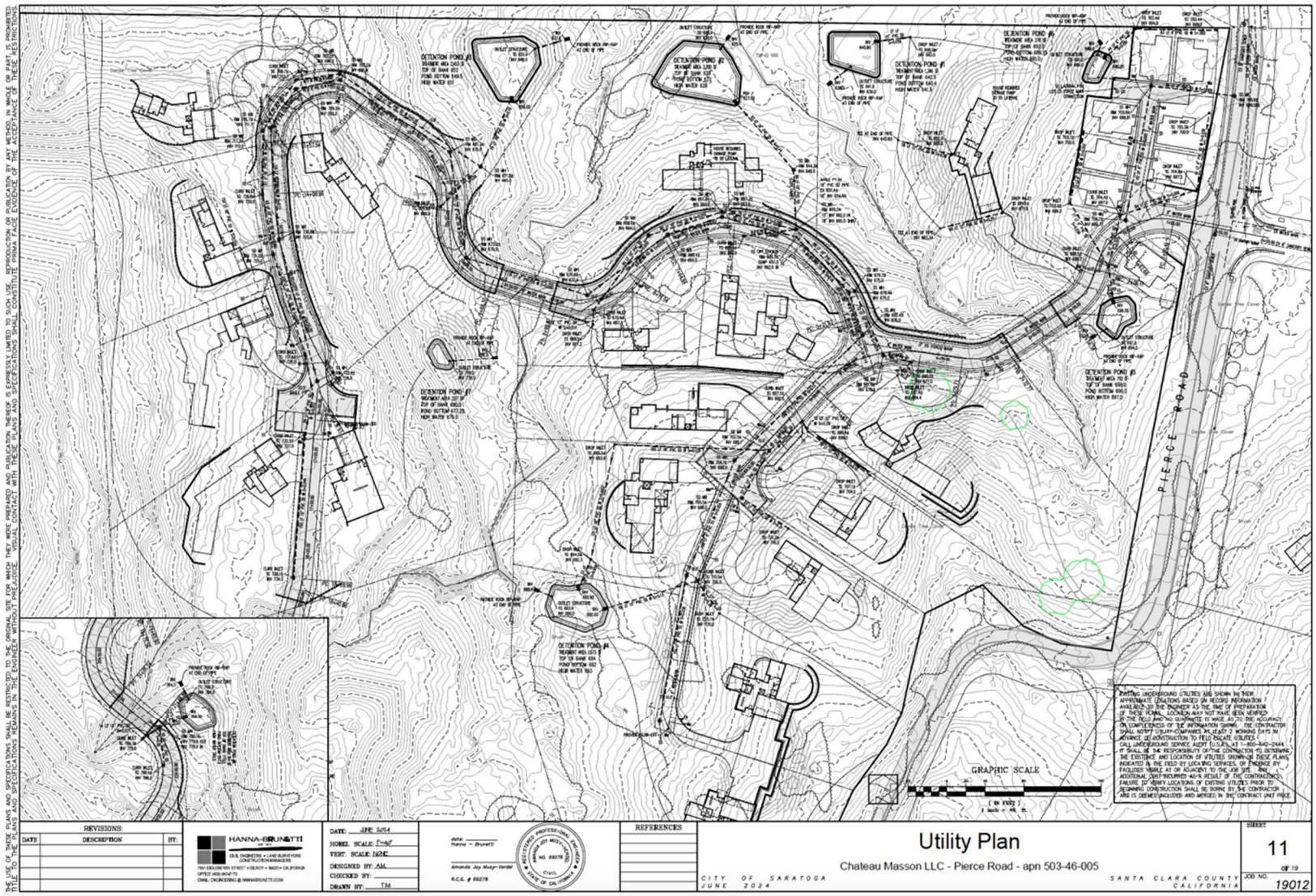

Figure 4. Utilities map of the Masson Estates project site.

IV.EXISTING CONDITIONS

FACTORS TO CONSIDER IN THE WILDLAND FIRE PROTECTION PLAN

This section describes the causal factors of wildfire hazards based on new 5m fuels data coupled with local weather analyses of 97th percentile conditions. It further includes maps and interpretations of the maps covering slope steepness, aspect, wind flows, and fire history.

Topography

Topographic features, such as slope, aspect (orientation with respect to sun and wind), and the overall form of the land, have a profound effect on an area's ecology and wildfire behavior. Topography affects a wildfire's intensity, burning rate (consumption of fuels), 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 diurnal upslope and downslope winds. The speed, regularity, and direction of winds directly influence the direction of wildfire spread and the shape of the flame front.

The project site is situated near the bottom of an eastward-trending slope. The property's crenulated topography is generally characterized by slopes under 30%. The western half of the site is dominated by a major westward-trending ridgeline that eases near the center of the property. The property also features two shallow canyons, one moving northwest from Pierce Road near the intersection with Masson Court, and the other trending north-south in the western half of the project site.

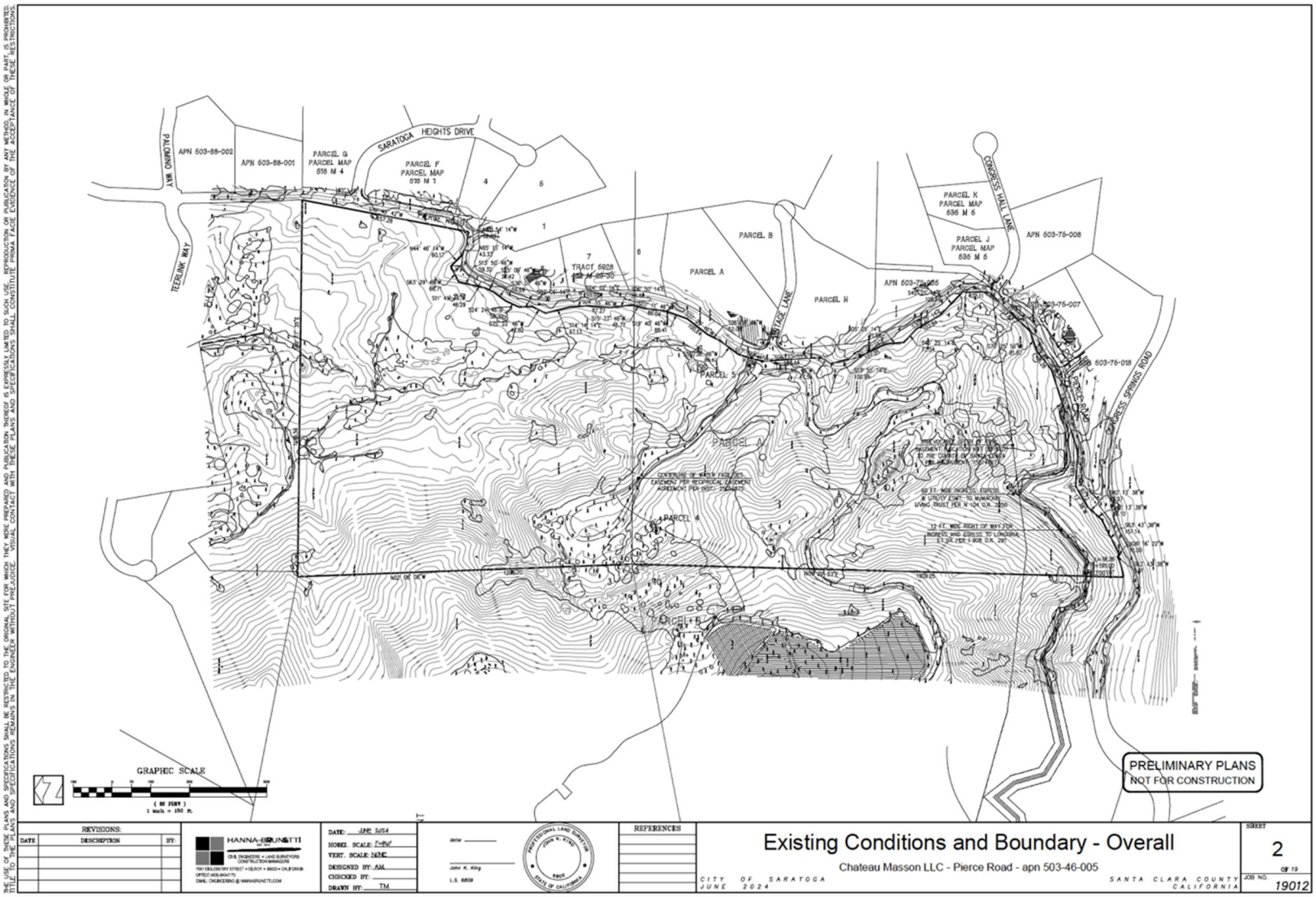

Figure 5. Map of the Masson Estates property under existing conditions.

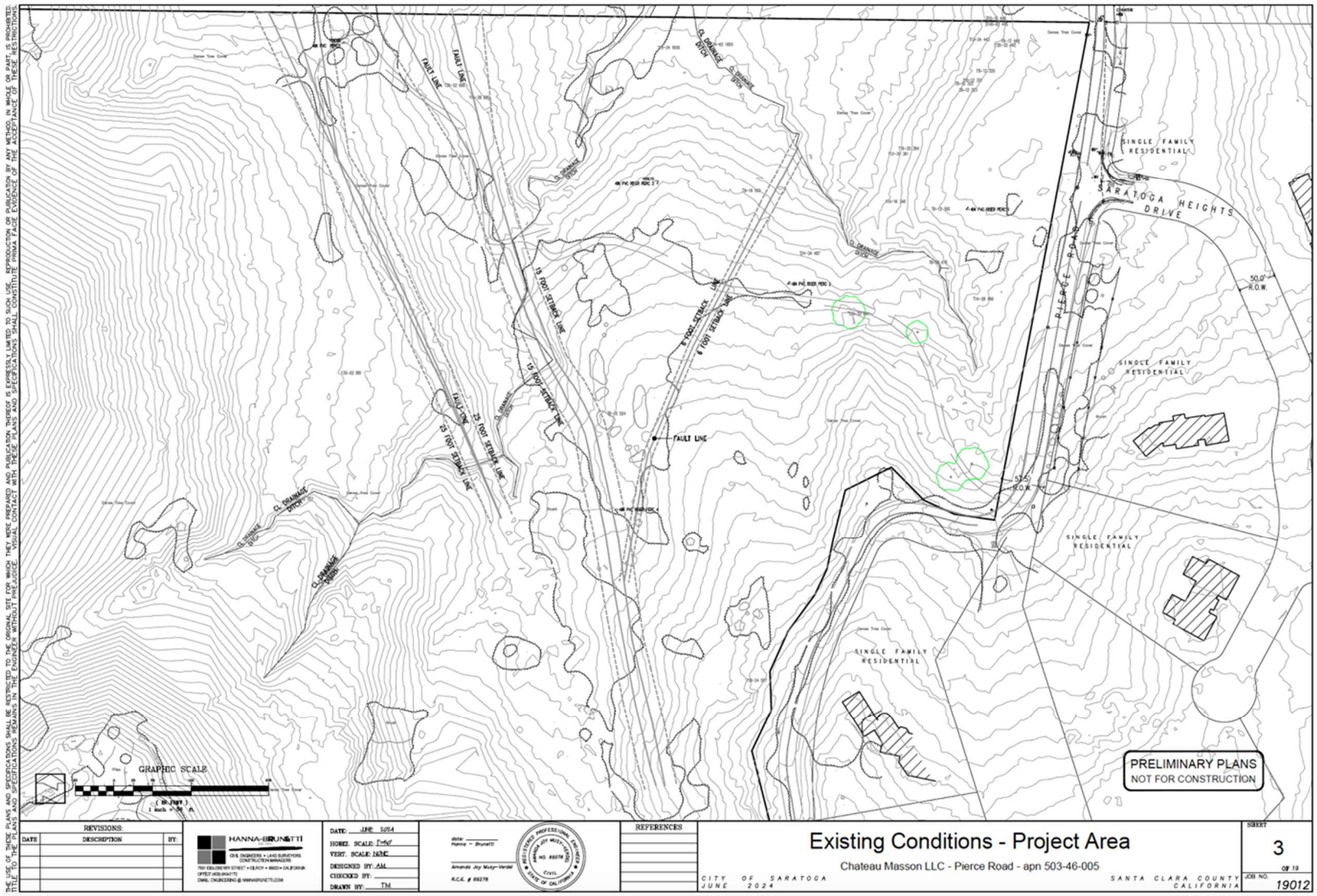

Figure 6. Topographic map of the Masson Estates development area under existing conditions.

Climate and Weather

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

Along with the local topography, the project site's location in proximity to the coast influences its weather conditions. It has the warm, dry summers and cool, moist winters characteristic of Santa Clara County's Mediterranean climate. The area averages about 36 in. of precipitation a year, primarily in the fall and winter. Most of the measurable rainfall generally occurs during the winter months (mid-October to mid-April). Thus, the fire season (the time of highest fire danger) comprises the dry months of May to October.

According to the Santa Clara County CWPP, "[t]he topography of Santa Clara County, coupled with the proximity to the Pacific Ocean, greatly influences wind patterns. The prevailing flow along the Santa Clara Valley is roughly parallel to the valley's northwest-southeast axis. During the afternoon and early evening, a north-northwesterly sea breeze often extends up Santa Clara Valley, while a light south-southeasterly drainage flow often occurs during late evening and early morning (Santa Clara Valley Habitat Agency 2012). Spring and summer sees the greatest wind speeds, with sometimes strong afternoon and evening winds on summer days. Summer 'Diablo Winds' can carry hot, dry air from the Central Valley over the Diablo Range and flow across Santa Clara Valley and then upslope over the Santa Cruz Mountains from a northerly direction towards the Monterey Bay. These winds drove both the Lexington Fire and the Summit Fire."[1]

Wind direction and velocity profoundly affect fire behavior, but wind is considered the most variable and unpredictable weather element. 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 surface winds can also control the direction and rate of the fire's spread. These winds can carry embers and firebrands downwind. These burning fuels can ignite spot fires that precede the primary front.

While the wind usually blows from the west, the winds that create the most severe fire danger in the region, known as the "Santa Ana" or "Diablo" winds, typically blow from the northeast. These would present highly dangerous wind conditions for the Masson Estates project site, especially in the event of ignition by unsafe human behaviors or in the City of Saratoga or an ignition along a road to the site's east or northeast. A northeast wind would carry embers from such unsafe human behaviors into the northeast corner of the proposed subdivision. Topography protects the subdivision from west wind-blown embers cast from a fire ignited in the high-volume fuels in the wildlands to the project site's west. However, a southwest wind could easily carry a fire ignited along Big Basin Way just south of the property, igniting torching-prone forest-shrub fuels and shrubbery that tend to burn very intensely. Given the preponderance of roadside ignitions, these

[1] Santa Clara County CWPP, pg. 26.

southwesterly wind conditions present both a particularly likely and particularly dangerous potential source of wildfire hazard.

Fuels

The term “fuel” is used to describe any material that will burn, whether vegetative or structural component. A single fire may consume shrubs, grasses, trees, woodpiles, and homes as fuels.

Fire managers in virtually all US agencies (as well as in other countries where wildland fire hazards are significant) use fuel model systems for computerized fire behavior prediction systems (FBPS). Information regarding fuel volumes and fire-behavior descriptions is based upon fuel models described in *How to Predict the Spread and Intensity of Forest and Range Fires*, by Richard C. Rothermel (1983), published by the USDA Forest Service Intermountain Forest and Range Experiment Station, General Technical Report INT–143. Besides the reservoir and other unburnable land covers, the primary fuel models relevant to the Field Semester project are grassland, timber, timber-shrub, shrub, grass-shrub, and timber-grass-shrub. Each fuel model is given a number designation, which is interpreted by fire managers across the continent to mean the same thing.

Fuel models describe vegetation structure in addition to typical species composition. The most significant factor is the amount and distribution of smaller-diameter fuels, because these materials generally spread wildland fires.

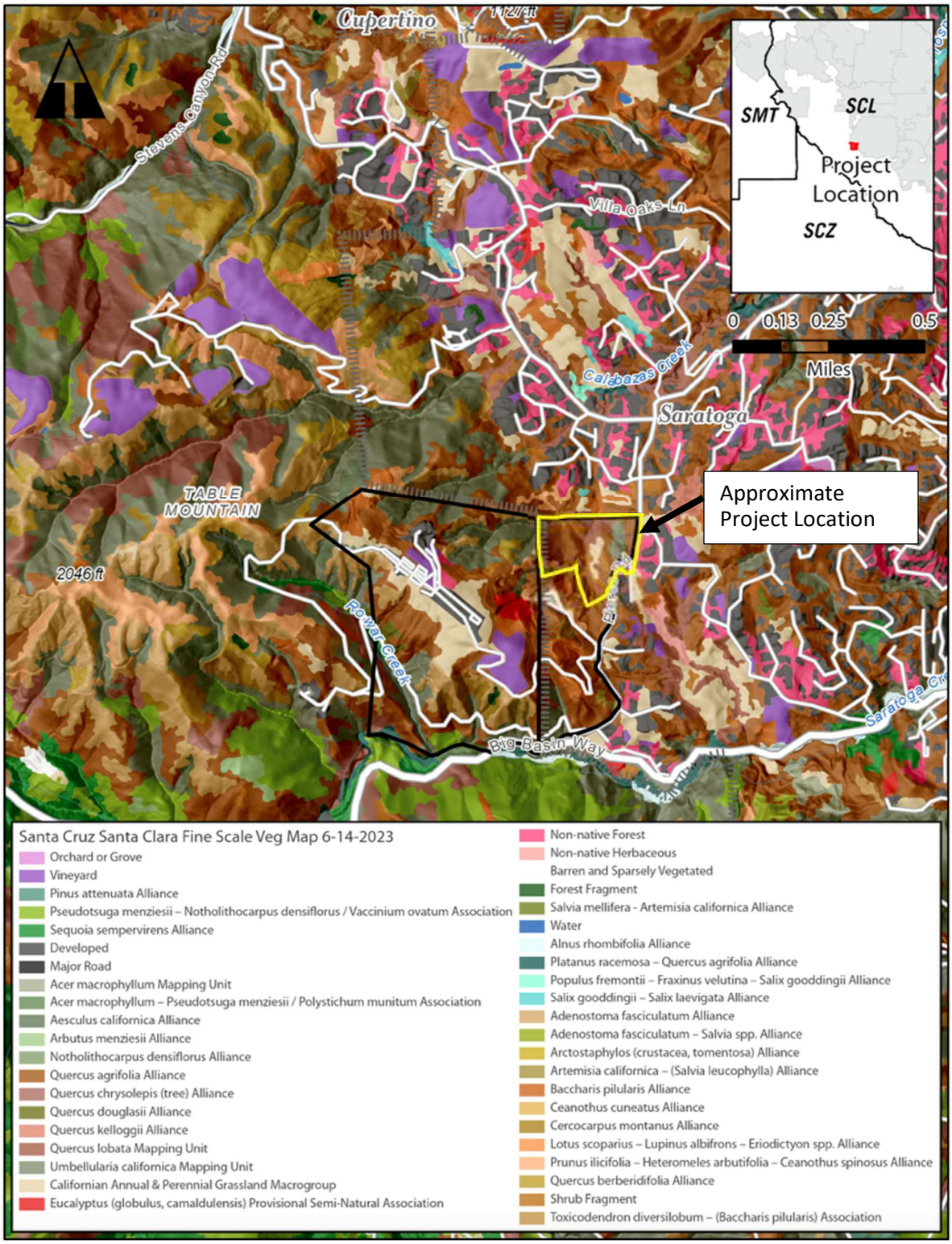

Figure 7. Current distribution of vegetation types in site analysis area.

Another important factor is the amount of dead biomass and the ratio of live-to-dead material in brush and tree stands, since dead biomass contributes fine fuel litter as well as carry flames more readily. Fuel models include these considerations.

The spatial distribution of each fuel type on the project site and surrounding area is depicted in Figure 8, which identifies unique fuel types. In general, the fuel model assignments were based on the mapped vegetation types and associated expected surface vegetation that would carry a fire. All shrub vegetation types were assigned a shrub fuel model, tree vegetation types were assigned a tree fuel model, and grass vegetation types were assigned a grass fuel model.

The Masson Estates project site is currently covered with a diverse range of vegetative fuel types, which will be removed and/or managed with development of the project. As shown in Figure 8 below, the most dominant fuel type on the entire Masson Estates property is very high load, dry climate forest-shrub (TU5), which covers over half of the proposed subdivision site. As discussed below, these high-volume forest-shrub fuels are associated with extreme fire behavior, producing torching fires with flame lengths greater than 12 feet. While this fuel type is associated with low rates of spread, patches of very high load, dry climate shrub (SH7) intermixed with the forest-shrub in the center of the development area are associated with extremely high rates of spread and could quickly act as ladder fuels for the adjoining forest-shrub fuels. Low-volume grass fuels in the center of the site are predicted to produce quick-moving surface fires with 4-8-foot flame lengths.

The Table Mountain ridgelines near the Masson Estates property to the west and northwest contain a mix of very high-volume shrub and forest-shrub fuel types, with patches of lower-volume grass-shrub and forest-grass-shrub fuel types at the peaks and valleys of these ridges, respectively. The combination of these very high-volume fuels with their location on slopes could present a fire hazard to the property and the proposed subdivision, especially with a westerly or northwesterly wind that could cast embers from the slopes into the project site. While winds in Santa Clara County typically blow from the west, the hilly topography of the site and the adjacent Encore Estates protects the proposed subdivision from these winds to some degree. Although much of Saratoga to the east and northeast is designated with “unburnable” agricultural or developed fuel types – as is a good portion of the adjacent Encore Estates property – landscaping in these same areas contains high-volume shrub fuels and nonnative forest, presenting significant fire hazard in the event of northeasterly “Diablo” wind conditions. Additionally, the presence of high-volume, torching-prone forest-shrub and shrub fuels north and south of Big Basin Way to the south of the proposed development presents significant fire risk, especially under southwesterly wind conditions.

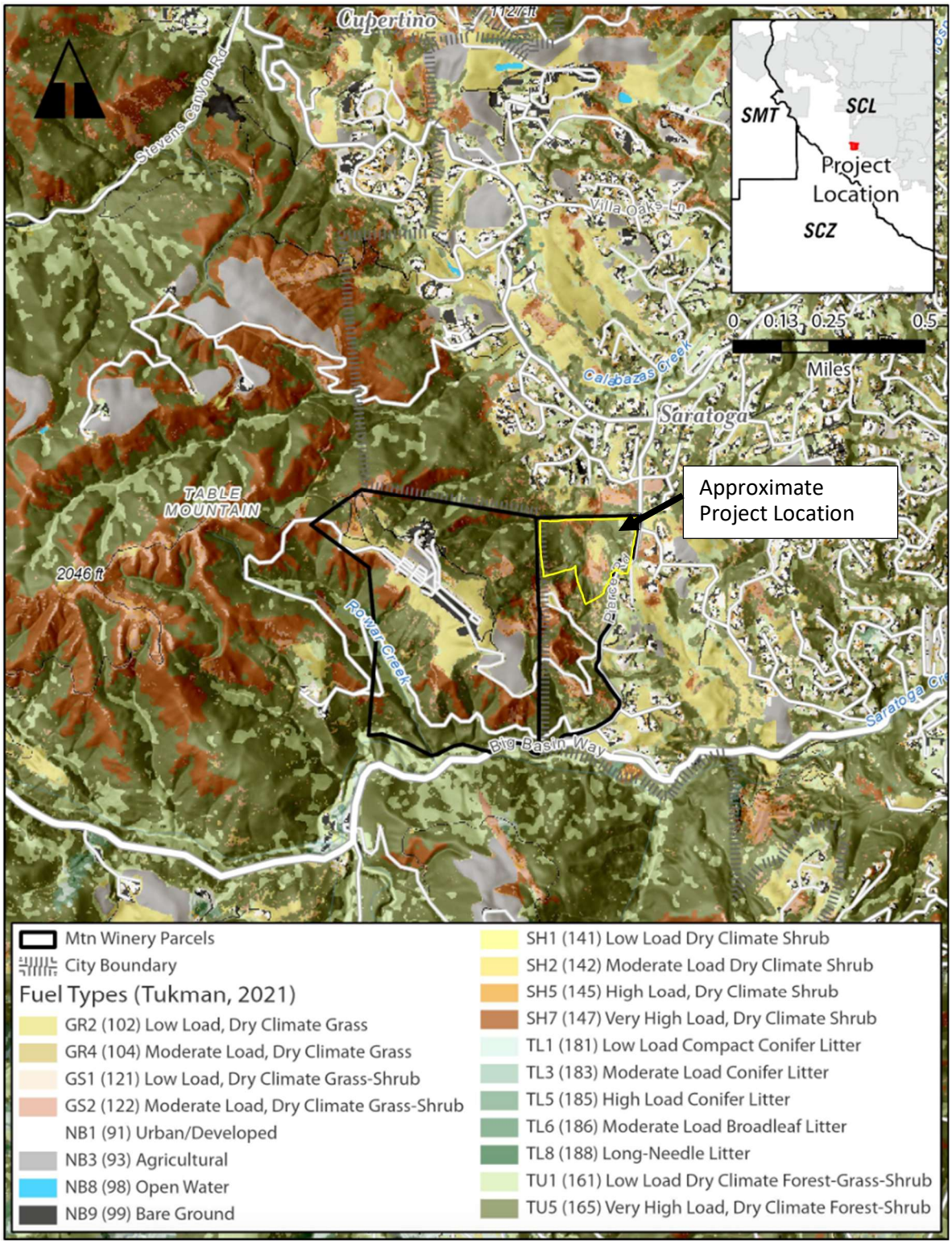

Figure 8. Current distribution of surface fuels in site analysis area.

Fire History

The South Bay hills' combination of hot dry summers, conducive topography, flammable vegetation, dense urban development, limited fire-fighting access in wildlands, and Diablo winds present significant risks to the public, structures, and properties located along the wildland-urban interface on which the Masson Estates project site is situated.

Figure 9 depicts the wildfire history of the project site vicinity from 1950 to 2023. While the Masson Estates property has not burned in living memory, numerous fires ranging from small to large have burned in the near vicinity in recent decades. The largest and most recent of these was the 2020 CZU Lightning Fire Complex, which burned 86,553 acres to the site's southwest across the Santa Cruz Mountains. The 2009 Lockheed Fire also burned 7,817 acres in much the same area, west of Boulder Creek and Ben Lomond. A bit nearer the site burned the 1985 Lexington Fire, which burned 13,128 acres south of Los Gatos. Five much smaller fires have also burned within 5-10 miles of the project site since 1980.

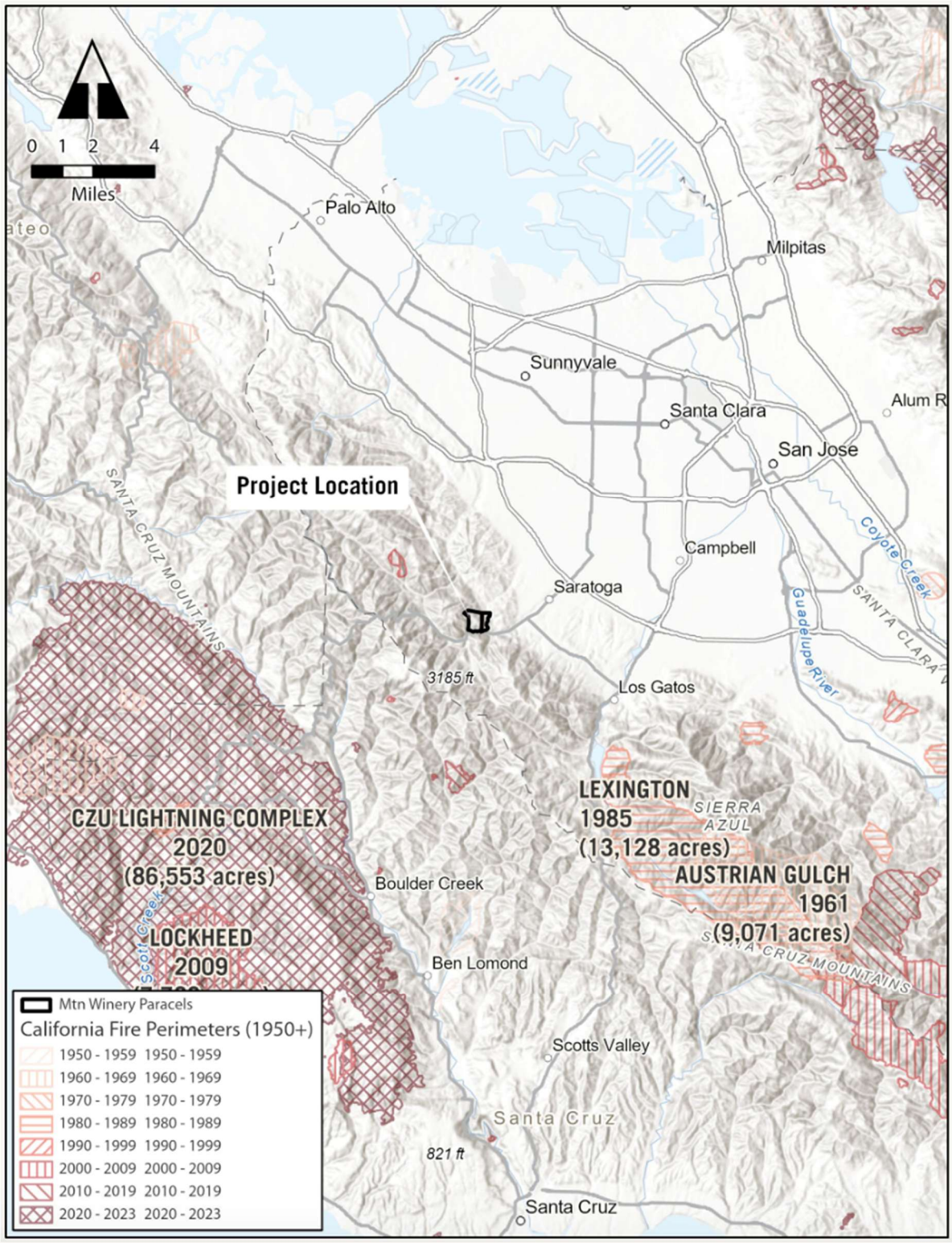

Figure 9. Fire history map of the Masson Ridge project site vicinity.

Regulatory Context

There are multiple relevant jurisdictions, regulating authorities, and codes which this project must address.

State Codes

The following are applicable California state codes:

- Title 19 - Public Safety, State Fire Marshal Regulations;
- Title 24 - Part 3 2019 California Electrical Code, based on the 2017 National Electrical Code (NEC);
- Title 24 - Part 9 2019 California Fire Code (CFC), based on the 2018 International Fire Code;
- Title 24 - Part 12 2019 California Referenced Standards Code;
- NFPA Standards, as Referenced by the California Building Code. This includes, but is not limited to, NFPA 13, 14, 17, 17A, 20, 22, 24, 30, 55, 72, 80, 99, 101, and 2001; and
- 19UL 521 - Heat Detectors for Fire Protective Signaling Systems.

California Public Resources Code (PRC) Section 4903 specifically requires maps of boundaries, terrain, and building footprints as well as natural vegetation and restoration plans. For fuel modification zones, details regarding the plant type, size and irrigation demands. Points of access to commonly-held lands is an additional requirement. Legally binding commitments of work done on commonly-held lands is a requirement as well.

The Fire Safe Regulations (State Minimum Fire Safe Regulations) have recently been revised, adopted in January 2023; however, interpretation of these regulations is being relegated to counties. These address access road, driveway, and dead-end road standards for new development and in places where structures are to be re-built after wildfire. In addition, strategic ridgelines may be preempted from development. Interpretation of these regulations are referred to the local counties.

PRC Section 4291, which delineates defensible space requirements for new and existing structures, has recently been amended to introduce ember resistant zones zero to five feet from structures (Zone 0).

PRC Section 4290 sets guidelines for minimum fire safety standards, including road standards for fire equipment access; standards for signs identifying streets, roads, and buildings; minimum private water supply reserves for emergency fire use; and fuel breaks and greenbelts.

PRC Section 4906 Vegetation Management is a new amendment that requires identification and maintenance of the vegetation management zones adjacent to new structures, as well as design criteria for specific types of fire-resistant and non-fire-resistant vegetation.

PRC Section 4903 authorizes the fire code official to require the development of a fire protection plan, to be prepared by a qualified specialist who will analyze the wildfire risk of the building, Project, premises, or region to recommend necessary changes.

The plan itself will include a project-specific wildfire hazard assessment that considers the Project location, topography, aspect, and climatic and fire history, and indicate that the plan conforms with all applicable fire safety regulations. The plan will address not only fuel reduction and building methods and materials required by state codes, but also fire department access, egress, and roads and address signage and water supply.

City of Saratoga Codes

City of Saratoga Code of Ordinances Chapter 16 includes building and fire regulations that apply to the Masson Estates proposed subdivision.

Chapter 16, Article 15 adopts the 2022 California Building Code and makes amendments, including amendments regarding the use of noncombustible or ignition-resistant materials for construction of accessory structures and regarding requirements for automatic sprinkler systems in newly constructed homes.

Chapter 16, Article 20 adopts the 2022 California Fire Code and 2021 International Fire Code and makes amendments, including to Fire Code Chapter 49, which covers requirements for Wildland-Urban Interface Fire Areas. Specific amendments appear as Appendix A of this report.

Santa Clara County Codes

Although Santa Clara County codes do not directly apply to the project site that is within the boundaries of the City of Saratoga, it is adjacent to lands in unincorporated Santa Clara County. Therefore the following text is included for informational purposes.

Santa Clara County Ordinance No. NS-1100.136 amended Division B7 of Title B relating to fire protection and adopts the 2022 California Fire Code and makes amendments.

In addition to these local and state regulations, Santa Clara County has plans that are pertinent to wildfire protection planning. The Santa Clara County CWPP provides recommendations for reducing fire risk, including increasing awareness of hazard conditions; restricting certain equipment or work during high fire danger weather; maintaining and enforcing defensible space around buildings and reducing fuel sources adjacent to buildings; planting fire-resistant plants and using fire-resistant building materials; managing vegetation responsibly; and creating collaborative partnerships between local communities, natural resource, and fire response groups.

Fire Response

The Masson Estates project site is served by the Santa Clara County Fire Department (SCCFD). The nearest fire station to the property is the Saratoga Fire Station, owned by the Saratoga Fire District. The station is located 2.1 miles from the site with a current response time of approximately 7 minutes[1]. It is staffed with seven on-duty personnel and two full-time engines (one OES Type 3 suitable for wildland fire response and one Type 4 rescue/first response engine), with two additional reserve engines, a select call engine, and a 1928 antique Model A.

The second nearest fire station to the project site is SCCFD West Valley Fire Station, located 3.1 miles from the property with a response time of approximately 8 minutes. The station is staffed with three on-duty personnel and one OES Type 3 engine suitable for wildfire response, as well as one select call engine and one reserve engine.

The third nearest fire station to the project site is SCCFD Quito Fire Station, located 4 miles from the project with an approximately 10-minute response time. The station is equipped with three on-duty personnel and a Type 3 engine suitable for wildfire response, as well as a water tender apparatus available on select call and a reserve utility engine.

The fourth closest fire station to the property is Los Gatos Fire Station, owned by the Town of Los Gatos, which is located 6.2 miles from the project site with a response time of approximately 14 minutes. The Los Gatos station is staffed with eight on-duty personnel and three apparatuses: one OES Type 3 suitable for wildfire response; one Type 4 rescue/first response engine; and one Type 1 Battalion apparatus suitable for major incident response.

Station	Address	Distance	Standard Response Time	Response Time with Heavy Traffic
Saratoga Fire Station	14380 Saratoga Ave, Saratoga, CA 95070	2.1 miles	6 minutes	7-9 minutes
West Valley Fire Station	19800 Cox Ave, Saratoga, CA 95070	3.1 miles	8 minutes	9-10 minutes
Quito Fire Station	18870 Saratoga-Los Gatos Rd, Los Gatos, CA 95030	4 miles	10 minutes	12-16 minutes
Los Gatos Fire Station	306 University Ave, Los Gatos, CA 95030	6.2 miles	12 minutes	14-20 minutes

[1] All response times were drawn from Google Maps.

ANALYSIS OF WILDLAND FIRE HAZARD AT THE PROJECT SITE WITHOUT MANAGEMENT (PRE-PROJECT CONDITIONS)

This section identifies the primary risks for fire on the Masson Estates project site and the existing, pre-project, patterns or trends for fire in the vicinity.

Some of the fuel types in the area are not easily ignitable – specifically vegetation with higher fuel moistures, compared to annual grass or pine litter. However, non-native grasslands and shrub with grass intermixed are prone to ignitions, especially when they are near roads or human activity. Roadside ignitions along Big Basin Way or Pierce Road would be expected to be the primary source of fire ignition within the project site in the event of a fire, although unsafe human behaviors (i.e., illegal campfires, fireworks, etc.) in other nearby parts of Saratoga are also potential sources of ignition. Based on fire history, fuel types, road characteristics, adjacent land uses, and access or human activities on the site, the anticipated probability of wildfire ignition under existing, pre-project, conditions is moderate.

Predicted Fire Behavior

FlamMap, a computerized fuel and fire behavior prediction model, was used in this analysis to predict fire behavior. Environmental conditions used as inputs were the same as those used by CAL FIRE to categorize lands into Fire Hazard Severity Zones. These include windspeeds of 20 miles per hour and very dry dead and live fuel moistures. FlamMap displays predicted fire behavior for the entire area of interest under the same weather and fuel moisture conditions. Outputs and comparisons can be used to identify the spatial distribution of hazardous areas, as determined by flame length, rates of fire spread, crown fire potential, or combination thereof. The analysis indicates that in the event of ignition under existing conditions, most of the project site is predicted to burn intensely, with high to very high flame lengths and extensive torching fire behavior.

Flame Length

Flame lengths are often used as a proxy for fire intensity because they are highly correlated to higher natural resource impacts. Moreover, flame length is often correlated to the ability to control a fire. A flame length of 4 feet is the limit of what can be attacked with hand crews or other forms of direct attack, and 8 feet is usually looked at as a cut-off point for strategic firefighting decisions on whether to attack the fire directly, or instead attempt control through indirect methods.

Figure 10 below maps expected fire behavior, in terms of flame length, on the Masson Estates proposed subdivision. Without vegetation treatment, such as what would occur with implementation of the project, over two thirds of the property is predicted to burn with flame lengths of 8-12 feet, with significant patches of extreme fire behavior (flame lengths greater than 12 feet) associated with extant patches of high-volume shrub scattered through the center of the property and a longer swathe of extreme fire behavior associated with high-volume forest-shrub fuels on the western slope. The proposed location of Lots 1-7 in the project site's northeastern corner is currently covered with low-volume forest-grass-shrub that is predicted to burn with flame

lengths under four feet, without the project. Grassy fuels in the center of the development area are predicted to burn with moderate flame lengths (8-12 feet), without the project.

The adjacent Encore Estates property is prone to extreme fire behavior, especially on the steep forest-shrub-covered slopes running downhill from the vineyard and developed area. The vineyards and the developed area of that property are considered unburnable, while the grass fuels surrounding the currently developed area are predicted to produce flame lengths between 4-8 feet, and under current conditions small patches of low-volume forest-grass-shrub are predicted to burn with flame lengths under four feet. Fire behavior on the wildland slopes near the Masson Estates property to the west is also predicted to be extreme, under current conditions, with flame lengths consistently greater than 12 feet, due not only to the steepness of these slopes but also to the very high-volume shrub and forest-shrub fuels that cover them. Predicted flame lengths in Saratoga are similarly dependent on fuels: while low-volume grassy fuels are associated with moderate flame lengths (4-8 feet) and vineyards throughout the city are mapped as unburnable, high-volume forest-shrub and invasive forest landscaping fuel types are predicted to burn with much more intense fire behavior (flame lengths over 12 feet). This is even more true for southern Saratoga, which is much hillier and covered more consistently with the same high-volume forest-shrub fuels. These fuel characteristics, adjacent to a major thoroughfare in Big Basin Way, present significant fire hazard to the property in the event of southwesterly wind conditions.

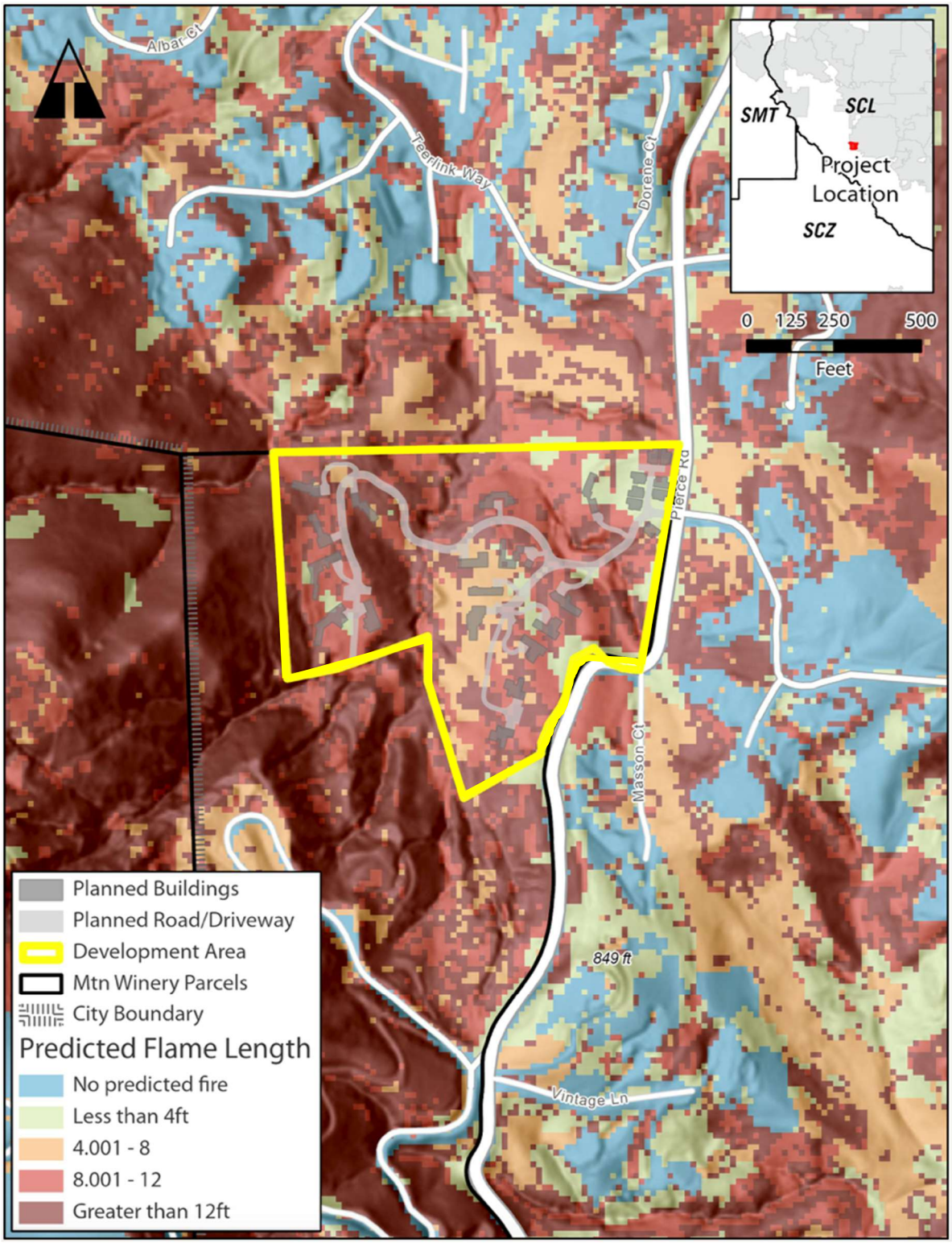

Figure 10. Map of predicted flame lengths on the project site under existing conditions.

Rate of Spread

Rate of spread is the measurement of how fast the head (or leading front) of a surface fire advances. Factors used to determine rate of spread include energy released from the fuel wind and slope factor, density of the fuel bed, heat of pre-ignition (i.e., amount of heat required to ignite one pound of fuel), a heat source, and a heat sink along with other propagating ratios and coefficients. The metric of rate of spread is of concern when considering fire containment, response times, and evacuation. A slow-moving fire (for example, slower than 1/8th mile per hour, or 11 feet per minute) might be easily contained whereas fast-moving fire (a fire moving faster than one mile per hour, or 88 feet per minute) challenges containment and has the potential to move into high value sensitive areas before containment can occur. While extreme rates of spread do not necessarily result in a problematic fire, a fast-moving fire coupled with high flame lengths cannot be suppressed with a hand-crew.

As shown in Figure 11 below, in the event of a fire under existing unmanaged conditions, most of the Masson Estates proposed subdivision is predicted to burn relatively slowly, with rates of spread under 30 feet per minute. These low predicted rates of spread are largely but not exclusively with the forest-shrub fuel type dominating the property. Under current conditions, grassy fuels in the center of the property are predicted to burn more quickly (50-75 feet per minute), while the high-volume shrub fuel type intermixed in patches with the dominant forest-shrub fuel is associated with intense rates of spread (over 100 feet per minute).

Rates of spread in the surrounding vicinity are similarly fuel-dependent. The Masson Estates property is broadly not situated in an area with particularly high rates of spread in the event of ignition. Two fuel types create exceptions to this circumstance outside the property boundaries: grassy fuels in the lowlands of Saratoga, which burn with moderately quick rates of spread (50-75 feet per minute); and high-volume shrub fuels, which dominate the ridgelines of Table Mountain and north of Stevens Canyon Road and, to a lesser extent, the ridges south of Big Basin Way. This latter fuel type is predicted to produce rates of spread (over 100 feet per minute) that would confound containment efforts.

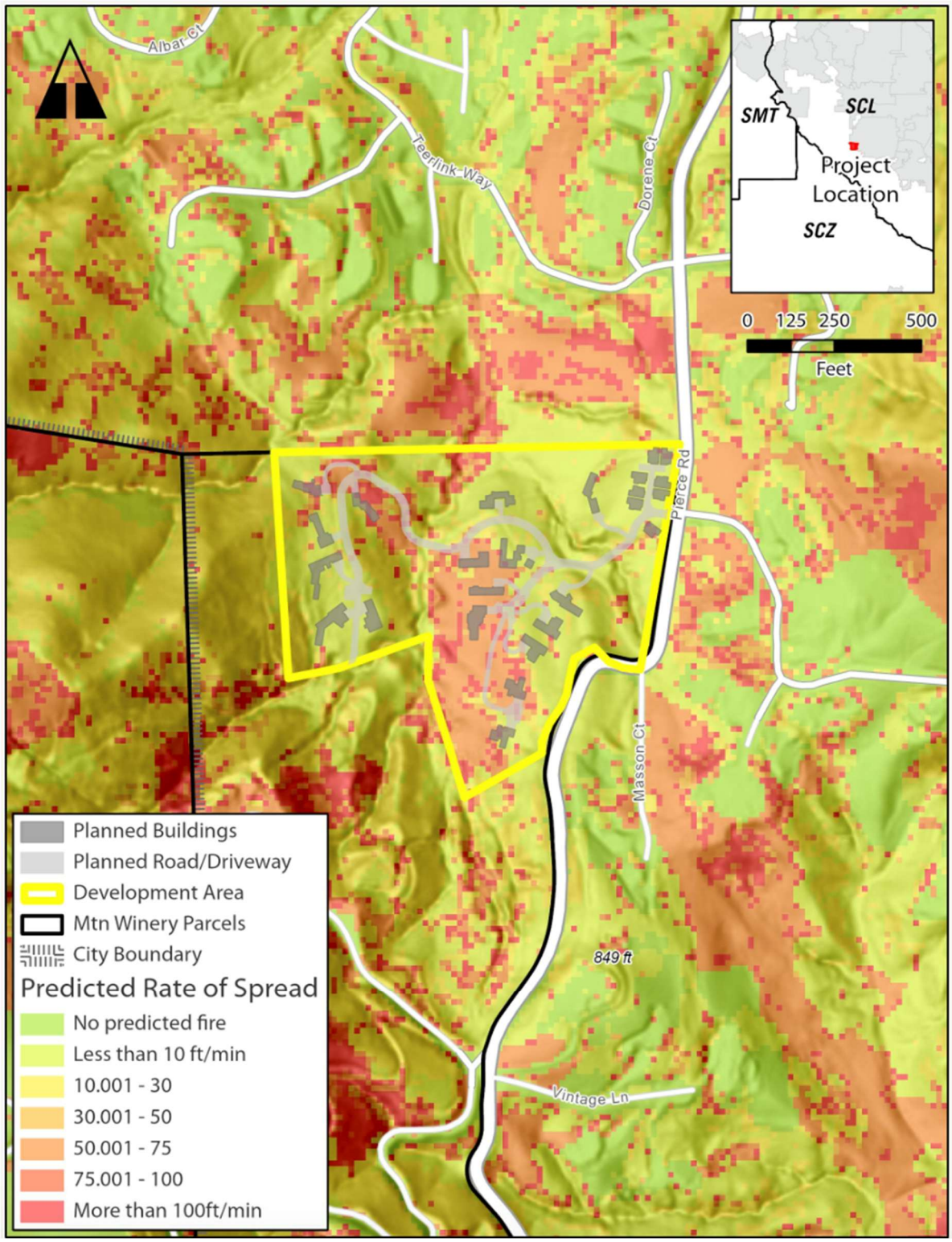

Figure 11. Map of predicted rates of spread on the project site under existing conditions.

Crown Fire Potential

The description of crown fire activity includes four possible model outputs: crown fire, torching fire, surface fire, or no predicted fire. Crown fire indicates locations where fire is expected to spread into and possibly consume the canopy of trees or shrubs.

Modeling how a surface fire makes the transition to some form of crown fire is based on the fireline intensity, canopy base height, and foliar moisture content. This transition is known as torching, or "passive crown fire." Fire spread from tree crown to tree crown is considered "active crown fire," and is based on rate of fire spread, the density of the tree crown, and wind speed. Surface fires are limited to fire burning in grass, short shrubs, and the understory of a treed environment, or locations with tall shrubs.

It is important to keep in mind that crown fires and torching can occur only where there are trees and tall shrubs. Short shrub stands can burn intensely and still not torch or produce a crown fire.

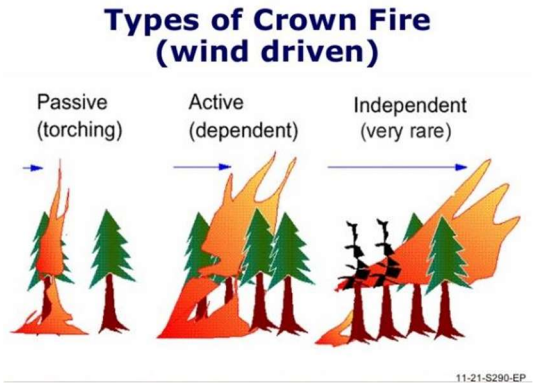

Figure 12. Three types of crown fire (from Finney 2007).

When a fire burns through trees or tall shrub crowns, countless embers are produced and are distributed, sometimes at long distances. These embers can start new fires called "spot fires," which can each grow and confound fire suppression forces. In terms of ecological effects, prediction of torching or crown fire is highly correlated with fire severity and greater environmental impact.

While grass fires do not produce torching or crown fires, they can still produce embers, posing a risk to structures and other valuable resources. Hence, while the spotting potential of grass fires is significantly less than that of tree- or shrub-dominated fuel types, embers from grass fires are still hazardous. The grassy fuels dominating the center of the project site under current, pre-project conditions, offer a good example of this type of fire hazard.

In the event of a fire under current, pre-project conditions, as shown in Figure 13 below, the entirety of the property is predicted to burn, nearly three quarters of it with torching fires. This torching behavior is associated with the high-volume forest-shrub and shrub fuels that currently cover most of the proposed subdivision. The fast-burning grassy fuels in the center of the property under current, pre-project conditions, are predicted to produce surface fires, as described above, they

could easily and quickly spread fire into the higher-volume fuels more associated with intense fire behavior.

Potential crown fire activity in the surrounding vicinity is similarly correlated with fuel types. Vineyards and residential “developed” areas in Saratoga and the adjacent Encore Estates property are not predicted to burn, while grassy fuels in town and lower-volume forest-shrub fuels in the undeveloped areas are predicted to produce surface fires. However, most of the rest of the vicinity is predicted to produce torching fires in the event of ignition, due mainly to the dominance of the same high-volume forest-shrub and shrub fuels that cover slopes and ridgelines throughout the area.

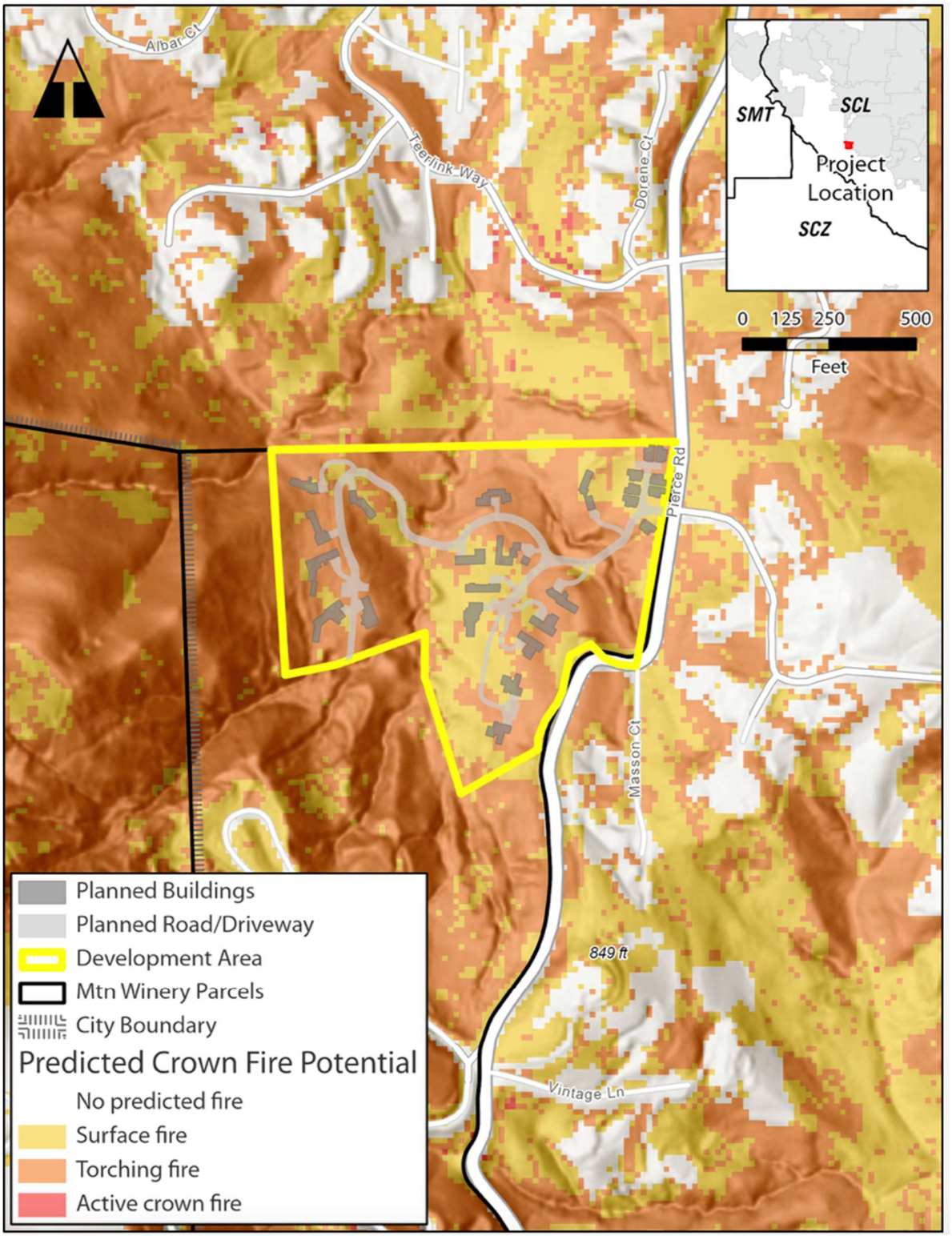

Figure 13. Map of predicted crown fire activity on the project site under existing conditions.

Existing Fire Hazard and Risk

CAL FIRE VHFSZ Fire Hazard

The CALFIRE Fire Hazard Severity Zones (FHSZ) system is a science-based system where severity zones are defined based on vegetation, topography, and weather (temperature, humidity, and wind), and represent the likelihood of an area burning over a 30- to 50-year time period without considering modifications such as fuel reduction efforts. The CAL FIRE FHSZ maps present wildfire hazard and not wildfire risk. In California, CAL FIRE maintains fire hazard severity zone data for the entire state. There are three classes of fire hazard severity ratings within FHSZs: Moderate, High, and Very High (CA GOPR 2020).

In 2007, CAL FIRE mapped FHSZs for the entire state of California. The map delineates areas of varying levels of fire hazard based on vegetation, topography, weather, and human-made structures. This hazard assessment is officially linked to land use decisions and indicates where different construction practices are to be followed in order to reach an acceptable level of risk from potential wildfire.

Through these maps, CAL FIRE also recognizes “State Responsibility Areas” (SRAs) and “Local Responsibility Areas” (LRAs). SRA or LRA status indicates which agencies will respond to fire occurring in specific areas. In LRA areas, CAL FIRE did not map any areas that were below the very high severity classification. The Fire Hazard Severity Zones were re-mapped in 2023 for the SRA; recommendations for reclassification of these zones in the LRA were released in early 2025. Figure 14 below reflects these updated maps.

As shown in Figure 14 below, the proposed subdivision falls within a LRA within the City of Saratoga. Most of the project area, along with surrounding areas to the north, northwest, and northeast, is designated as a High FHSZ. However, the east and southeastern stretch of the proposed subdivision near Pierce Road is designated as a Very High FHSZ within the LRA, as is much of the surrounding areas within the City of Saratoga to the south, southeast, and east. Similarly, much of the surrounding vicinity under the SRA to the site’s southwest – including on the Encore Estates property – is designated as a Very High FHSZ. This rating is due to the steep slopes in the area, as well as the presence of high-volume, intensely-burning shrub and forest-shrub fuel types currently on these slopes and on much of the Masson Estates proposed subdivision.

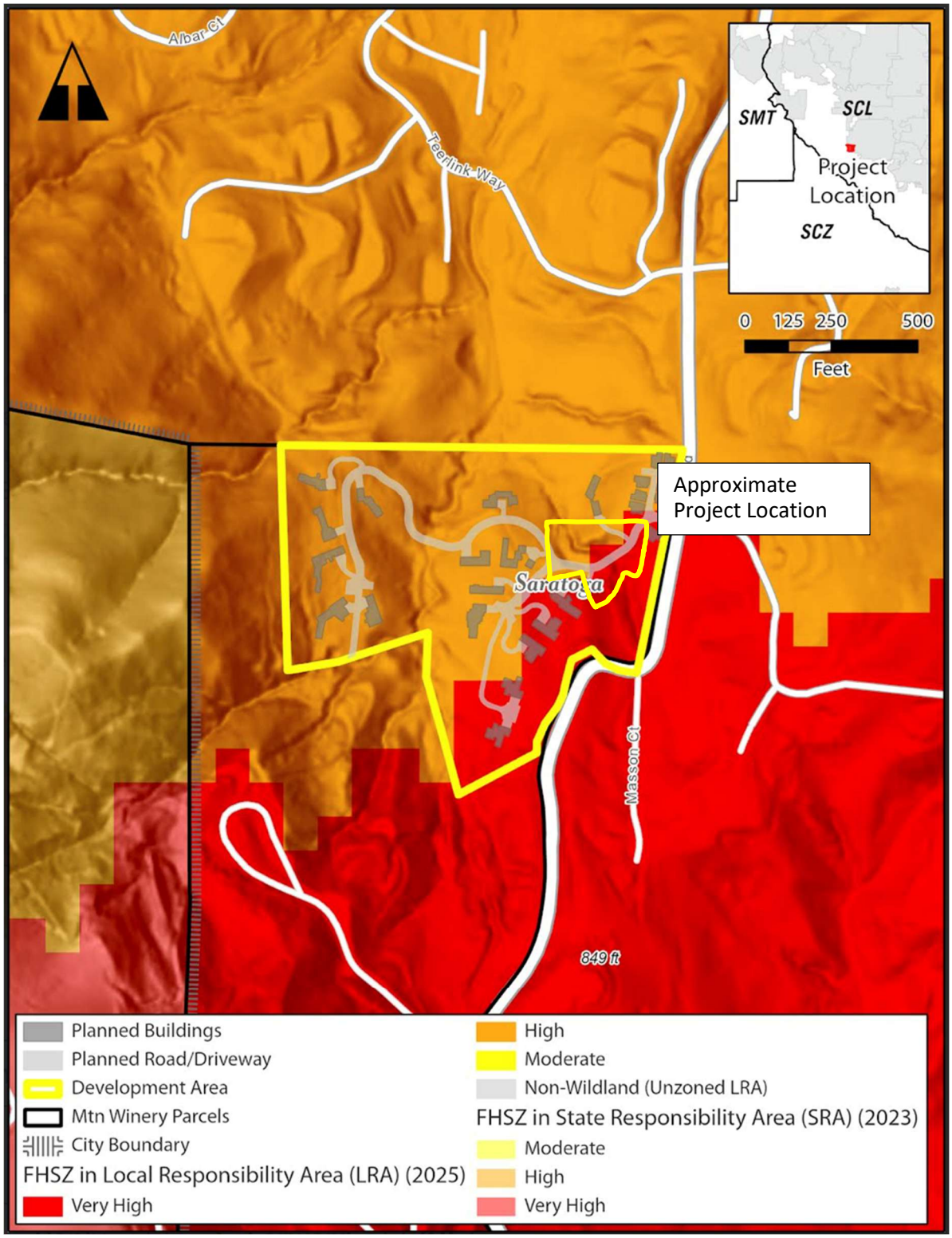

Figure 14. Map of Fire Hazard Severity Zones in the Masson Estates vicinity.

Wildfire Hazard Index (Tukman)

Wildfire hazard is calculated as a combination of hazards from fire behavior, ignition sources, owner intervention (e.g., fuel reduction treatment or creation of fuelbreaks), and suppression difficulty. Hazard combines fuel characteristics such as the volume, arrangement, moisture, and sizes of fuels, all of which contribute to how fire will burn. Information about the fuels is combined with physical landscape characteristics such as weather, topography, and the distribution of ignitions across the landscape.

As depicted in Figure 15 below, wildfire hazard within the proposed subdivision under current conditions is roughly evenly split between areas of high and very high relative fire hazard, with the hilly western half of the development area mapped as presenting very high fire hazard while the eastern half presents high fire hazard. A small area of extreme relative fire hazard corresponding with steeper slopes and high-volume fuels is mapped on the southeastern edge of the development area.

As shown in Figure 15, most of the surrounding area within the boundaries of the City of Saratoga is evaluated as presenting high relative fire hazard, although a large patch of residential neighborhood surrounding Villa Oaks Drive is evaluated as presenting moderate hazard due to the presence of higher-volume fuels. The lower hazard values in the surrounding vicinity – including the adjacent Encore Estates – tend to correspond with vineyards and developed areas considered unburnable. The steep slopes surrounding the property to the north, west, south, and southeast are mapped as presenting extreme fire hazard. In addition to steep topography, these extreme values correspond with the high-volume shrub and forest-shrub fuels that are predicted to burn intensely with torching fire behavior and extremely long flame lengths.

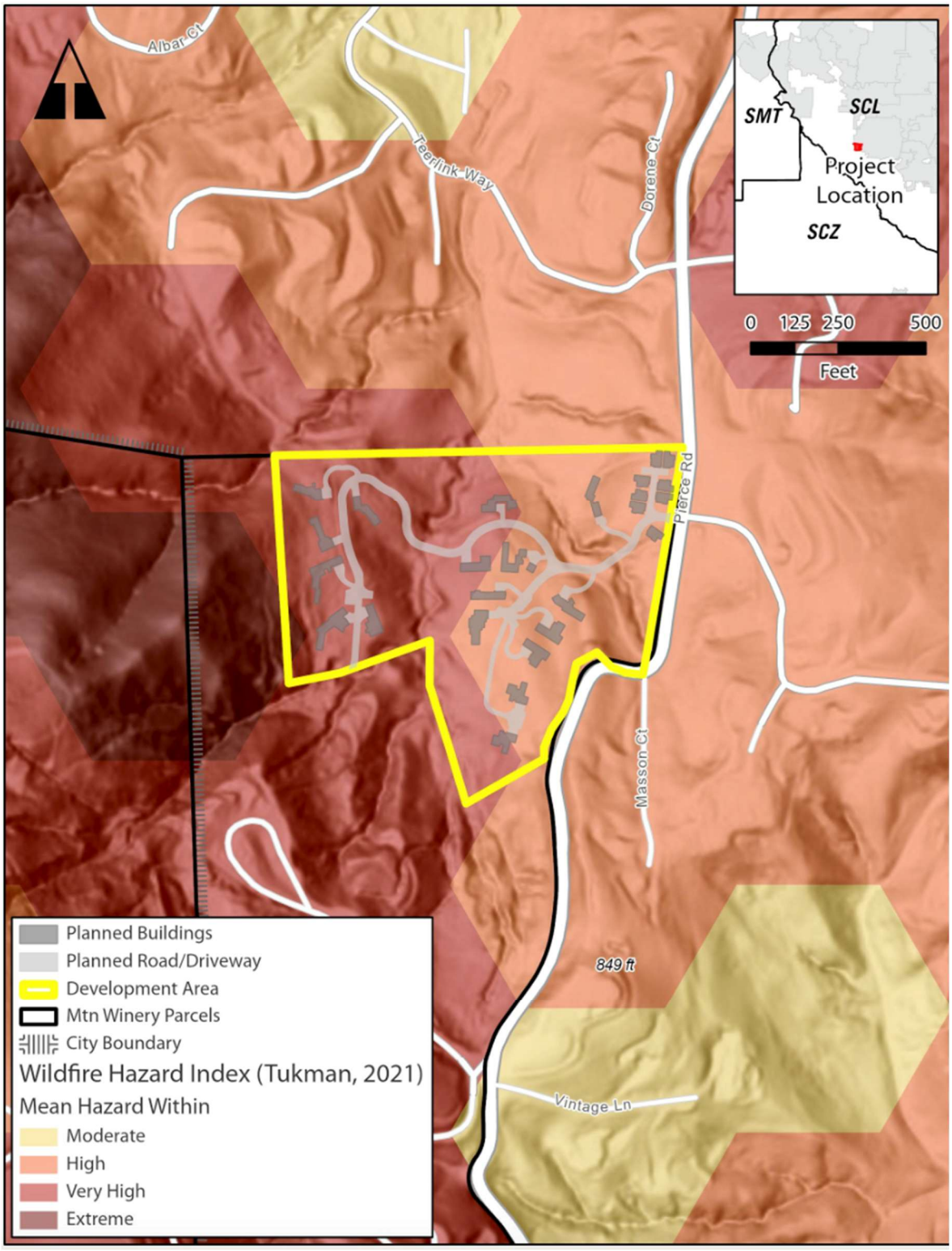

Figure 15. Map of relative wildfire hazard on the Masson Estates proposed subdivision.

Wildfire Risk to Structures

Risk is the potential for realization of adverse consequences to valued resources or assets. Wildfire risk considers not only the potential for hazardous wildfire, but also the values exposed to hazard. Hence, wildfire hazard can be very high, but if no resources or assets are exposed to the hazard, there is no risk.

Some risk assessments consider all relevant types of values, including socioeconomic, along with ecological elements. However, this risk assessment is limited exclusively to wildfire risk to structures, not wildfire risk to other resources and assets.

As shown in Figure 16 below, all but the southern boundaries of the proposed subdivision are evaluated as presenting very high risk to structures due to the hilly topography and high-volume fuels currently present on the project site. However, much of the Remainder Area of the parcel is evaluated as presenting higher fire risk to structures, with the majority of this area mapped as presenting very high fire risk while the Big Basin Way-adjacent southeast corner is mapped as presenting extreme fire risk. These higher values correspond largely with high-volume fuels and proximity to the road. Meanwhile, most of the wildland areas surrounding the Masson Estates property are mapped as presenting very high risk to structures, with areas of extreme risk to structures mapped along Big Basin Way and along roadways on the northern slopes of Table Mountain. Areas with the highest risk to structures in the vicinity concentrate around residential areas within the City of Saratoga, where residential structures are evaluated as being at extreme fire risk.

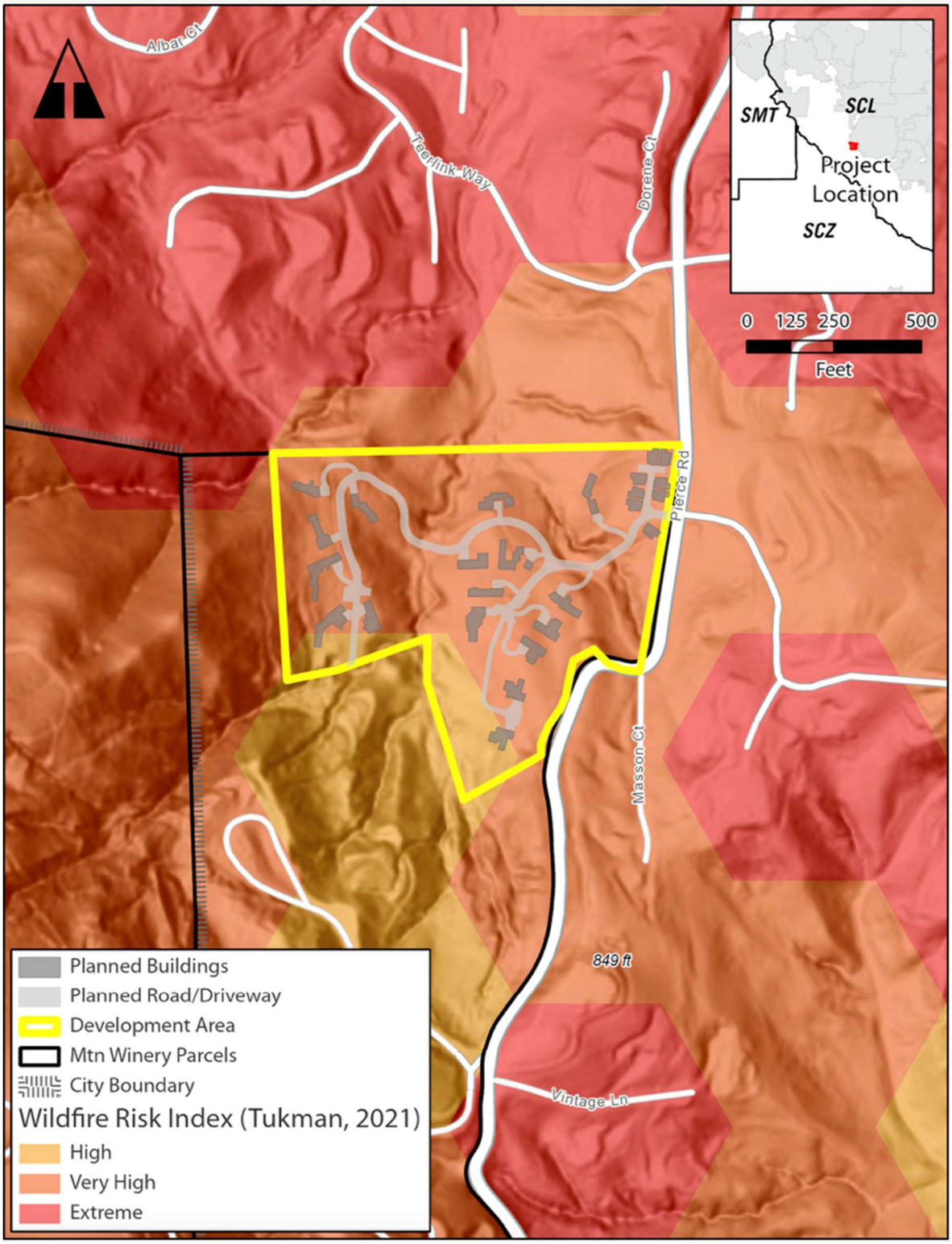

Figure 16. Map of relative wildfire risk.

Ignition Potential

Under existing pre-project conditions, there is a relatively low likelihood of ignition on the Masson Estates property itself.. Currently the risk of ignition on nearby properties is higher than the project site under existing pre-project conditions Adjacent risk of ignition comes from activities associated with residential dwellings and occupants, including the use of vehicles, construction, use of mechanical mowers, barbecues, and generators. Because PG&E is increasingly shutting off power during high fire hazard conditions, the risk of wildfire ignition from generator use may become more common in the future. Unsafe human behaviors or roadside ignitions on Pierce Road or Big Basin Way are the most probable sources of ignition.

The risk of a fire affecting the project site is influenced not only by the fuels it supports, but also by the fuels present within the surrounding area. Adjacent fuel types are a factor in determining the potential for spread to the project site, especially because the Masson Estates project site is but 18.38 acres within a larger matrix of wildland fuels and wildland-urban interface. As depicted in Figure 8, the slopes of the nearby wildlands are covered with high-volume fuels that are also highly flammable, as is much of the adjacent Encore Estates property. These fuel types present fuel conditions that would either propel or allow continuous spread of fire to the property in the event of ignition. The level of hazard will vary due to season or climate: while there is risk of fire year-round, the risk is lowest in the spring when the grass is green and other vegetation is verdant. The risk will be lower still with implementation of the Masson Estates project, which will replace existing flammable vegetation with fire resistant development and defensible space and manage the existing unmanaged vegetation.

V. PROPOSED WILDFIRE PROTECTION PROGRAM (PROJECT CONDITIONS)

The Masson Estates project will reduce the hazards posed to adjacent lands because of the extent of the ignition-resistant construction standards and vegetation management program. However, there is likely to be an increased risk of ignition due to heightened human activities on the site, particularly during construction and once the residential neighborhood is developed and populated. The risk of ignition is high during periods of construction due to possible ignitions from grinding, welding, and other activities. However, if a wildfire were to ignite on the project site under existing conditions, the a damaging outcome from that ignition is likely due to the unmanaged fuels, terrain and periods of high fire danger.

This situation justifies the development of a Wildfire Protection Program to minimize the potential damage from wildfire. The plan is comprised of structure construction standards, a Vegetation Management Program for landscaped areas and adjacent wildlands, an ignition prevention plan, access that supports safe transport during times of high fire danger and evacuation, features that support wildland fire response (water supply, signage, training, equipment, and communication), pre-attack planning in terms of maps and fire department site visits, and detection and notification.

With implementation of this WPP, the chance of damage resulting from a wildfire is considerably less than under current conditions.

These proposed measures should enable homeowners to obtain designation as a FORTIFIED Gold Home from the Insurance Institute for Business and Home Safety (IBHS), which can facilitate discounts on home insurance premiums.

STRUCTURE CONSTRUCTION STANDARDS

Any new structures or improvements shall be subject to the applicable California Building Code and Uniform Fire Code as adopted by the City of Saratoga. The following recommendations not only comply with construction standards for structures as referenced in the City of Saratoga Fire Code, but are also recommendations that provide additional protection above and beyond such codes. The applicant agrees to make these recommendations conditions of project approval.

Building Materials and Design

All structures will comply with the applicable California Building Code, Chapter 7A as amended by the SCCFD. The drawings were reviewed and comply with these requirements. The following addresses additions that may occur after project approval.

Projections

Preferably, all projections – including decks, exterior balconies, porches, and exterior stairs – will be constructed of noncombustible materials. Alternatively, any combustible projections will be protected as follows:

a. Projections will be constructed of materials capable of resisting fire for 1 hour. A noncombustible surface will be applied to the underside of all exposed edges; or

b. "Heavy timber" construction will be used for construction. Heavy timber is defined in Section 2105 of the Uniform Building Code as the following timber sizes:

- 6-inch nominal minimum dimension columns
- 6-inch by 8-inch nominal minimum dimension horizontal supports
- 2-inch nominal minimum dimension spaced decking; or

c. A "skirt" wall with a one-hour fire-resistive capability will be built to extend down from the projection surface to the adjacent grade and completely enclose the projection.

d. Automatic interior fire sprinkler systems in conformance with the NFPA 13D (modified) standard will be required under attached decking and balconies built with combustible materials, porches, foyers, and any other areas within the structure deemed necessary by the SCCFD.

Accessory Buildings

Garden Structures – such as gazebos, spas, or other outbuildings – will meet the same minimum standard for materials, timber size, and other requirements as described above for other structures.

Built-in fireplaces should be either no farther than 15 feet from a water source or be equipped with a fire extinguisher. All associated chimneys will be fitted with a spark arrestor.

Barbecues (built-in or portable) must be surrounded by at least 10-foot radius of noncombustible materials and be located 10 feet away from all overhanging structures or trees. Barbecues must not be left unattended when in use. No structures or trees should overhang the use area within a distance of 10 feet. A fireplace of any kind that is under or within 6 feet of an overhand will have a chimney with ¼ inch screen. The barbecue should be located no farther than 15 feet from a water source (including a garden hose).

PROPOSED VEGETATION MANAGEMENT PROGRAM

One of the most effective ways to change anticipated fire behavior and thus reduce potential damage to structures and the environment is to manage fuels. This includes treatments to vegetation and construction and design practices to minimize ignition of structures. The following recommendations not only comply with fuel management standards as referenced in the City of Saratoga Fire Code, but are also recommendations that provide additional protection above and beyond such codes. In the project area, vegetation treatments with implementation of the project focus on achieving a two- to four-foot predicted flame length immediately after treatment.

Summary of Fuel Management Zones

Treatment standards for all zones specify the width of treatment, strata of work (removal of shrubs and tree branches and grass mowing), removal of dead material, plus depth and placement of chips. Standards meet or exceed those of the City of Saratoga.

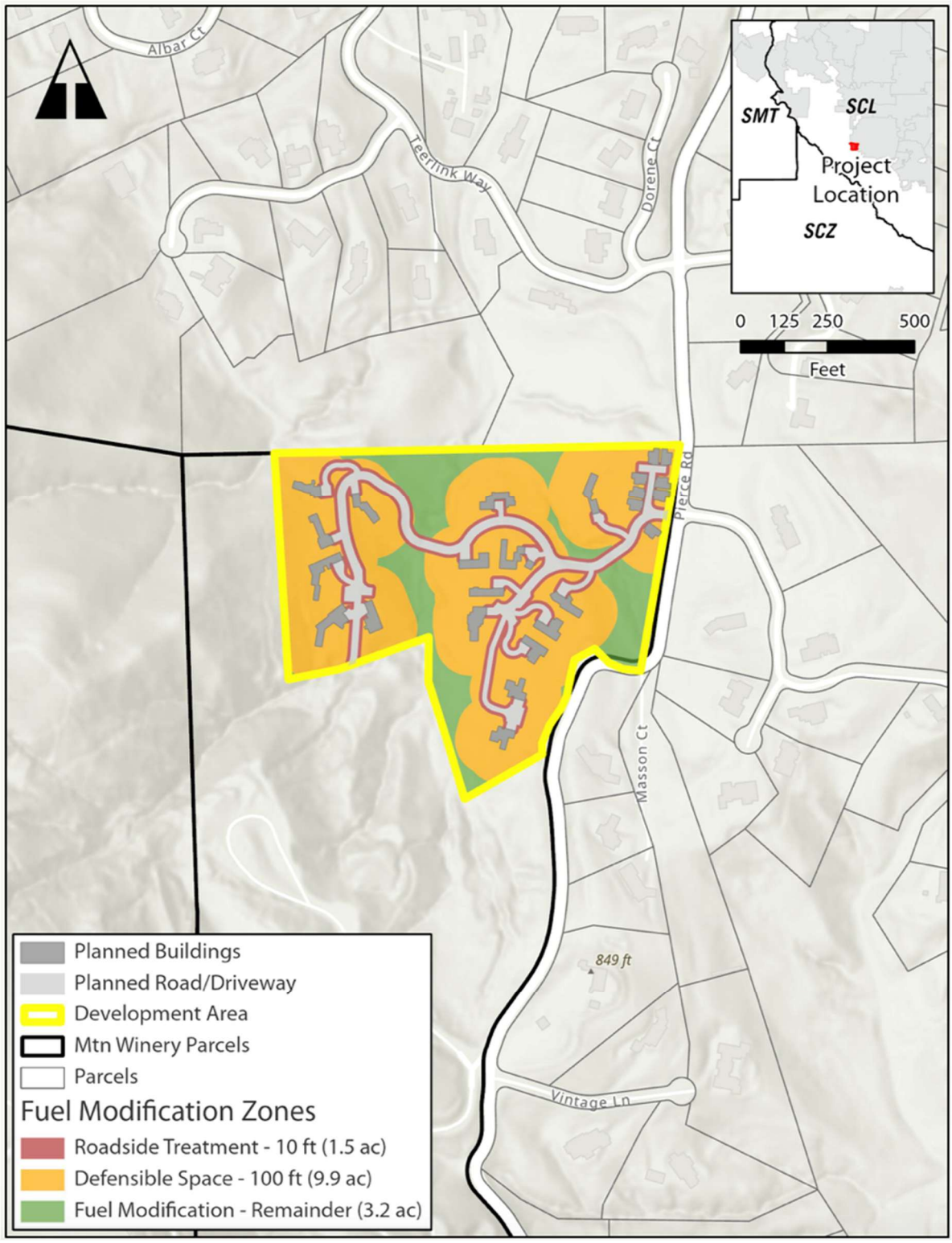

Figure 17. Proposed fuel modification zones on the Masson Estates project site.

Standards for Residential Defensible Space/Landscaping Zone

Within 100 feet of all structures, and outside of riparian areas:

- Keep the ground free of dead leaves, mulch, needles, or other plant debris. The ground surface should be composed of inorganic, non-combustible, material such as decomposed granite, pebbles, or rock/flagstone.
- Vegetation in the non-combustible zone could include irrigated lawns and succulents but would exclude woody plants.
- Dead material that drapes over ground cover will be removed. This includes leaves, bark, and branches.
- Remove all dead plants and dry vegetation.
- Cut grass and weeds to less than four inches in height.
- Remove leaves, bark, and humus under trees and shrubs (including vines and semi-woody species) so that the buildup of leaves and humus will not exceed two inches in depth anywhere in a defensible space within a year. However, do not expose bare earth in over 50 percent of the site.
- Remove dead material that drapes over ground cover (including leaves, bark, and branches).
- Remove all dead branches from within live ground covers, vines, shrubs (including semi-woody species), and immature trees.
- Prune trees and large tree-form shrubs.
- All lower tree branches, under three inches in diameter, will be removed to provide vertical clearance of three times the height of the understory plants, or eight feet above understory plants, whichever is greater. Retention of short understory shrubs provides aesthetic benefits and wildlife habitat without sacrificing fire safety; alternatively, trees will be pruned to a higher height in order to allow for screening from the understory shrubs.
- In young trees, remove the branches on the lower one-third of the height of the tree. Example: if a tree is 10 feet tall, prune the lower 3-4 feet and keep the understory plant material to less than one feet in height. As the tree grows to 24 feet in height, it can achieve the eight-foot distance from the ground, and the understory plant material can reach 2.5 feet in height.

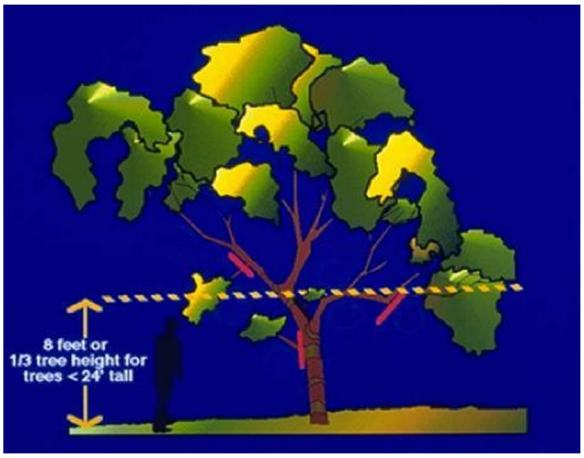

Figure 18. Prune branches to a height of 8 feet above the ground. In young trees, prune branches on the lower one-third of the height of the tree. Do not disturb or thin the tree canopy. This promotes growth in the understory, which is more easily ignited.

- All dead branches smaller than three inches in diameter will be removed. All dead limbs greater than three inches in diameter should be retained where they do not pose a public safety of fire risk.

- Maintain at least eight feet of vertical clearance between roof surfaces and overhanging portions of trees.

- Remove and safely dispose of all cut vegetation and hazardous refuse, using a gasifier or air-curtain type burner wherever possible.

- Chipped materials may remain on site, provided the mulch layer is no greater than three inches in depth.



Figure 19. Shrub island spacing. Design groups of plants small enough to provide horizontal separation between groups. This allows proper maintenance and helps slow the spread of fire. Each shrub or group of plants should measure no wider than two times its height, or less than 120 square feet (or 6 feet x 20 feet). The space between groups should be greater than three times the height of the shrubs.

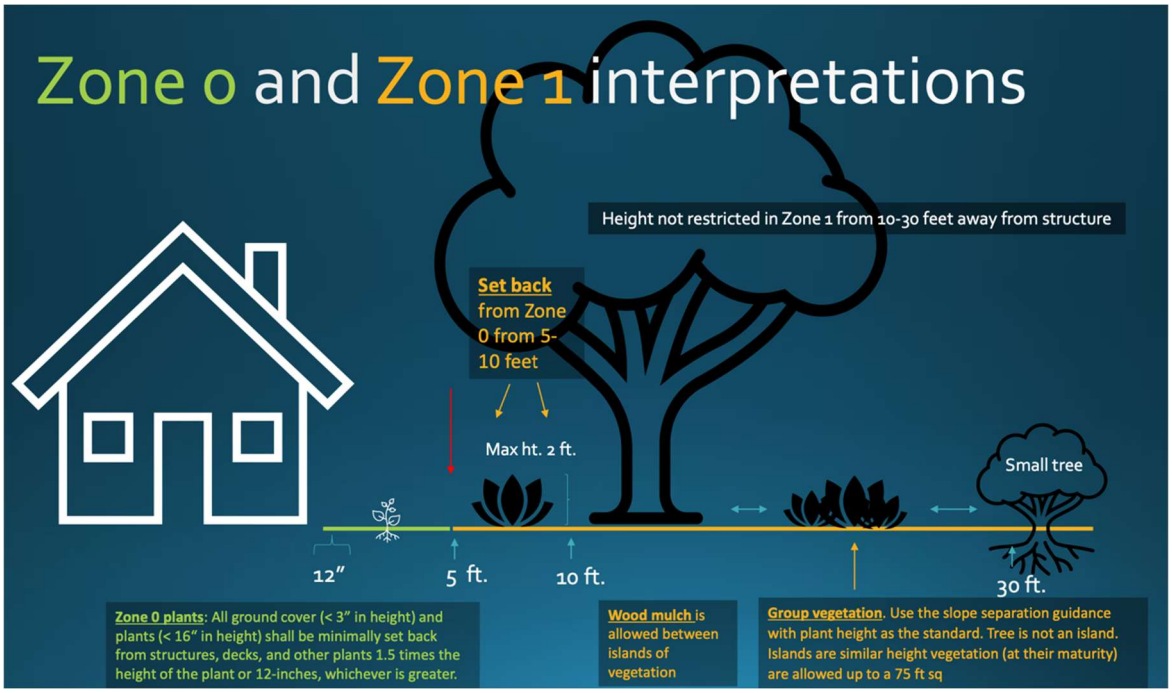

Figure 20. Diagram of vegetation restrictions for Zones 0 and 1 from the California Board of Forestry and Fire Protection.

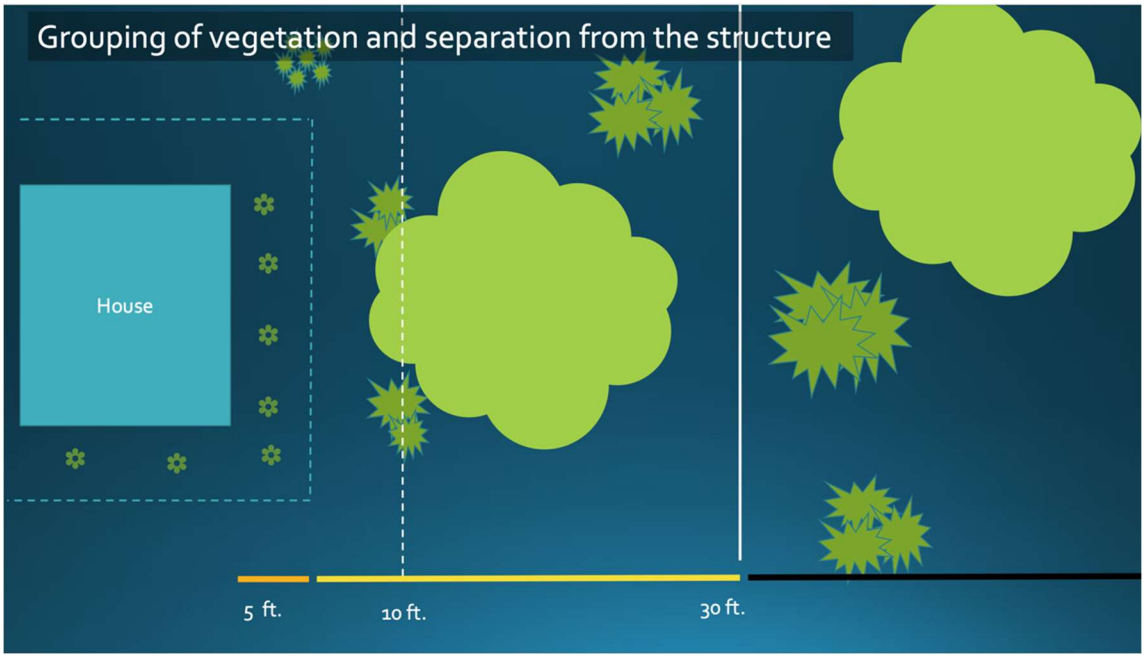

Figure 21. Diagram of vegetation grouping and separation guidance for Zones 0 and 1 from the California Board of Forestry and Fire Protection.

Standards for Roadside Vegetation Clearance Zone

In all areas, vegetation treatment for evacuation support focuses on prohibiting highly flammable trees and understory shrubs that could enable torching, along with trees that may block access/ egress should they fall. The goal for treatments is to provide safety to residents and visitors and reduce loss from wildfires.

Within 10 feet of road pavement edge:

- Grassland vegetation and invasive weeds will be mowed to a 4-inch height or treated with herbicide annually before the grass grows to an average of four inches in height. In unusual circumstances when rains occur after grass is mowed, grass may need to be re-mowed.
- Understory shrubs will be removed under trees or shortened to create a vertical distance between the top of the shrub and the bottom of the tree canopy of three times the shrub height.
- Trees will be pruned of lower branches (to 8 feet in height, or the lower third of branches).
- All tree branches extending over roadway surfaces should be pruned to ensure at least 15 feet of vertical clearance.

In evacuation support treatment areas, the Masson Estates management entity removes lower branches of all trees to a minimum height of 8 feet.

Standards for Fuel Modification Zone

The areas beyond 100 feet from structures should be managed to minimize the growth of trees and volumes of understory shrubs or other non-managed flammable materials. Both of these would increase the fuel load and potential fire hazard. The fuel modification zone is to be applied in the land beyond the legally-required defensible space zone.

In any area where trees are present:

- Clear leaves, bark, and humus under trees and shrubs (including vines and semi-woody species) every year. At no time should a buildup of leaves and humus exceed 1 inch in depth anywhere in a landscaped area. However, do not expose bare earth in over 50% of the site.
- Remove dead material that drapes over ground cover (including leaves, bark, and branches) annually, before June 1.
- From mature trees, remove all vines, loose papery bark, dead branches, and live branches smaller than 3 inches in diameter to a height of 8 feet above the ground.
- Remove all dead branches from within live ground covers, vines, shrubs (including semi-woody species), and immature trees.

- Remove all eucalyptus trees smaller than eight inches in diameter.
- Prune trees and large tree-form shrubs (e.g. oaks, toyon) that are being retained to provide clearance of three times the height of the understory plant material, or 8 feet, whichever is higher. Prune limbs that are smaller than 3 in. in diameter up to 8 feet above the ground; in young trees, prune these branches the lower one-third of the height of the tree. (Thus, if a tree is 10 feet tall, prune the lower 3-4 feet and keep the understory plant material to less than 1 feet in height. Then as it grows to 24 feet in height, it can achieve the 8-feet distance from the ground and the understory plant material can reach 2.5 feet in height.) Do not disturb or thin the tree canopy, because these actions promote growth of more flammable vegetation.
- Chipped materials can remain on the site provided the mulch layer is no greater than 2 inches in depth.

Fire-Resistant Landscaping

Many communities are promoting the use of fire-safe plants and implementing projects to demonstrate techniques for reducing fire risk to structures. Although there have been relatively few research results on the fire resistance of landscape plants, we can provide several important generalities. First, the spacing and design of the garden is more critical than the species planted. Leaving horizontal spaces between planting masses, specimen trees, and the house helps create a fire-safe landscape. Similarly, leaving vertical spaces between tree branches, shrubs, ground cover, and the structure (particularly windows) is important in designing a fire-safe garden.

Second, good maintenance of landscaped areas requires removing dead material and maintaining the vertical and horizontal spaces that create a fire-safe design. The significance of proper plant and landscape maintenance cannot be overemphasized. Design landscapes to discourage the creation of "fuel ladders"—a continuous fuel path by which a fire can climb from the ground to a shrub, to a tree, and ultimately to the structure. Continuous removal of any potential fuel ladders needs to be part of routine landscape maintenance. *Poorly maintained landscapes can easily become fire hazards, even if many of the plants are favorably recommended for fire performance.*

Species Selection

Desirable landscaping plant species have a low fuel volume and high foliar moisture and do not have a tendency to produce and "hold" dead wood. They also have a proper growth form: for example, ground covers or fruit trees (which inherently have adequate vertical spacing or branches).

Some common landscape species are explosive and can exhibit dramatic fire behavior. For example, a juniper that is 6 sq ft in area can produce flames over 15 ft in length.

Factors that must be considered in rating the fire performance of plants include:

- *Total volume*. The greater the volume of plant material (potential fuel) present, the greater the fire hazard.

- *Moisture content*. The moisture content of plants is an important consideration; high levels of plant moisture can both lower fire risk and act as a heat sink if a fire occurs, reducing its intensity and spread.

- *Amount and distribution of dead material*. The amount of dead material in a given plant influences the total amount of water in the overall plant; the dead material is usually much drier than living tissue. Whereas dead material rarely has a moisture content higher than 25%, live foliage moisture content ranges from 60 to 80% for chaparral species in xeric conditions to a high of 200 to 400% for succulent plants or plants under irrigation.

- *Size of leaves, twigs, and branches*. Materials with large surface areas (such as needles, twigs, or large flat leaves) dry more rapidly under fire conditions than materials with lower surface ratios (such as branches and fleshy leaves).

- *Geometry and arrangement of the plant (overall spatial distribution of the biomass).* The shape of a plant and the way in which the biomass is distributed throughout the plant is important because this bulk density affects the air flow and heat transfer through the plant. The arrangement of material within the plant affects its fuel continuity and its tendency to undergo preheating and promote fire spread.

All of the above-mentioned plant characteristics are related to maintenance issues. Plants with a higher moisture content generally have a lower fire risk. For example, the moisture content of a plant is influenced by regular and proper irrigation, and large amounts of dead material lower the plant's overall moisture content. To increase the plant's overall moisture content, it is important to remove and properly dispose of dead material. In addition, regular fire-prevention maintenance should include thinning or pruning to reduce fuel volume and improve plant geometry.

An appropriately landscaped and maintained defensible space will reduce the fire hazard and the fire risk to structures. A landscape environment that is inconsistently or improperly maintained does not function as defensible space, and it contributes to the fire hazard. However, an appropriately landscaped and maintained defensible space will be provided with implementation of the project, and will reduce the fire hazard and the fire risk to structures.

PREDICTED FIRE BEHAVIOR WITH MANAGEMENT MEASURES IN PLACE

Once the suggested fire-mitigation measures have been implemented on the site with implementation of the project, fire behavior in the area within 100 feet of structures should exhibit less than 2-foot flame lengths. Flame lengths of less than 2 feet typically do not threaten structure survival, particularly under current building and fire codes. Also, because available fuels will either be kept mowed or will be compact in nature with implementation of the project, any ignited fire(s) should travel only at easily containable speeds.

Flame lengths produced further away than 100 feet from a structure would be slightly greater than within the Defensible Space Zone because grass is not required to be mowed annually, but crowning and torching of trees is minimized; fires are expected to quickly subside in intensity in the Defensible Space Zone.

With implementation of the project, structures are minimally exposed to ignition from embers because of a band of non-combustible materials immediately next to the structure and landscaping of low fuel volume.

DELEGATION OF FUEL MANAGEMENT RESPONSIBILITIES

Fuel Management

Every individual landowner will be required to and responsible for conducting fuel management on their own parcel. The landowner will be responsible for compliance with all applicable wildland fire codes.

Access Maintenance

Access and the right-of-way for the Emergency Evacuation route will be maintained by the Masson Estates management entity.

Easement Maintenance

Maintenance of easements, i.e., of trails or access to sewer lines, will be performed by the Masson Estates management entity.

Schedule of Initial Maintenance Responsibilities and Vegetation Management

Upon fire district clearance for issuance of building permits, the fuel management standards will apply to the lot encompassed by the building permit. Roadside standards will be enforced at the time the first parcel is issued a certificate of occupancy.

Initial Treatment (Year 1)

- Initial vegetation management actions for any lot will be completed before issuance of any relevant building permit. These actions include tree removal, tree pruning, removal of eucalyptus trees smaller than 8 inches in diameter, and grass cutting or grazing.
- The Masson Estates management entity is responsible to ensure fuel management is completed within 100 feet of the building under construction, regardless of land ownership.

Maintenance Phase

- All required clearing and grass cutting will be required prior to issuance of the first building permit and completed before June 1 of each year; if grazing has not achieved the standards set in the defensible space standards, the grass will be mowed to a height of approximately four inches.
- Grass cuttings and clippings will be removed the day they are cut. No clippings are permitted to remain in piles or scattered, unless so approved by the SCCFD.

- All brush piles and tree clippings are to be removed within one week of cutting. No brush or clippings are permitted to remain in piles, unless so approved by the SCCFD.
- Annual vegetation management measures include:
    - Removal of all combustible vegetation along roadways, driveways, access roads, and trails according to stated standards
    - Maintenance of the emergency-access easement
    - Maintenance of the defensible space around structures according to stated standards for the various fuel management zones.

Frequency of Maintenance

Grass

Grass will need to be mowed annually when 30% of the grass cover has cured (any time from April 15 - June 15). Should rains occur late in the season and produce more grass growth, the grass may need to be treated again.

Shrubs and Seedlings

The expected frequency of treatment of shrubs and removal of seedlings below the canopy of landscaping trees is estimated as every three years to five years. Shrubs may need to be pruned of dead wood, shortened, shrub groupings minimized in size, or new shrubs/ tree seedlings removed under tree canopies. Shrub removal or pruning may be done any time of year.

Application of an herbicide to prevent re-sprouting may be more effective in the spring, but will follow the PCA recommendation.

Trees

Thinning of smaller-diameter trees and initial pruning of lower small branches in the eucalyptus trees will be a substantial initial effort. After the substantial initial pruning, a need for annual 'touch-ups' is anticipated. Because trees typically grow from the top and ends of branches, a subsequent significant level of pruning needs to occur only every five years to ten years, depending on the rate of growth, and after significant events which may cause dead wood to develop or breakage to occur. Pruning of landscape trees and tree-like shrubs can be done at any time of the year, depending on recommendations from a professional arborist.

Summary of Frequency of Fuel Management

Management that will start as an initial treatment/Year 1, then occur every 3-5 years

- Remove new understory shrubs and eucalyptus seedlings
- Remove dead wood and branches from mature trees
- Prune trees of lower branches to re-establish vertical clearance

A rotation of pruning may be scheduled so that approximately 1/7th of the area is treated yearly.

Annual management

- Mow or graze grass near structures, and under trees and shrubs
- Hand crew cut shrubs and weeds in grasslands
- Monitor site for weed and shrub encroachment, maintain horizontal spacings between shrub masses in landscaped areas
- Inspect trees and large shrubs for deadwood, vertical clearances
- Re-establish vertical clearance in Defensible Space Zone
- Remove weeds, all dead material in Defensible Space Zone

VI. SUPPORT FOR EMERGENCY RESPONDERS AND EVACUATION

WILDLAND FIRE RESPONSE

Any fire on the site would be a high concern, and under severe weather conditions a fire can ignite and spread too quickly to be suppressed by local firefighting staff and equipment, threatening structures and potentially causing significant damage. Because it has the nearest facility, initial structure response and prolonged fire suppression actions are provided by the Santa Clara County Fire Department/CAL FIRE. Signage – including water supply and fire department connections – training, equipment, and communication are all important components to address – and are addressed below – in order to support a speedy and efficient structure or wildfire response.

Pre-Incident Planning

Pre-incident planning is the anticipation of a potential incident like a wildfire, and preparation for response, in the form of site-specific maps with non-obvious access places, water sources, and locations of particular hazards, or utility boxes and any back-up utilities (including solar battery shut-offs) and familiarization of the plan area by the local fire department responding to emergencies. Such maps, or other forms of information could be placed in a dedicated secured repository for fire response's use, possibly located at the location where first responders normally check in during an incident.

It should be noted that in large events with multiple conflagrations the fire response services can easily be overwhelmed. Having contingency plans in place as part of a wider resilience plan can help to respond and reduce impacts if there are delays from public services response. Redundant power and testing of line pressures under extreme flow conditions can ensure that any response is adequate and not stymied by confounding variables.

Another aspect of pre-incident planning is being aware of fire danger, including through apps on smart phones and devices. Several are easy to use and free, including:

- https://windy.app/map/
- Watch duty: https://app.watchduty.org/
- wunderground.com
- https://pocketstop.com/products/redflag/emergency-notification-mobile-app/.
- The National Weather Service provides a compendium of weather awareness apps, at https://www.weather.gov/enterprise/sw-alerts-app-1e/.

As part of pre-incident planning, Masson Estates should invite the City of Saratoga and Santa Clara County Fire Department to conduct annual joint training or conduct exercises at the site. It is well

known that fire suppression effectiveness is higher on sites where the site is familiar to the responders.

Speedy Detection and Notification

Speedy detection and notification procedures and methods entails both the notification of wildfires to the Santa Clara County Fire Department and notification of wildfires to staff, residents and the larger community to mobilize and coordinate both evacuation and to support emergency response. New technology (i.e. cameras or other sensors with detection and notification capabilities) is available. A few possible products and systems are described in the appendices.

Communications through radios, local internet providers or other means assist emergency response are a part of wildfire preparedness. Much progress has been made around alarms, alerts, and notifications regarding fire. However, these require cellular coverage or wifi connections. Steps should be taken to ensure that staff, residents, and visitors have access to the needed cellular coverage and high-speed internet. Residents should be encouraged to enroll in notification systems like Nixle https://www.nixle.com/ Everbridge, and Watch Duty https://www.watchduty.org/. Specific notifications within Masson Estates can be made independent of official county-wide notifications. For example, https://pocketstop.com/products/redflag/ offers such services. Suggestions regarding communications are included in the appendices.

PRE-ATTACK PLANNING

Pre-attack planning includes the preparation of site-specific maps with building locations, non-obvious blockages or narrow or steep paths, fire trails that lead off property, water sources and fire department connections, locations of particular hazards, and familiarization of the area by the local fire department responding to emergencies. Tours by the Santa Clara County Fire Department should be done on an annual basis, if not more frequently.

SIGNAGE

The Masson Estates management entity is responsible for installing high-contrast address signage consistent with California Fire Code, which requires four-inch stoke, with reflective or lighted. Each building will also need signage of names or numbers of buildings; these names or numbers will be placed on a pre-attack plan prior to issuance of the first building permit.

DETECTION

The purpose of detection is to quickly mobilize emergency response and evacuation. While detection is normally quite fast in the wildland urban interface, all Masson Estates homeowners should be offered annual training on how to detect and emphasize the importance to notify the appropriate authority (to call first 911) when an emergency occurs.

Detection systems are a quickly evolving technological field, with several types of sensors and alert systems entering the market. The backbone of the system is a network of cameras with regional detection capability. On a more local scale, newer sensors include chemical “sniffers” that detect fires. Additional technology is added to enable the sensors to notify or otherwise communicate to

designated parties. All require power. Evaluating a potential system and its configuration could be a useful addition to any encompassing mitigation strategy.

ALERTCalifornia (https://alertcalifornia.org/) camera systems serve as real time regional detection and monitoring technology that can identify ignition sites at early stages and send notification to dispatch emergency responders. The cameras are monitored by CAL FIRE "watchstanders" on a virtual dashboard at dispatch centers. Using the cameras and associated tools, first responders with the CAL FIRE confirm fire ignition, scale fire resources, and support evacuations.

ALERTCalifornia's cameras pan, tilt, zoom and perform 360-degree sweeps approximately every two minutes with 12 high-definition frames per sweep. The cameras provide 24-hour monitoring with near-infrared night vision capabilities. Each can view as far as 60 miles on a clear day, and 120 miles on a clear night. As shown in Figure 22 below, the two nearest cameras are located on Mount Rodini southeast of the project site, overlooking El Sereno Open Space Preserve. These cameras would also have the clearest view of the project site. Other nearby cameras on Mount Bielawski and in the Cupertino Hills primarily overlook wildland canyons to the property's northwest and southwest, respectively.

The cameras have "Forward Looking Infrared," technology which allows the camera to see fire through smoke. The system now employs artificial intelligence, which reduces false positives, and confirms fire incidents in the incipient phase.



Figure 22. Map of locations of nearby ALERTCalifornia cameras.

NOTIFICATION

Every residence will have an early warning fire alert system, as required by the City of Saratoga Ordinance No 1-2015. These systems include activators that span smoke detectors, heat detectors, automatic sprinkler systems, manually actuated alarm-initiating devices and an emergency push button. The resident will be notified of an emergency via sounds and lights. All systems will be monitored by the Fire District.

Additionally, this plan will assist the notification of wildfires to the Santa Clara County Fire Department and amongst the residents during times when power is off and cell phone coverage is limited. The project proponent will include in the homeowner education program information on GMRS radios for use during times of emergency. This effort to distribute radios to homeowners would be coordinated by the Masson Estates management entity.

EVACUATION

The City of Saratoga has adopted evacuation by zones, using an evacuation management tool, Genasys Protect (formerly Zonehaven Aware)[1]. The Zone for the project is within SAR-009; residents will follow the evacuation notices for that specific zone.

In addition, the Masson Estates management entity will prepare a site-specific evacuation plan in coordination with the Saratoga Fire Protection District, prior to issuance of the first certificate of occupancy. This plan will be distributed to residents and will be practiced annually.

[1] https://www.saratoga.ca.us/654/Know-Your-Evacuation-Zone

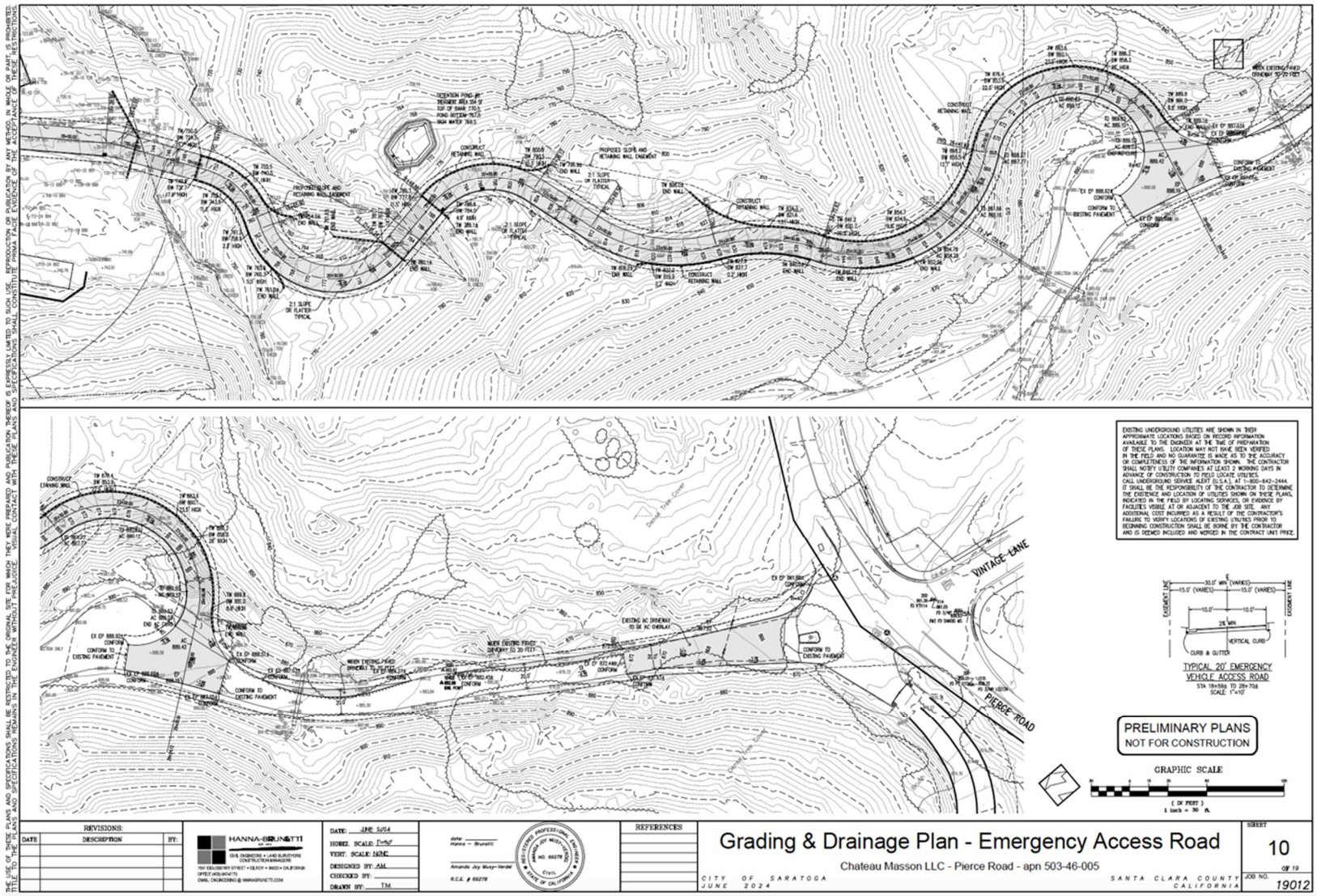

Figure 23. Map of emergency access road within the Masson Estates project site showing grading and drainage plans and road widths.

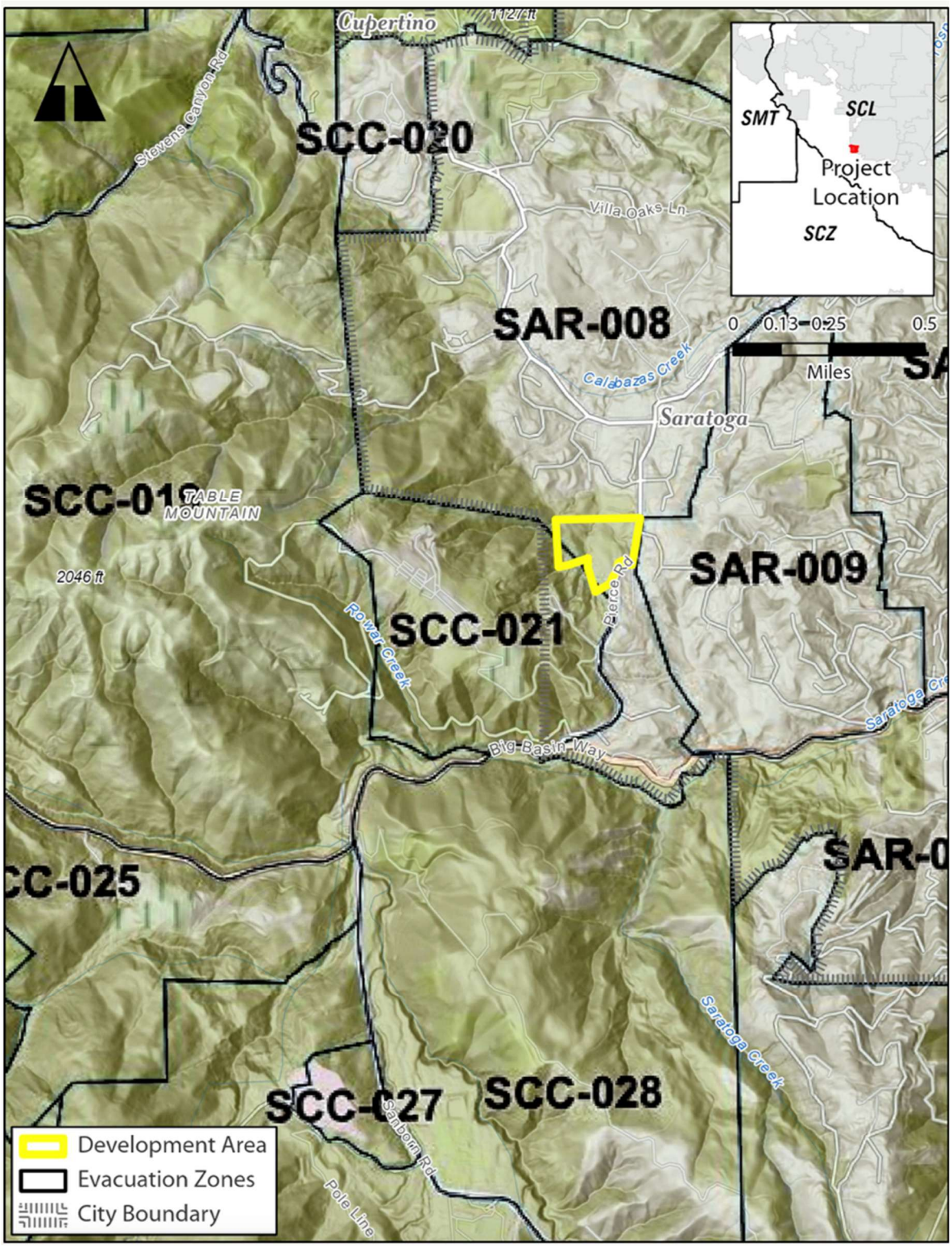

Figure 24. Map of evacuation zones in the Masson Estates vicinity.

VII. COMMUNITY AWARENESS AND NFPA FIREWISE USA RECOGNITION

The Masson Estates management entity is committed to working with residents to become an NFPA Firewise USA community. The national Firewise USA recognition program provides a collaborative framework to help neighbors in a geographic area get organized, find direction, and take action to increase the ignition resistance of their homes and community and to reduce wildfire risks at the local level.

The residents of Masson Estates will be expected to coordinate a variety of programs that promote and maintain fire safe conditions. The programs will address homeowner education and outreach, vegetation management and defensible space, and evacuation. While the structures will be built to some of the strictest codes in the nation under applicable laws – rendering them ignition-resistant – activities will also address this part of being fire safe.

VIII. IMPLEMENTATION MECHANISMS

COMPLIANCE WITH THE CONDITIONS OF APPROVAL

Declaration of Covenants, Codes, and Restrictions (CC&Rs)

The following language (or substantially similar language) will be included in the covenants, codes, and restrictions (CC&R's) of the Masson Estates subdivision project.

“The landowner shall be responsible for inspecting and maintaining the entire property in compliance with the vegetation management program approved by the Santa Clara County Fire Department with enforcement authority provided to the Santa Clara County Fire Department.”

"No owner or resident shall permit any condition to exist that creates a fire hazard or is in violation of applicable fire regulations. This may include trash piles or weeds.”

"There shall be no outdoor storage of firewood, kindling, or compost material within 30 feet of any structure during the declared fire season, unless the material is stored in a bin or enclosure with a solid non-combustible exterior.”

"The Property Owner shall be responsible for the maintenance of all improvements and vegetation management zones (Non-combustible Zone, Defensible Space Zone, or Roadside Management Zone).”

"The property owner shall maintain all landscaping in accordance with requirements of this Wildland Fire Protection Plan. The owner shall also maintain the landscaping improvements.”

DELEGATION OF RESPONSIBILITIES

Responsibility for implementation of all recommendations included in this WFPP resides with the Masson Estates management entity.

Construction Responsibilities

The Masson Estates management entity will be responsible for the initial design and construction of all improvements of the project, including roads, driveways, emergency vehicle access roads, homes, landscape improvements, utilities, and the initial vegetation management treatments on the project site.

Vegetation Management Responsibilities

Fuel Management Zone and Requirements

Individual will be responsible for maintenance of defensible space and fuel management zones, landscaping, and other management, monitoring, and maintenance functions within 100 feet of all

structures. A fuel management easement may be required in order to maintain defensible space on adjacent properties to ensure this 100-foot distance is treated. When the 100-ft defensible space zone extends beyond an individual parcel an easement will be requested for the entity with the structure within 100 feet to perform work to create and maintain defensible space within that zone. The payment for, timing, and methods of the work will be detailed in the easement.

Access

The Masson Estates management entity is responsible for maintaining the existing emergency access road extending onto the development area from the Remainder Area to integrate emergency response access with existing access on adjacent properties.

Evacuation

Access and the right-of-way for emergency evacuation will be maintained by the Masson Estates management entity.

Signage

The Masson Estates management entity is responsible for installing high-contrast address signage consistent with California Fire Code, which requires four-inch stoke, with reflective or lighted. Each building will also need signage of names or numbers of buildings; these names or numbers will be placed on a pre-attack plan.

Homeowner Education and Community Engagement

Throughout Santa Clara County, a solid framework of community organizations exists to provide resources and support to county residents about the risks of wildland fire and steps that can be taken to minimize those risks. The Masson Estates project is within the boundaries of the Santa Clara County Fire Safe Council. Integration of the planned development into the community fabric of the Fire Safe Council framework strengthens the fire resiliency of the Masson Estates project residents. As noted previously, the project site will be designated as a Firewise USA community.

See Appendix A for a homeowner emergency preparedness education and notification program. Current materials for homeowner education and notification are also available from the Ready for Wildfire program at www.readyforwildfire.org.

PHASING OF MAINTENANCE RESPONSIBILITY AND VEGETATION MANAGEMENT

Pre-Construction Phase

- Hydrants will be installed and operational before framing begins.
- Initial vegetation management actions for any lot will be completed before framing of the first parcel begins (if framing takes place between June 15 and Nov. 1). These actions include tree removal, tree pruning, and grass cutting for all fuel management zones,

including evacuation support treatments and roadway treatments to ensure emergency access.

- The Masson Estates management entity is responsible for ensuring fuel management is completed within 100 feet of the building under construction, regardless of land ownership.

- A construction fire-prevention plan must be submitted to the SCCFD Fire Marshal before building permits are issued. This plan will include precautions to carry out during high fire danger, a list of tools to have on hand, a description of available communications, specifications for the supply of water to have on hand, and descriptions of other actions that will reduce the risk of ignition and immediate control of an incipient fire.

Maintenance Phase

- All required clearing and grass cutting will be completed before June 15th of each year. Mowing must be completed within one week after 30% of the grass has cured.

- Annual vegetation management measures include those listed in the Delegation of Fuel Management Responsibilities section above.

MECHANISMS FOR COMPLIANCE

Starting with the first year in which a building permit is obtained, the Masson Estates management entity will need to obtain a certification by a qualified fire management professional, by June 15, that the minimum standards have been achieved and maintained. On an annual basis, the Masson Estates management entity will request a qualified fire management professional inspect and certify on an annual basis that the area encompassed by this plan has been maintained as detailed in the Vegetation Management Plan. This professional will submit a certificate of compliance by June 15. Homeowners may send this certificate to insurance carriers as evidence of compliance with this WPP. Compliance with vegetation management requirements will need to be done yearly in advance of inspection.

Additionally, the Masson Estates management entity will certify annually that the evacuation plan has been practiced.

The NFPA Firewise USA Community recognition needs to be updated annually, with demonstrated commitment to firewise activities in the form of vegetation removed, a community meeting and volunteer time. This serves as a means of compliance with the recommendation that the community become a Firewise USA community.

PROCESS FOR PLAN REVISION

While this plan presents recommendations that cover future actions, the Santa Clara County Fire Department will have authority to review periodically the condition of vegetative fuels, in order to provide input and direction. Potential issues that should be addressed during this review include:

- Changed fuel hazard conditions including: height of tree branches, size, density or species of vegetation, or fuel load and erosion control or slope stability conditions.
- Lot line adjustments that may change the distances and areas for which the Property Owner is responsible.
- Changes in land use of adjacent properties.

An initial three-year interval of review is recommended, with a five-year interval review thereafter. Input of the SCCFD would be based on site visits, results, and observations from the annual inspections conducted by the Department, and experiences from recent wildfires or changes in ordinances or regulations.

If any changes are proposed, the Masson Estates management entity will submit this plan, along with suggested revisions, to the SCCFD for their input. The SCCFD input will be incorporated, and the plan revised. The revised plan would be implemented the following year.

IX. CEQA CONSIDERATIONS

This section contains the proposed practices and implementing programs that would avoid or reduce significant wildfire impacts to less than significant levels.

THRESHOLDS OF SIGNIFICANCE AND IMPACTS OF THE PROJECT

Based on Appendix G of the State CEQA Guidelines, implementation of the project would have a significant impact related to wildfire if it would:

a) Substantially impair an adopted emergency response plan or emergency evacuation plan;

The City of Saratoga addresses evacuation in three plans: The Local Hazard Mitigation Plan,[1] the Safety Element of the City's General Plan,[2] and the City-specific Annex to the Santa Clara Community Wildfire Protection.[3]

LOCAL HAZARD MITIGTION PLAN

The City of Saratoga's LHMP recommends a new evacuation route, but it was to address earthquake hazards rather than fire hazards, and it was construction of an emergency access road connecting Montalvo with Norton Road. This means the plan analyzed the need for additional evacuation routes, but concluded that no more evacuation routes were recommended to respond to the wildfire hazard.

The LHMP references the Santa Clara County Fire's CWPP covering the county, as a potential for integration.

Threat and Hazard Identification and Risk Assessment is accomplished through the Santa Clara County Operational Area.

The Hazard Risk Ranking in the LHMP for wildfire is second to earthquakes, with a risk rating score of 45, and is categorized as high. The past occurrences of natural hazards within the City encompass drought, wind, rain, freeze and earthquake. There have been no FEMA-declared disasters in the City of Saratoga.

Three SARs (SAR 9, 10, 11) are mitigation actions that address wildfire hazards. Two actions (SAR 10, 11) pertain to prevention measures, and one (SAR 9) pertains to property protection.

SAR 9 proposes to retrofit existing structures to render them more ignition resistant. This action has a high cost and a high benefit, and a medium implementation priority.

[1] https://www.saratoga.ca.us/DocumentCenter/View/2786/Local-Hazard-Mitigation-Plan---2017
[2] https://www.saratoga.ca.us/DocumentCenter/View/5405/General-Plan-Safety-Element-PDF
[3] https://www.saratoga.ca.us/DocumentCenter/View/1760/Saratoga-Community-Wildfire-Protection-Plan-CWPP

SR 10 proposes to integrate hazard mitigation plan into other plans, ordinances and programs regarding land use decisions. This action has a medium benefit and a low cost, and a high implementation priority.

SR 11 is to actively participate in the plan maintenance protocols. This has a low benefit and low cost, and high implementation priority.

CITY OF SARATOGA GENERAL PLAN, SAFETY ELEMENT, MARCH 2024.

The safety element recognizes that a fire could burn out of control during high fire danger times, creating hazards to people and property, as well as indirect damages and economic losses.

The plan provides guidance regarding evacuation stating that "Development in areas of fire hazard should be guided by prevention requirements, such as fire resistant building construction and materials, adequate space between structures, available water supply, fire resistant plant materials, quality of year-round firefighting service, available evacuation routes, access routes level enough for fire equipment use, and the creation and maintenance of fire breaks especially in areas of increased fire hazard."

Access is a key component of fire hazard prevention; fire-fighting equipment must be able to reach fires and residents and visitors must be able to evacuate during a fire. Private roads, particularly in hillside areas, are less likely to meet access and maintenance standards required for public roads. The most effective method for avoiding fire risk in hazardous areas is the regulation of housing development and the provision of alternate access routes for developed areas. Unmaintained county roads may fail to meet City road construction standards and may not provide adequate or alternative means of access."

Residents of the project can evacuate immediately onto Pierce Road, and can use the proposed emergency evacuation route from Lot 20 to connect to Vintage Lane, which eventually meets with Pierce Rd at the Intersection of Mountain Winery Rd and Pierce Rd. The roads to be used for evacuation within the project will be maintained by the Masson Estates management entity; the emergency access linking Vintage Lane will be maintained by the Mountain Winery.

The Safety Element identifies a Wildland Urban Interface Zone in the area of the project. It notes that special protection measures, which are characterized as compliance with Chapter 7a of the Fire Code) and planning are needed. The project complies with Chapter 7a.

The General Plan 2040 allows new residential development within the WUI, and limits the development strictly to very-low density residential uses on single family lots, and that all new proposed multi-family residential development would be outside the WUI Zone.

All single-family residents will have automatic fire sprinkler systems and early warning fire systems, per Ordinance No. 1-2015 of the City of Saratoga. This will reduce the evacuation time of the residents of the project, and enable fire response to act at the scene of the fire faster.

City of Saratoga CWPP ANNEX 6, 2016

Structures that fall within the City of Saratoga are subject to the City planning ordinances:

Designated WUI areas require application of Chapter 7A WUI regulations of the City's adopted Building Code.

Saratoga has adopted the WUI Requirements under the California Fire Code, with amendments to address local conditions that can be viewed here:

https://library.municode.com/ca/saratoga/codes/code_of_ordinances?nodeId=CH16BURE_ART16-20FICO_16-20.150AMCH49FICOREWIBAINFIAR

The CWPP sets forth Recommendations for Improving Firefighting Capabilities in the City of Saratoga. Two projects that are described, to be carried out by County Fire/CAL FIRE/Fire Safe Councils.

S-FC2.1 strives to reach strategic goal FC-2 to Define Safe Refuge Areas and establish maintenance program in WUI areas where fire behavior and evacuation timing is problematic. The project is to "Define and delineate spatially Safe Refuge Areas and establish maintenance program in WUI areas where fire behavior and evacuation timing is problematic. Example: Mountain Winery". The benefits are to provide safety measures for residents of rural areas in event that evacuation is limited, and to provide for public and firefighter safety by creating escape routes. This is ranked as the highest category of priority.

This project includes a new emergency access route that creates another escape route from the site. In addition, the combination of ignition-resistant construction, and maintenance of the fuels within the development would offer locations that could be deemed safe to stay within the project site.

S-FC5.1 is intended to reach goal FC5 to Develop WUI preplans and accompanying evacuation plans for all WUI areas in Santa Clara County using standardized format. The project is to "Develop WUI preplans and accompanying evacuation plans for Saratoga WUI". The benefit is to help fire response agencies pre-plan for evacuations, and helps identify areas where mitigation measures are needed to facilitate safe evacuation, and helps establish consistent model across all agencies. This is ranked as the highest category of priority.

To implement the recommendation, the City of Saratoga has adopted evacuation by zones, using an evacuation management tool. Genasys Protect (formerly Zonehaven Aware) helps communities, and first responders more effectively plan, communicate, and execute evacuations. It is a platform where residents can look up addresses using the search bar and use the zone map to find evacuation information for that area.[1] The Zone for the project is within SAR-009; residents will follow the evacuation notices for that specific zone. This project would not conflict with the evacuation protocols in place.

[1] https://www.saratoga.ca.us/654/Know-Your-Evacuation-Zone

Another project, S-FR7.1 is intended to satisfy Strategic Goal FR7: Develop roadside fuel treatment program, including suite of methods available and sustainability mechanism. This project is to Implement roadside brushing/mowing throughout community to increase buffer from wildfire ignitions and provide for safe evacuation. Community members to approach SCCFSC to identify roadside fuel treatment priorities and seek funding to implement. The benefit of this project is to reduce fuel loading around roads and highways to ensure safe passage of vehicles in event of evacuation and reduce unplanned ignitions from vehicles and highway users.

The Masson Estates housing development project has specific roadside vegetation management standards that will be monitored and certified as compliance annually by the Masson Estates Management entity.

Otherwise, Santa Clara County does not have an adopted emergency response plan or emergency evacuation plan.

This project would advance preparation of a local evacuation plan, and support effective evacuation on Pierce Rd through roadside fuel management, assistance in traffic control in the event of evacuation during time of high fire danger thereby having a beneficial impact.

In addition, the wildfire protection plan calls for a site-specific emergency operations plan that will specify the appropriate evacuation procedure, and ask for review by the local fire department and emergency operations officials; this will ensure that the emergency response plan or emergency evacuation plan is not in conflict with agreed-upon existing plans. Wildfire Protection Plan furthermore calls for annual practice of emergency procedures with neighbors.

For the foregoing reasons, the project will not impair an adopted emergency response plan or emergency evacuation plan. Accordingly, the project will create a less-than-significant impact.

b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire;

Due to the increased number of persons using the site, and increased vehicular traffic, the risk of ignition would be higher when the project is complete. There is a greater chance that a vehicle may malfunction, an accidental fire would ignite from a fire pit or barbecue, or a chainsaw may start a fire while doing needed vegetation maintenance, despite the fact an ignition prevention plan will be in place that limits activities that can cause ignitions during times of fire danger. Moreover, the proposed project involves a prolonged period of continued construction and use of heavy equipment for hardscaping and landscaping, with multiple human uses of the site overlapping with construction and restoration activities.

However, upon completion and with continued maintenance, the vegetation will be less flammable, ignitable, nor conducive to fire spread, relative to current pre-project conditions, especially since the project will be replacing much non-native, more flammable vegetative species with more drought- and ignition-resistant native species. Detection and notification of a fire would be much faster than in the current unsupervised situation; this would likely result in smaller and less damaging fires if one should ignite. Access to the wildlands is increased, expediting emergency response, similarly resulting in a less damaging fire, should one ignite. Also, as the project is aimed at restoring the

watershed, heavy vehicle penetration of the site is not planned. Thus, the overall possibility of damage and harm to the project occupants is less than it is currently.

Smoke and other pollutants from wildfire could spread to the City of Saratoga, if the fire burned under with a westerly wind. This would be a rare event; normally fires that have a high potential for spread burn under northerly winds, which would blow the smoke away from areas of residential development.

After implementation of the approved wildfire protection plan that includes fuel management, installation of detection and notification systems, along with protocols for evacuation, occupants of the project will also be less exposed to smoke or risks from wildfire. Smoke production would be vastly reduced, and occupants would have evacuated.

For the foregoing reasons, the project will not exacerbate wildfire risks, and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire. The project includes all the needed activities and considerations to create a less-than-significant impact.

c) Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment;

Construction, along with initial vegetation treatments and maintenance, along with improved access onto the site, all increase risk of ignition. Additionally, these activities would result in temporary impacts to vegetation. Construction is correlated with a high risk of ignition. Motorized equipment to both construct access and maintain vegetation in a fire-safe condition also can start fires, even when spark arrestors are in place. Installation of associated infrastructure – in the form of additional roads and powerline extension – is minimal in this project, consisting of paved roads off an existing road and one paved spine for emergencies; these offer minor additional opportunities for ignitions.

An ignition prevention plan will be in place that limits activities that can cause ignitions during times of fire danger. As above, conditions with the project in place are less hazardous, due to improved access for emergency response and less flammable and voluminous vegetation, even with the prolonged planned construction and maintenance periods. Thus, relative to pre-project conditions the overall fire risk is reduced as a result of the project. Therefore, less than significant impacts would occur.

d) Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment;

The eastern/southeastern quadrant of the proposed subdivision is designated as part of the Very High Fire Hazard Severity Zone within the Local Responsibility Area; the remainder of the proposed subdivision is designated as a High FHSZ within the LRA. The site is also ranked as presenting High and Very High Risk to Structures.

Vegetation treatments follow the fuel management standards and best practices and will be certified annually as implemented per the Wildfire Protection Plan; the impacts of the fuel treatments themselves would be less than significant because surface soils are not to be exposed, no living trees need to be removed, and no vegetation types conversions are required. No drainages would be altered.

The construction of the emergency access road has the potential to cause erosion; however, the Stormwater Pollution Prevention Plan required by the Regional Water Quality Board provides the necessary safeguards to bring this impact below the level of significance.

e) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires.

Through implementation of the Wildfire Protection Plan, the exposure of people and structures from wildfire's impacts is estimated to be less than under current, pre-project conditions. The many layers of protection that comprise the Wildfire Protection Plan (comprehensive and on-going fuel management, improved access and situational awareness and communication, a detailed ignition prevention plan, along with improved on-site training of homeowners) all reduce the exposure compared with existing conditions. Impacts would therefore be less than significant.

APPENDICES

APPENDIX A: HOMEOWNER EDUCATION PROGRAM

For additional fire preparedness information, consult the Santa Clara County Fire Department reference Ready-Set-Go, available at https://www.sccfd.org/education-and-preparedness-overview/emergency-preparedness/rsg/.

THE ANNUAL FIRE THREAT

The actions to take are to trim lower tree branches, shorten the height of grasses and shrubs to reduce the chance of spreading the fire, and to reduce the overall quantity of fuel available to burn.

ACTION PLAN

The higher the hazard, the greater the risk to your house, and the more you need to do to assure survival from an approaching wildfire.

Quick Fixes

These are relatively inexpensive and easily carried out by the homeowner. No matter which level of hazard, these should be done immediately, not when a fire is approaching – do them now!!

Plants near your house

- Vigorous and smaller is better; don't keep older, larger, and dying plants within 6 feet of your house – get rid of them!
- Maintain your plants; get rid of dead branches and dead material under the plants; make sure they are watered regularly, preferably with a drip system.
- Do not plant or keep fire hazardous plants – see the web site for a list of less flammable plants. See https://firesafemarin.org/create-a-fire-smart-yard/plants/.
- Make sure that you minimize any plants under windows, near decks, or at inside corners.

Other plants and trees on your lot

- No trees should have branches within 6 feet of your roof – cut the branches or remove the tree if necessary.
- Create islands of vegetation so that fire does not have a path to your house. Be sure that no large bushes are under trees – these could cause a crown fire.
- Lawn grass is great, but be careful of using a lot of landscaping bark and mulch – this could cause smoldering of embers.
- Annual grasses are a major hazard in the fall when they cure, especially if you have grasses on a slope leading up to your house. Cut these or get them grazed ***before*** they die!

Other combustibles

- The area within 30 feet of your house is especially significant – do not store firewood and other burnable stuff within this zone, especially under decks.
- Keep that barbecue propane tank as far away from the house as possible!
- Clean your gutters regularly, especially when the rainy season is over and you're more likely to not think about gutter debris; better still, cover your gutters with metal screening.

Spacing between shrubbery, with materials like grass or gravel will provide a fire break. Create green islands instead of large clumps of vegetation. The gaps should be greater as you approach the house.

Prefire Readiness

There are several options if a fire threatens your home that depends on your degree of readiness and capability. If you have taken measures such as the Quick-fixes, some of the important Long-term actions, and have done your Prefire planning (below), you should be ready if a fire threatens your house.

Know your Zone for evacuation and be aware of the wildfire situation. Check for updates of weather at windy.com, and wildfire locations on apps such as Wildfire Tracker. Evacuate well in advance of a wildfire and before an evacuation is officially called for. Evacuating early takes you out of harm's way, and helps firefighters concentrate on fire suppression, not getting you out or accounting for you. The following items are good pre-fire preparedness practices, in case wildfire blocks an evacuation route and requires you to stay.

a. Keep your lot fire-safe! Rake dead leaves, trim shrubs, and make sure all combustibles are away from any structures.

b. Make a list of places where water is or can be stored: swimming pool, buckets, bathtubs, toilet tanks, etc. These will serve as your reservoirs for putting out fires once the front has passed. Some will also provide drinking water – don't assume that you will have water pressure. A suggestion is to have a number of "fire" labeled buckets nested together and stored inside.

c. Make a list of important items that you want to assemble in the event of a necessary evacuation. Don't wait for the fire to arrive and then try this.

d. Do an attic survey to see how well you can inspect it to locate embers during a fire. Particularly note accessibility of areas near vents and make a drawing, showing how you will inspect the attic after the fire front has passed.

e. If you have pets, make sure that you have a carrier for each.

f. Consider a self-powered water pump that could be used for hoses and yard sprinklers. Yard sprinklers can be effective, but they use very large volumes of water. If you consider this option, you should make a practice run with the pump and your water reservoir (don't assume that you will get water from the mains, but plan on using it as long as it comes).

g. You may want to obtain a portable spray tank (at least two-gallon capacity).

h. Make sure that you have a wet mop (fabric type) or burlap bags that can be used to put out brands. Set these aside for fire use only!

i. Protective clothing: gloves, boots or heavy work shoes, coveralls (long sleeve), a hat, goggles for eye protection.

j. At least two ladders, one that can reach your roof and another to permit you to enter the attic (both stored inside).

k. Assemble an emergency kit consisting of:

1. A list of all the equipment and materials that might be needed for fire protection.
2. Flashlight and spare batteries (plus a rechargeable one if it would be locatable).
3. Several screwdrivers (for attaching covers – don't assume that you will have power or a fully charged portable screwdriver). Have enough so that everyone can help.
4. Battery powered radio.
5. Telephone numbers for relatives.
6. Attic survey map.
7. Face masks to filter smoke particulate.

Fire Response

The following are preparation measures when a wildfire is reported:

- Evacuate any children, elderly, or disabled persons long before the fire arrives, preferably at the first indication that a fire is anywhere in your area.
- Place blankets and water in the car for evacuation and determine alternate routes to leave.
- If you have precut materials ready for windows and vents, get them nailed or screwed in place.
- Plug your downspouts with something like socks filled with sand or dirt, and fill your gutters with water.
- Remove all materials on your decks, porches, or landings.
- Make sure that your "water reservoirs" and portable tanks are filled, and have mops and hoses readied, but keep these inside.
- Remove any inside window coverings such as drapes or furniture that might catch on fire from radiation through the windows or after window breakage.
- Check your emergency kit and related supplies (hoses, ladders, etc.) and have at a convenient place.
- Gather your protective clothing.
- Have your hose connected to your supply and under pressure.
- Have your roof ladder ready to go; set up your attic ladder to be able to easily enter the attic area.
- Survey the outside to make sure that everything is in readiness.

Fire Suppression

These measures are intended to help you cope with the fire. In case you are forced to stay and you have done everything listed above in preparation, you have an excellent opportunity to save your home, but you must be prepared for an emotionally draining experience.

The preparation must be done well in advance of the fire season. For some of these items, you need a fair amount of time under unstressed conditions. If these are not done, you may be at risk in remaining with your house!

Typically, in a wildfire, there are three stages of exposure of your house:

a. Firebrands (embers) arrive well in advance of the main firefront. Since the fire will be wind-driven, so will the brands and many can arrive long before you think your home is threatened. It is critical that these brands not be permitted to get into crevices or ignite vegetation.

b. The firefront arrives with big flames, a lot of noise, and high radiation intensity. This is a pretty scary time and usually causes panic. If you are forced to stay because the evacuation route is blocked, stay in the house; don't go out and expose yourself to the radiation – this is one of the greatest threats to life safety. The house will protect you! Also, be aware that the front passes very quickly, usually in 10 minutes or less.

c. The post-firefront period. Once the front has passed, there is a great opportunity to put out spot fires that have occurred or will still occur until everything has settled down. Brands are likely to still arrive by riding wind currents.

Just before the fire comes, wet down the side of the house that appears to be the most vulnerable. Be sure to get water into any crevices, including around windows, inside corners, siding, etc.

Wait until the firefront has passed and it is safe to venture outside. Put on your protective clothing and go out with the portable water supply to make an assessment of the immediate dangers and put out any spot fires. Be careful when going out so that you do not breathe superheated air.

Be prepared to be on patrol near your house for 4 hours or more. It will be hot and very uncomfortable, so drink lots of water – every 10 minutes is a good rule of thumb.

Your attic is a particularly vulnerable area that must be regularly checked for any embers that have entered. These embers might not be as obvious if they filter down through the insulation.

Experience in many parts of the world has shown that prepared and able-bodied residents can cope with wildfires that threaten houses!

APPENDIX B: CITY OF SARATOGA AMENDMENTS TO MUNICIPAL CODE CHAPTER 16 ARTICLE 15

City of Saratoga Code of Ordinances Chapter 16 includes building and fire regulations that apply to the Masson Estates proposed subdivision.

Chapter 16, Article 15 adopts the 2022 California Building Code and makes relevant amendments, including amendments regarding the use of noncombustible or ignition-resistant materials for construction of accessory structures and regarding requirements for automatic sprinkler systems in newly constructed homes. These amendments include:

- Amendments to specifications for roof coverings within the WUI (Section 1505.1.4), stating that "[t]he entire roof covering of every existing structure where more than 10 percent of the total roof area is replaced within any one-year period; the entire roof covering of every new structure; and any roof covering applied in the alteration, repair, or replacement of the roof of every existing structure shall be a fire-retardant roof covering that is at least Class A and must also comply with section 705A of the Building Code."

- Amendments to specifications regarding the underside of appendages (Section 707A.9), stating that "[t]he underside of overhanging appendages shall be enclosed to grade in accordance with the requirements of this chapter or the underside of the exposed underfloor shall consist of one of the following: 1) Noncombustible material; 2) Ignition-resistant material; 3) One layer of 5/8-inch Type X gypsum sheathing applied behind an exterior covering on the underside of the floor projection; 4) The exterior portion of a 1-hour fire resistive exterior wall assembly applied to the underside of the floor including assemblies using the gypsum panel and sheathing products listed in the Gypsum Association Fire Resistance Design Manual; or 5) The underside of a floor assembly that meets the performance criteria in accordance with the test procedures set forth in SFM Standard 12-7A-3 or ASTM E2957. Exception: Structural columns and beams do not require protection when they are constructed with sawn lumber or glue-laminated wood with the smallest minimum nominal dimension of 4 inches (102 mm). Sawn or glue-laminated planks splined, tongue-and-grove, or set close together and well spiked.

- Amendments to specifications regarding accessory structures (Section 710.3), stating that "[a]ccessory structures shall be constructed of noncombustible or ignition-resistant materials as described in Section 7041.2" and deleting Sections 710A.3.1-3.

- Amendments to specifications regarding automatic sprinkler systems (Section 903.2), stating that "[a]pproved automatic sprinkler systems in new and existing buildings and structures shall be provided in the locations described in this Section or in Sections 903.2.1 through 903.2.12 whichever is the more restrictive and Sections 903.2.14 through 903.2.21. For the purposes of this section, firewalls and fire barriers used to separate building areas shall be

constructed in accordance with the California Building Code and shall be without openings or penetrations.

1) An automatic sprinkler system shall be provided throughout all new buildings and structures, other than Group R occupancies, except as follows:

    a. Buildings and structures not located in any Wildland-Urban Interface and not exceeding 1,200 square feet of fire area.

    b. Buildings and structures located in any Wildland-Urban Interface Fire Area and not exceeding 500 square feet of fire area.

    c. Group S-2 or U occupancies, including photovoltaic support structures, used exclusively for vehicle parking which meet all of the following:

        i. Noncombustible construction.

        ii. Maximum 5,000 square feet in building area.

        iii. Structure is open on not less than three (3) sides nor 75% of structure perimeter.

        iv. Minimum of 10 feet separation from existing buildings, or similar structures, unless area is separated by fire walls complying with California Building Code 706.

    d. Canopies, constructed in accordance with CBC 406.7.2, used exclusively for weather protection of vehicle fueling pads per CBC 406.7.1 and not exceeding 5,000 square feet of fire area.

2) An automatic sprinkler system shall be installed throughout all new buildings with a Group R fire area.

Exception: Accessory Dwelling Unit, provided that all of the following are met:

    a. The unit meets the definition of an Accessory Dwelling Unit as defined in the Government Code Section 65852.2.

    b. The existing primary residence does not have automatic fire sprinklers.

    c. The accessory dwelling unit does not exceed 1,200 square feet in size.

    d. The unit is on the same lot as the primary residence.

    e. The unit meets all apparatus access and water supply requirements of Chapter 5 and Appendix B of the 2022 California Fire Code.

3) An approved automatic fire sprinkler system shall be installed in new manufactured homes (as defined in California Health and Safety Code Sections 18007 and 18009) and multifamily manufactured homes with two dwelling units (as defined in California Health and Safety Code Section 18008.7) in accordance with Title 25 of the California Code of Regulations.

4) An automatic sprinkler system shall be installed throughout existing buildings with a Group R fire area when additions are made causing the fire area to exceed 3,600 square feet.

Exception: Additions where all of the following are met:

a. Building addition does not exceed 500 square feet.

b. The resultant structure meets all water supply requirements of Chapter 5 and Appendix B of the 2022 California Fire Code.

5) An automatic sprinkler system shall be provided throughout existing Group A, B, E, F, L, M, S and U buildings and structures, when additions are made that increase the fire area to more than 3,600 square feet or that create conditions described in Sections 903.2.1 through 903.2.18.

6) Any change in the character of occupancy or in use of any building with a fire area equal to or greater than 3,600 square feet which, in the opinion of the fire code official or building official, would place the building into a more hazardous division of the same occupancy group or into a different group of occupancies and constitutes a greater degree of life safety (1) or increased fire risk (2), shall require the installation of an approved fire automatic fire sprinkler system.

(1) Life Safety – Shall include, but not limited to: Increased occupant load, public assembly areas, public meeting areas, churches, indoor amusement attractions, buildings with complex exiting systems due to increased occupant loads, large schools/day-care facilities, large residential care facilities housing non-ambulatory clients.

(2) Fire Risks – Shall include, but not limited to: High-piled combustible storage, woodworking operations, hazardous operations using hazardous materials, increased fuel loads (storage of moderate to highly combustible materials), increased sources of ignition (welding, automotive repair with the use of flammable liquids and open flames)."

- An amendment to specifications for fire alarm and fire detection system testing and maintenance, stating that "[t]he maintenance and testing schedules and procedures for fire alarm and fire detection systems shall be in accordance with Sections 907.8.1 through 907.8.4 and NFPA 72. Records of inspection, testing and maintenance shall be documented using NFPA 72 record of inspection and testing forms."

Chapter 16, Article 20 adopts the 2022 California Fire Code and 2021 International Fire Code and makes amendments, including to Fire Code Chapter 49, which covers requirements for Wildland-Urban Interface Fire Areas. These amendments include:

- An added definition of the areas to which these requirements apply (Section 4901.3), namely "all areas within the City of Saratoga as set forth and delineated on the map entitled 'Wildland-Urban Interface Fire Area';"

- An added list of exemptions (Section 4901.4) noting that "[t]hese requirements shall not apply to any land or water area acquired or managed for more of the following purposes or uses:

    - Habitat for endangered or threatened species, or any species that is a candidate for listing as an endangered or threatened species by the state or federal government.

    - Lands kept in a predominantly natural state as habitat for wildlife, plant, or animal communities.

    - Open space lands that are environmentally sensitive parklands.

    - Other lands having scenic values, as declared by the local agency, or by state or federal law.

- An amendment to the definition of the Wildland-Urban Interface Fire Area (Section 4902), defined as "[a] geographical area identified by the state as a 'Fire Hazard Severity Zone' in accordance with the Public Resources Code Sections 4201 through 4204 and Government Code Sections 51175 through 51189, or other areas designated by the enforcing agency to be at a significant risk from wildfires. The Wildland-Urban Interface Fire Area shall be defined as all areas within the City of Saratoga as set forth and delineated on the map entitled 'Wildland-Urban Interface Fire Area' which map and all notations, references, data and other information shown thereon are hereby adopted and made a part of this chapter. The map properly attested, shall be on file in the Office of the City Clerk of the City of Saratoga and a copy shall be available on the City's website."

- Added requirements and one exemption, including the following:

    - 4906.1.1 Hazardous vegetation and fuels shall be managed to reduce the severity of potential exterior wildfire exposure to buildings, to reduce the risk of fire spreading to buildings, and provide for safe access for emergency wildland fire equipment and civilian evacuation concurrently, as required by applicable laws and standards.

    - 4906.1.2 Maintenance required. Maintenance is required to ensure conformance with these standards and measures, and to assure continued availability, access, and utilization, of the defensible space during a wildfire.

  - 4906.1.3 Additional measures. No person subject to these regulations shall permit any fire hazard, as defined in this chapter, to exist on premises under their control, or fail to take immediate action to abate a fire hazard when requested to do so by the enforcing agency.

  - 4906.1.4 Exemption. For the purposes of this chapter, vegetation removal or management, undertaken in whole or in part, for fire prevention or suppression purposes shall not be deemed to alter the natural condition of public property.

- An amended identification of where fuel management measures are to be applied (Section 4906.2 Application). "Buildings and structures located in the following areas shall maintain the required hazardous vegetation and fuel management:

  - All unincorporated lands designated by the State Board of Forestry and Fire Protection as State Responsibility Areas (SRA) including:

    - Moderate Fire Hazard Severity Zones

    - High Fire Hazard Severity Zones

    - Very High Fire Hazard Severity Zones

  - Land designated as a Very High Fire Hazard Severity Zone or as a Wildland Urban Interface Fire Area by the City of Saratoga."

- An amended set of requirements (Section 4907.3): "Hazardous vegetation and fuels around all buildings, roads, driveways, and structures shall be maintained in accordance with the following laws and regulations:

  - Public Resources Code, Sections 4291 through 4296.

  - California Code of Regulations, Title 14, Division 1.5, Chapter 7, Subchapter 3, Article 3, Section 1299.03.

  - California Government Code, Sections 51175-51189.

  - California Code of Regulations, Title 19, Division 1, Chapter 7, Subchapter 1, Section 3.07.

  - Any local ordinance of the City of Saratoga.

- An added section on water supply within the WUI (Section 4912) stating that "[b]uildings and structures, or portions thereof, hereafter constructed or relocated into or within the Wildland-Urban Interface Fire Area shall be provided with fire protection water supplies in accordance with Chapter 5 and Section 4909.2. Exception: Buildings containing only

private garages, carports, sheds and agricultural buildings with a building area of not more than 500 square feet (56 m2)."

    - Further, an added subsection on standby power (Section 4912.2) delineates that "[s]tandby power shall be provided to pumps, controllers and related electrical equipment so that stationary water supply facilities within the wildland-urban interface area that are dependent on electrical power can provide the required water supply. The standby power system shall be in accordance with the Electrical Code. The standby power source shall be capable of providing power for a minimum of two hours. Exceptions: 1) When approved by the code official, a standby power supply is not required where the primary power service to the stationary water supply facility is underground. 2) A standby power supply is not required where the stationary water supply facility serves no more than one single-family dwelling.

- An added section on ignition source control (Section 4913) states that [f]ireworks shall not be used or possessed in the Wildland-Urban Interface Fire Area."

J.2 - Evacuation Analysis

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TECHNICAL MEMORANDUM

November 22, 2025 Project# 31788

To: Jason Brandman, First Carbon Solutions

From: Grace Carsky, Mike Aronson, Pavithran Balan

RE: Masson Estates Evacuation Analysis – Draft Results

Introduction

Kittelson & Associates, Inc. (Kittelson) is providing an evacuation transportation analysis for proposed development at the Masson Estates Site (Project) in Saratoga, CA. This assessment provides estimates of roadway capacity constraints during evacuations and changes in travel times associated with the proposed development. This memorandum presents the evacuation analysis methodology, results, and evacuation planning considerations for the proposed development.

PROJECT DESCRIPTION

The proposed Project site is located west of the intersection of Pierce Road and Saratoga Heights Drive in Saratoga, CA. The Project includes the construction of 25 single family homes. Access to the project site would be provided by a new street (Masson Estates Way). The project area is bounded by Pierce Road to the east, which connects to Big Basin Way (State Route 9) to the south, and Mt. Eden Road to the northeast. Access to the site is provided by a proposed roadway, Masson Estates Way, which branches off from Pierce Road and leads directly into the Project site.

Methodology

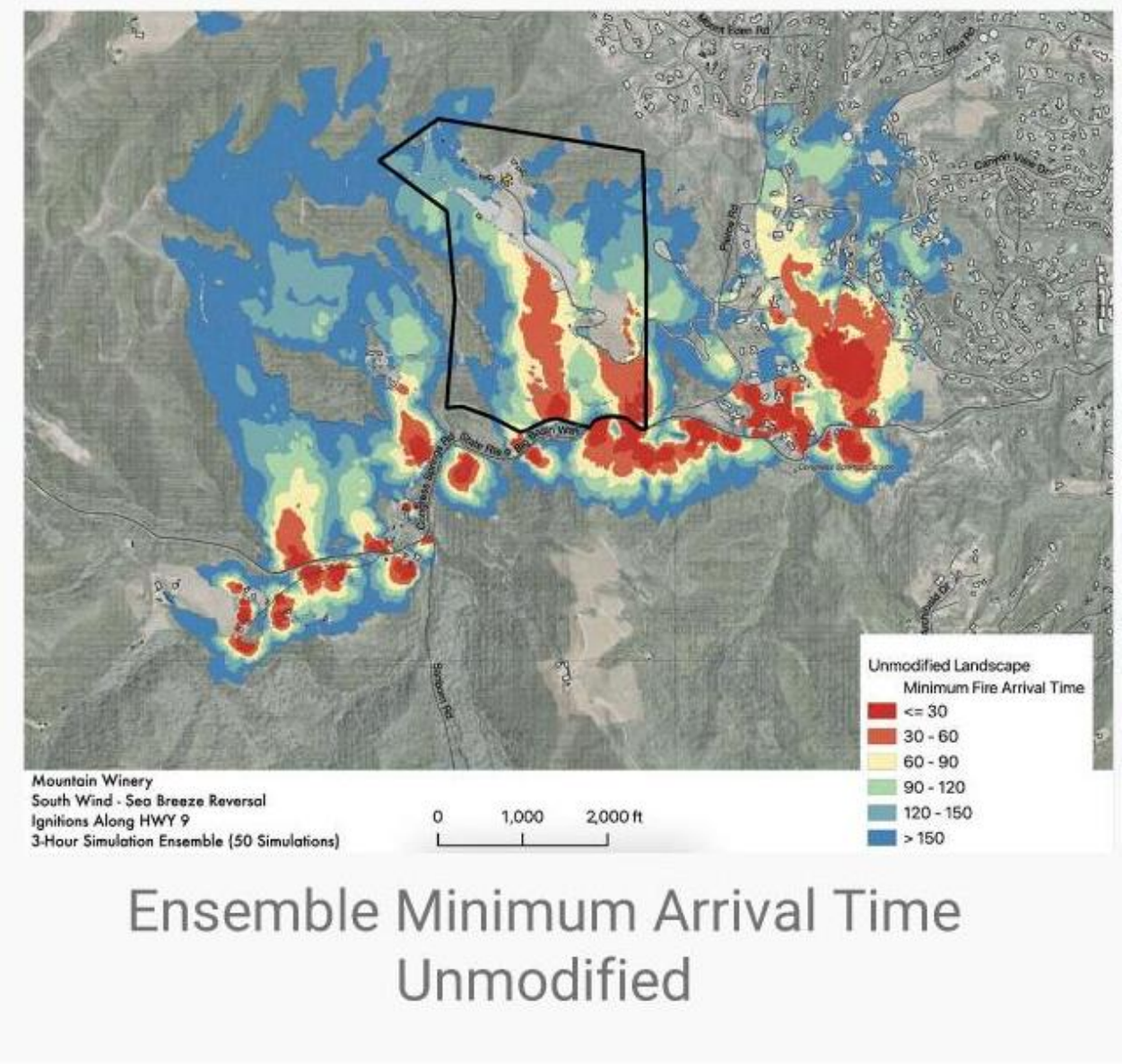
Wildfire Scenarios

To evaluate how the Project may affect congestion and travel times on the roadway network during wildfire evacuation scenarios, fire progression and fire behavior modeling was conducted for the Project area. This modeling considered wildfire history, ignition sources, fuels/vegetation, and historical weather patterns for the Project site and the surrounding area. Details of the wildfire modeling assumptions are included in the *Masson Estates Wildfire Protection Plan*.

The wildfire modeling identified two potential wildfire scenarios impacting the Project site. While these fire scenarios may not represent all possible wildfires that may occur in the Project area, these scenarios were selected because they are wildfires with a higher risk of ignition and spread, would directly impact residents and employees in the Project vicinity and nearby communities, and potentially impact major

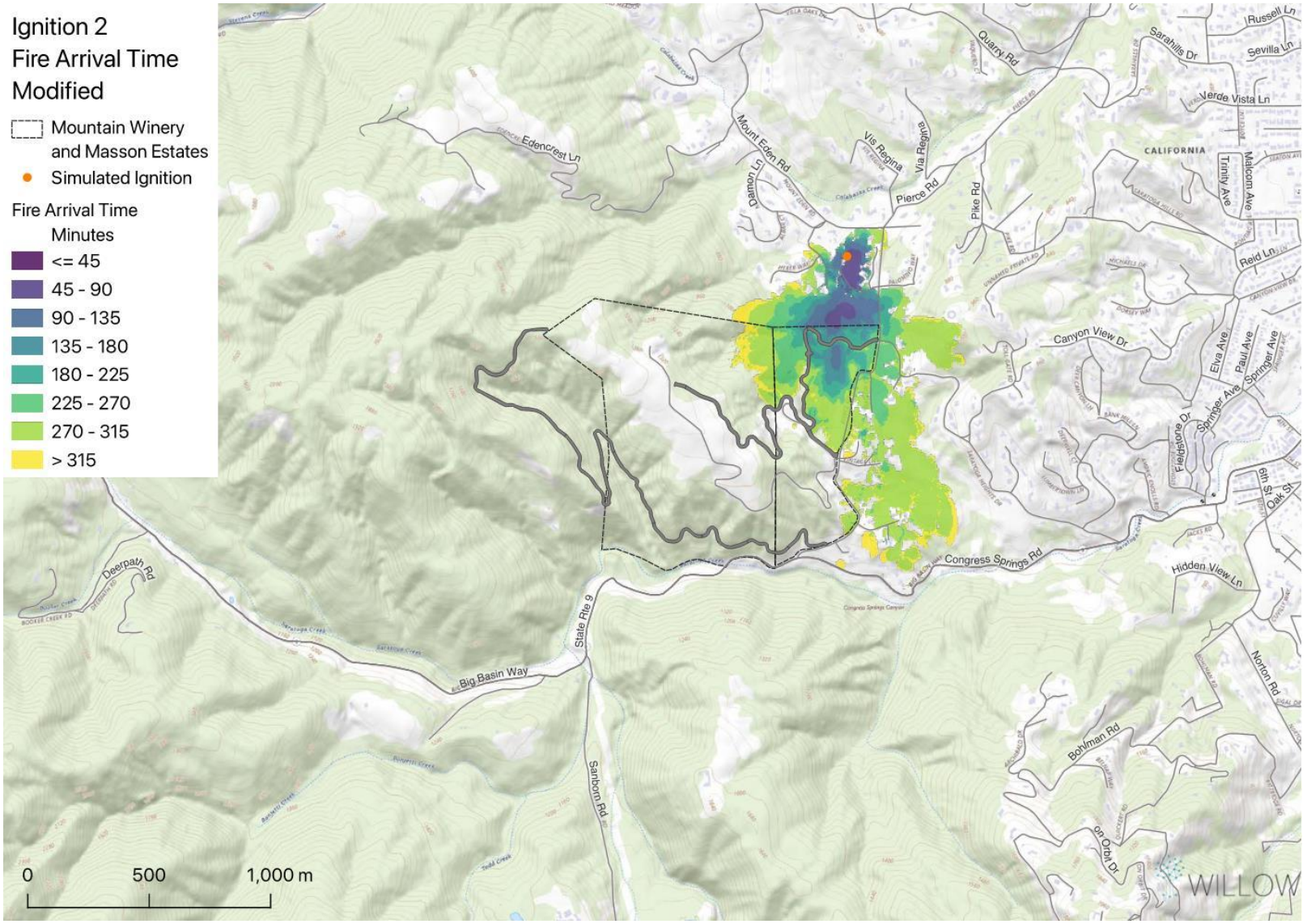
evacuation routes in the area. Figure 1 and Figure 2 show the fire progression and fire spread for the two scenarios.

Figure 1. Fire Progression – Wildfire Scenario #1



Source: Wildland Resource Management, 2025

Figure 2. Fire Progression – Wildfire Scenario #2



Source: Wildland Resource Management, 2025

Analysis Scenarios

This study evaluates the transportation related impacts of the Project during the two wildfire evacuation scenarios. To account for the worst-case scenario, all the scenarios are analyzed during the weekday PM peak hour, which represents the peak traffic volume during a typical week: the sum of background traffic in the area plus traffic from the Project development, and residents in the evacuation area are at home. Scenarios were also analyzed to assume an event is taking place at the Mountain Winery venue, where venue employees and guests would need to evacuate at the same time as residents on the Project site.[1]

Accordingly, this study evaluates transportation related impacts for the two wildfire scenarios under the following conditions:

- No Project
- No Project Plus Event
- Plus Project
- Plus Project & Event Conditions

Travel Modeling Tools

The evacuation analysis uses the Santa Clara Valley Transportation Authority (VTA) travel demand model to estimate roadway congestion and travel times in an evacuation under the four analysis scenarios. The current travel model includes a 2020 base year land use forecast and transportation improvement assumptions.

Evacuation Assumptions

This section outlines the assumptions made on when residents and employees in the evacuation area would need to evacuate and the conditions under which they would evacuate. All assumptions outlined below were discussed and agreed upon with an advisory group. The advisory group consisted of representatives from Santa Clara County Sheriff's Office and Santa Clara County Fire Department.

Time Period

Kittelson modeled transportation activity for the worst-case scenario under which people in surrounding areas would evacuate. This period is assumed to be the weekday PM peak hour when the sum of background traffic in the area plus traffic from the Project development is greatest during a typical week.

Travel Type

Baseline travel represents normal travel patterns during the weekday peak hour as included in the VTA travel demand model. Evacuation travel represents estimated evacuation trips and travel time from each

[1] Events at Mountain Winery typically begin at 7:00 pm or later, with doors opening two hours before the event time. This analysis conservatively assumes that the Mountain Winery venue would be at capacity during a peak PM evacuation.

evacuating Traffic Analysis Zone (TAZ) to an evacuation destination. Kittelson reviewed the model's TAZs and assigned each TAZ a combination of Baseline travel and Evacuation travel (10% and 90%, respectively), based on its presence in the designated evacuation area.

Evacuation Areas

For each of the two wildfire evacuation scenarios analyzed in this study, evacuation areas were determined based on discussions with the advisory group. Accordingly, the following are the evacuation areas assumed in this study. Genasys evacuation zones were used to identify the evacuating areas in each scenario.

- Wildfire Scenario #1 (Figure 3): Evacuation area includes the areas around Mount Eden Road to the north, Big Basin Way/State Route 9 to the south, Stevens Canyon Road to the west, and Pierce Road to the east.
    - Scenario 1 includes Genasys evacuation zones SAR-008, SCC-019, SCC-021, and SCC-025.
- Wildfire Scenario #2 (Figure 4): Evacuation area includes the areas around Garrod Road to the north, Big Basin Way/State Route 9 to the south, Stevens Canyon Road to the west, and Stoneridge Drive to the east.
    - Scenario 2 includes Genasys evacuation zones SAR-008, SAR-009, SCC-019, SCC-020, and SCC-021.

The evacuation areas are overlaid with the VTA travel demand model's TAZ map to identify the number of people that would need to be evacuated.

Number of Evacuating Trips

In general, modeled trips are a function of several patterns, including the land uses in an area, the socio-economic characteristics of the population in the area (e.g., auto ownership, income, and household size), and the type and extent of transportation facilities in an area. Kittelson obtained the Countywide land use information by TAZ from the VTA travel demand model to estimate households, population, and employment information.

The Santa Clara County auto ownership information by Census Tract is obtained from the American Community Survey (ACS) 2023 5-year estimates. Based on this data, there are an average of 1.93 vehicles per household in Santa Clara County. Therefore, the number of evacuating households is multiplied by 2 (rounded) to estimate the number of evacuating residential vehicles. Employees that need to evacuate are assumed to have their own vehicle. The Mountain Winery venue has the capacity for approximately 1,000 vehicles on site, all of which are assumed to evacuate in the Plus Event scenarios. Table 1 presents the number of evacuating vehicles by vehicle type.

Table 1. Number of Vehicles by Vehicle Type

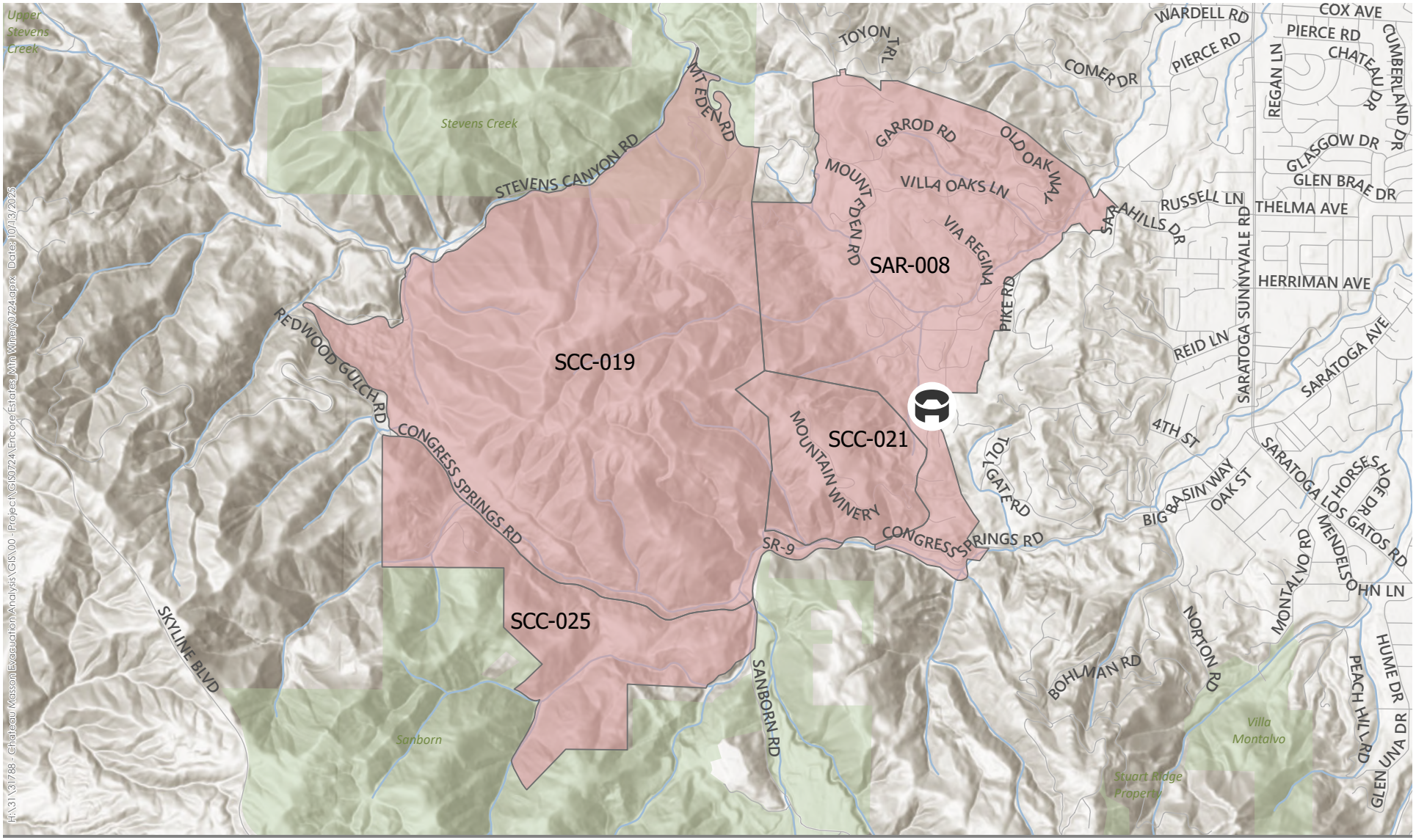
Vehicle Type	Number of Evacuating Vehicles
Households	2 vehicles per household
Employees	1 vehicle per employee
Event	1000 vehicles at Mountain Winery

Kittelson estimated total evacuation trips by calculating the trips generated at household uses, trips generated by employees at non-residential land uses, and trips made from the Mountain Winery venue. If a fire occurs during the night, most residents would be home, but most employees would not be at their workplace. If a fire occurs during the workday, most employees would be at their workplace, but many residents would not be at home. The evacuation analysis conservatively assumes that 75 percent of residents and 75 percent of employees would need to evacuate during a wildfire event. presents the estimated number of residents, employees, and visitors for each wildfire scenario.

Table 2. Estimated Number of Evacuating Vehicles by Vehicle Type.

Scenario	Resident Vehicles	Employee Vehicles	Mountain Winery Visitor Vehicles
Wildfire Scenario #1			
No Project	3,024	528	0
No Project Plus Event	3,024	528	1,000
Project	3,074	528	0
Project Plus Event	3,074	528	1,000
Wildfire Scenario #2			
No Project	3,784	583	0
No Project Plus Event	3,784	583	1,000
Project	3,834	583	0
Project Plus Event	3.834	583	1,000

Source: Kittelson & Associates, Inc., 2025.



Masson Estates

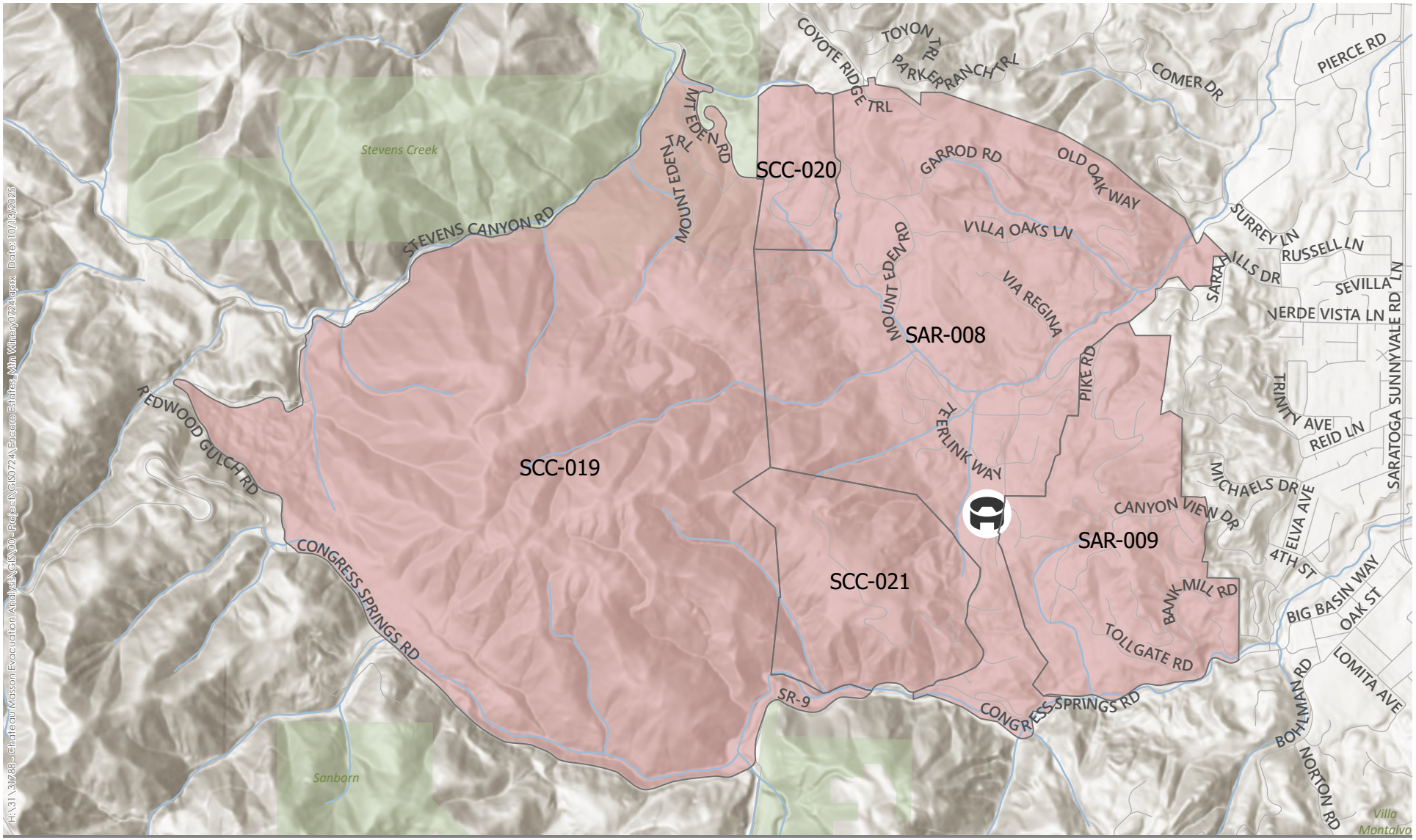
Evacuating Areas

Genasys Evacuation Zone

0 0.5 Miles

KITTELSON & ASSOCIATES

Evacuation Areas
Scenario 1 - Hwy 9 Fire Ignition
Masson Estates Development
Saratoga, CA



Masson Estates

Evacuating Areas

Genasys Evacuation Zone

0 0.5 Miles

KITTELSON & ASSOCIATES

Evacuating Areas
Scenario 2 - Mt. Eden Fire Ignition
Masson Estates Development
Saratoga, CA

Trip Distribution

For residents, employees, and event visitors in the evacuation area, trip distribution assumptions were based on existing land use, the location of evacuation destinations, and their relative proximity to the evacuation area. Given the location of the Project site, it was assumed all evacuees would evacuate to safe areas in the City of Saratoga.

Roadway Capacity and Roadway Closures

Kittelson modeled trip patterns using the typical capacities for each roadway within and outside the evacuation area, except for roadways otherwise identified for road closures by the advisory group. The scenarios represent conditions without implementation of any evacuation strategies, such as manual traffic control or contraflow lanes, which could increase roadway capacity in one direction versus the other. The roadways identified for roadway closures for each of the scenarios include:

- **Wildfire Scenario #1:** State Route 9 is closed in both directions west of Pierce Road. Evacuating traffic from the Project and surrounding communities would use Pierce Road (to the north) and Saratoga Heights Drive to evacuate into Saratoga.
- **Wildfire Scenario #2:** Pierce Road is closed in the southbound direction to evacuating traffic. Evacuees north of Mount Eden Road would use Pierce Road to evacute into Saratoga. Evacuees south of Mount Eden Road would use Saratoga Heights Drive and State Route 9 to evacuate to Saratoga.

Evacuation Destination and Route Choice

The number of trips to each evacuation destination was assigned based on the location and direction of the evacuation based on the trip distribution described above. These destinations were selected for each of the evacuation scenarios with a goal of identifying evacuation travel patterns and congestion in the evacuation area and in the region. The following sites were chosen to represent evacuation destinations:

- West Valley College
- Sacred Heart Church
- Saratoga High School

The trips were distributed equally from each of the evacuating TAZs to the evacuation destinations, as appropriate. The trip distribution is not intended to reflect a precise distribution of the routes that would be taken during an evacuation.

Evacuation Assignment

During an evacuation event, residents and employees will receive one of three evacuation assignment orders:

- **No Action** – residents and employees do not need to evacuate or prepare for an evacuation.
- **Evacuation Warning** – residents and employees in a specific evacuation zone are ordered to prepare for an evacuation but do not need to evacuate immediately.
- **Evacuation Order** – residents and employees in a specific evacuation zone are ordered to evacuate immediately.

Evacuation assignment is given for the peak hour of the evacuation, which is defined as the hour when most vehicles evacuate. For both wildfire scenarios, the peak hour is assumed to be the first hour of the evacuation.

When an area is assigned an evacuation order, it is assumed that 90 percent of residents and employees will evacuate over the duration of an evacuation and approximately 10 percent will remain behind. The estimated factors are based on survey results from people impacted by prior fires in California in UC Berkeley's Review of California Wildfire Evacuations from 2017 to 2019.[2] Based on Kittelson's conversations with the advisory group, it is assumed that all areas identified as evacuation areas are given an evacuation order.

[2] *Wong, S., Broader, J. and Shaheen, P., 2022. Review of California Wildfire Evacuations from 2017 to 2019. [online] Escholarship.org. Available at:* <https://escholarship.org/uc/item/5w85z07g>

Evacuation Results

The VTA travel demand model was used to estimate travel times and volume-to-capacity (V/C) ratios for each analysis scenario to understand how the Project would impact residents, employees, and Mountain Winery guests in the evacuation area for each wildfire scenario. The following sections present the congestion locations and comparison of travel times for No Project, No Project Plus Event, Plus Project, and Plus Project and Event conditions for the two wildfire scenarios. The analysis is run assuming no manual traffic control is in place during the evacuation.

The congestion on a roadway segment is determined based on the V/C ratio of the segment derived from the VTA travel demand model. Congestion locations are classified as shown in Table 3.

Table 3. Congestion Classification based on Volume-to-Capacity (V/C) ratio

Volume-to-Capacity (V/C) ratio	Congestion Classification
≤ 0.9	Under Capacity
0.9 to 1.0	Near Capacity
≥ 1.0	Over Capacity

WILDFIRE SCENARIO #1

This section presents the congestion location and travel times analysis under wildfire scenario #1 for all the analysis scenarios. The origin and destination location are identified based on the evacuation area boundaries identified for this wildfire scenario and likely evacuation destinations in the City of Saratoga. However, evacuation destinations are subject to change during an actual evacuation event based on direction from the County Sheriff's Office or evacuating persons' personal preferences.

No Project and No Project Plus Event

Figure 5 and Figure 6 show the congestion locations during wildfire scenario #1 under No Project and No Project Plus Event evacuation scenarios, respectively. The following locations are estimated to operate near or over capacity in the No Project scenario due to the evacuation:

- Saratoga Avenue, between Saratoga Sunnyvale Road and State Route 85
- Herriman Avenue, between Saratoga Sunnyvale Road and Saratoga Avenue
- Saratoga Los Gatos, Road between Saratoga Avenue and Horseshoe Drive
- Fruitvale Avenue and Allendale Avenue, near the entrance of West Valley College

In the No Project Plus Event scenario, traffic from the Mountain Winery venue is estimated to add congestion and result in roadways over capacity at several roadways, including but not limited to:

- Mountain Winery Way to Pierce Road
- Saratoga Heights Drive/Tollgate Road, from Pierce Road to Big Basin Way
- Pierce Road, near the intersection of Saratoga Sunnyvale Road
- Saratoga Avenue, between Springer Avenue and State Route 85

While evacuation traffic from the Mountain Winery venue results in additional congestion in the area, changes in v/c ratio are minimal.

Plus Project

Figure 7 shows the congestion locations during wildfire scenario #1 under the Plus Project scenario. With the addition of the Project, congestion is estimated to increase to over capacity at the following locations:

- Saratoga Avenue, between Saratoga Sunnyvale Road and Herriman Avenue
- Herriman Avenue, between Saratoga Sunnyvale Road and Saratoga Avenue
- Saratoga Los Gatos Road, southeast of Saratoga Avenue

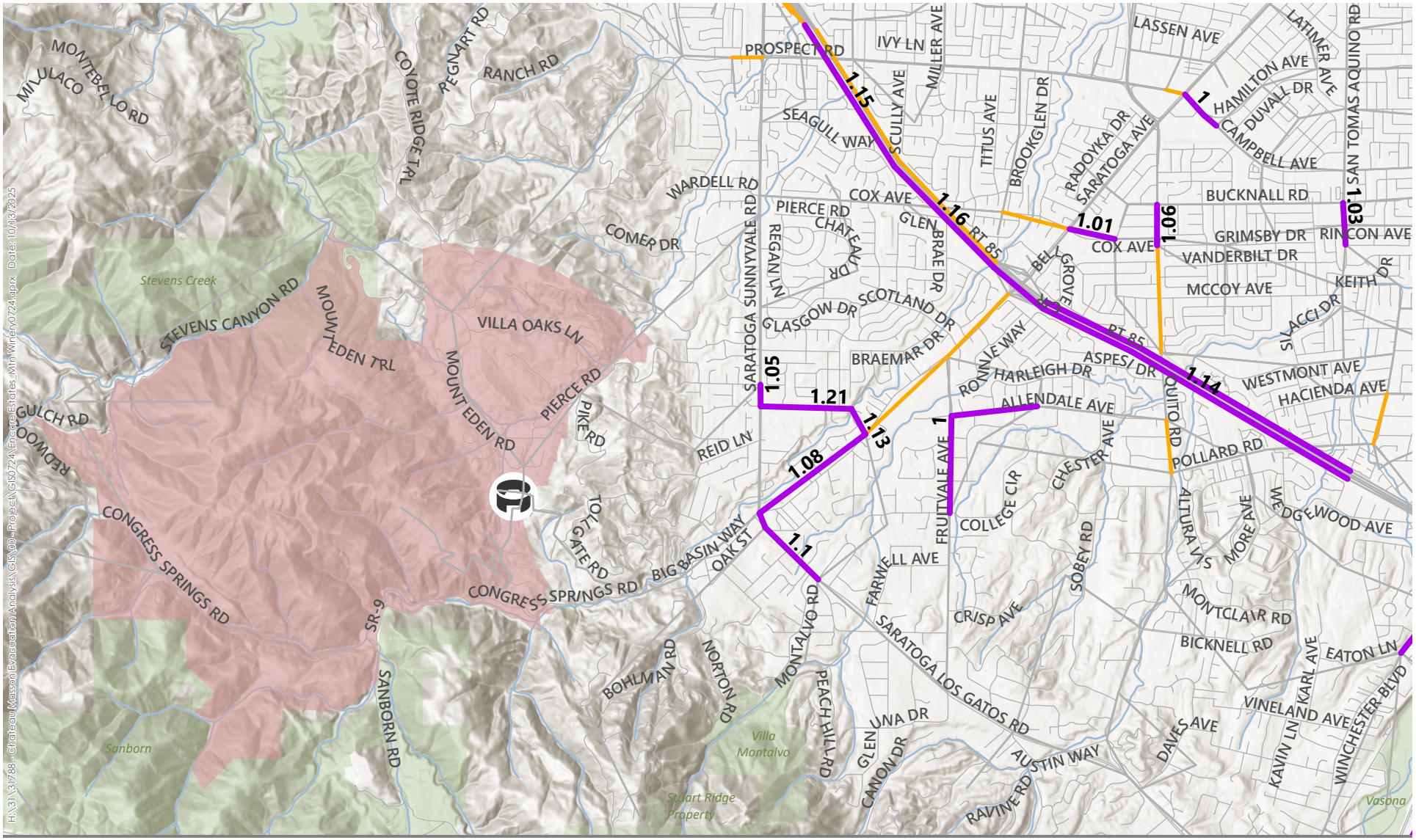
While evacuation traffic from the Project results in additional congestion in the area, changes in v/c ratio are minimal.

Plus Project and Event

With the addition of Project traffic and event traffic from Mountain Winery, congestion is estimated to increase to over capacity at the following locations (Figure 8):

- Mountain Winery Way to Pierce Road
- Saratoga Heights Drive/Tollgate Road, from Pierce Road to Big Basin Way
- Pierce Avenue, near the intersection of Saratoga Sunnyvale Road
- Saratoga Avenue, from Springer Avenue to State Route 85
- Fruitvale Avenue, near the entrance of West Valley College

Though the volume-to-capacity ratio changes along several roadways within the vicinity of the Project, increases are minimal and likely attributed to evacuating traffic from the Mountain Winery event.



Volume-to-Capacity Ratio

- V/C > 1.0
- V/C = 0.90 - 0.99
- V/C < 0.9

Masson Estates

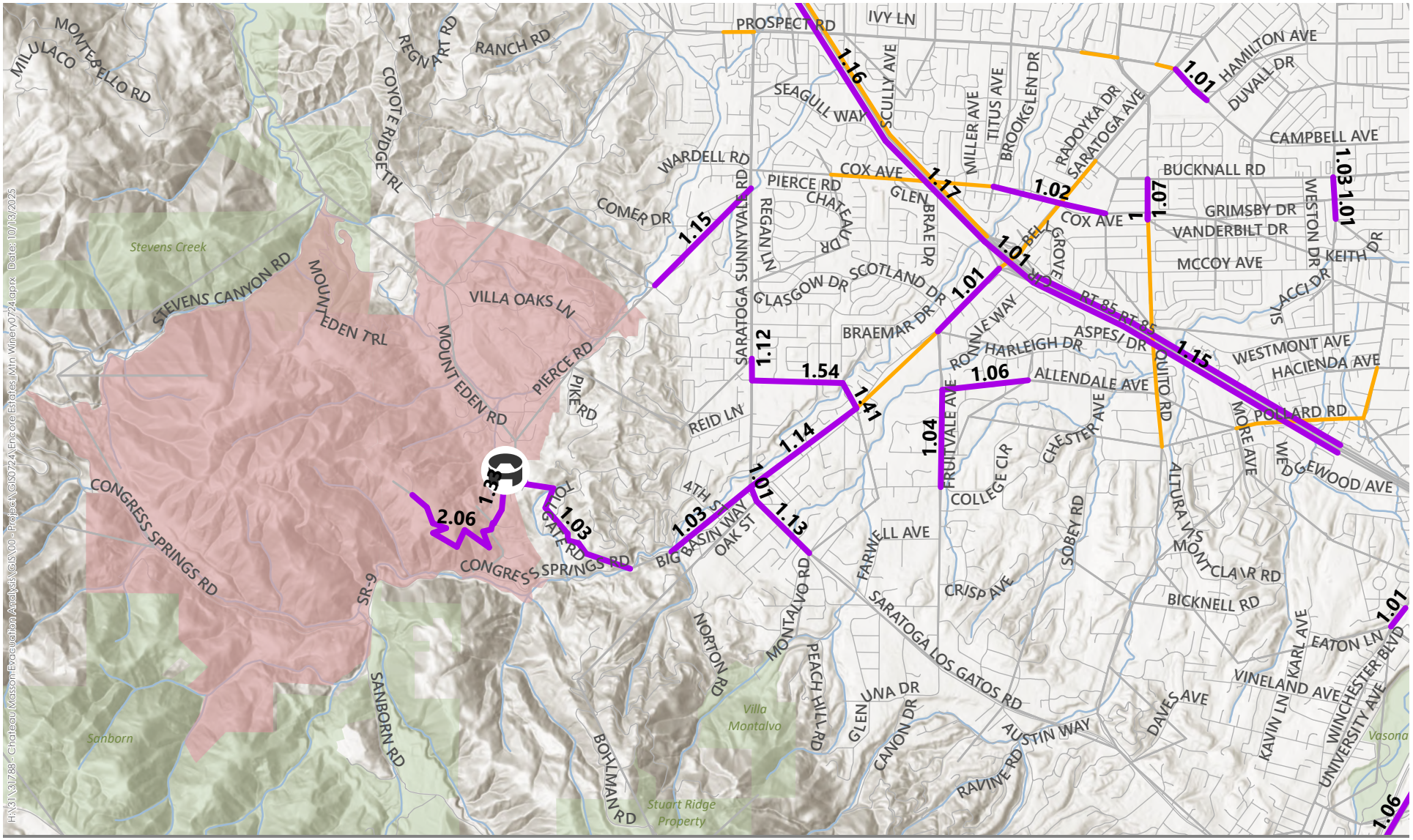
Evacuating Areas

0 0.5 Miles

**Hwy 9 closed at Pierce Road. Roadway is open to emergency and evacuating vehicles only.*

KITTELSON & ASSOCIATES

Roadway Capacity - No Project Evacuation
Scenario 1 - Hwy 9 Fire Ignition
Masson Estates Development
Saratoga, CA



Volume-to-Capacity Ratio

- V/C > 1.0
- V/C = 0.90 - 0.99
- V/C < 0.9

Masson Estates

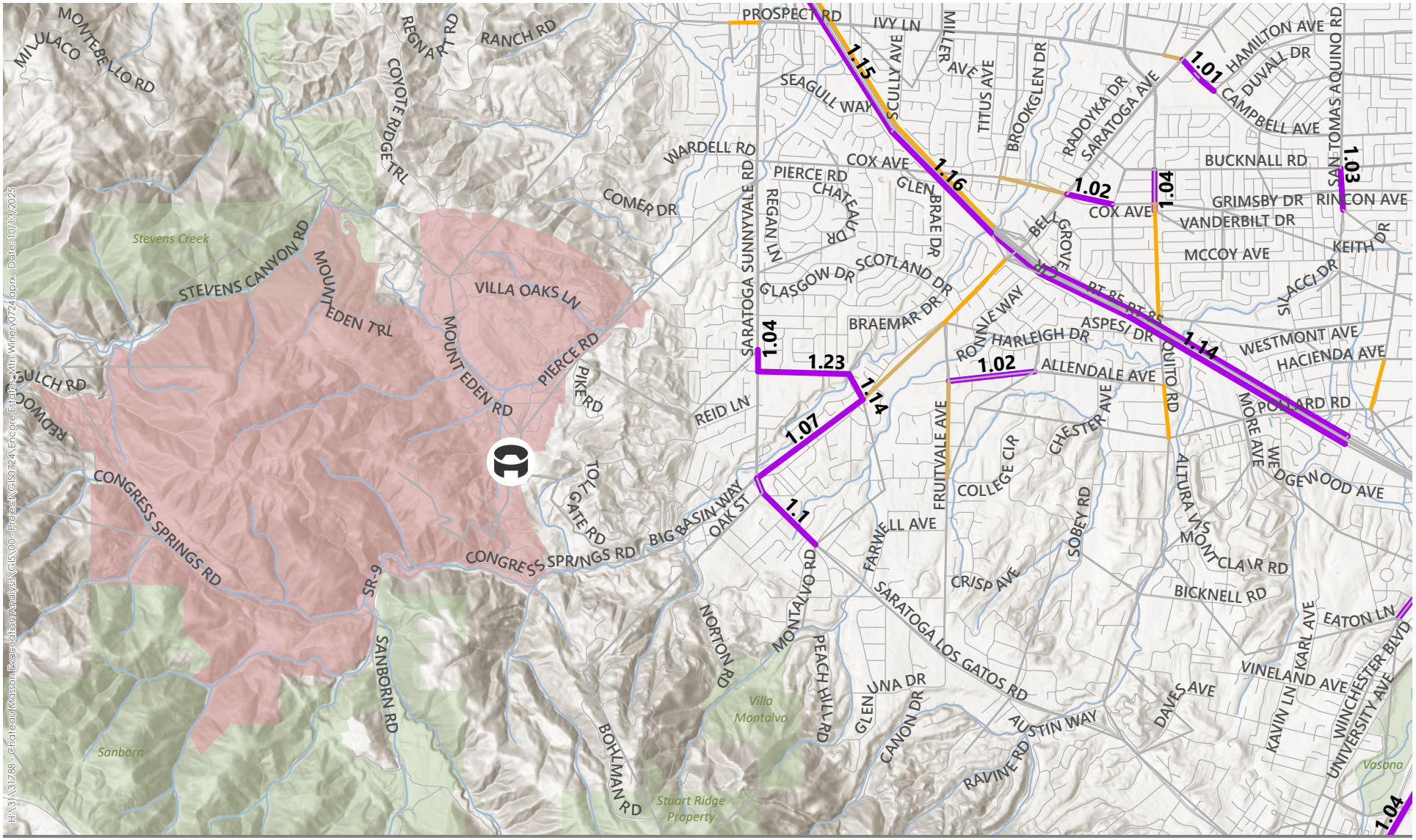
Evacuating Areas

0 0.5 Miles

**Hwy 9 closed at Pierce Road. Roadway is open to emergency and evacuating vehicles only.*

KITTELSON & ASSOCIATES

Roadway Capacity - No Project & Event Evacuation
Scenario 1 - Hwy 9 Fire Ignition
Masson Estates Development
Saratoga, CA



Volume-to-Capacity Ratio

- V/C > 1.0
- V/C = 0.90 - 0.99
- V/C < 0.9

Masson Estates

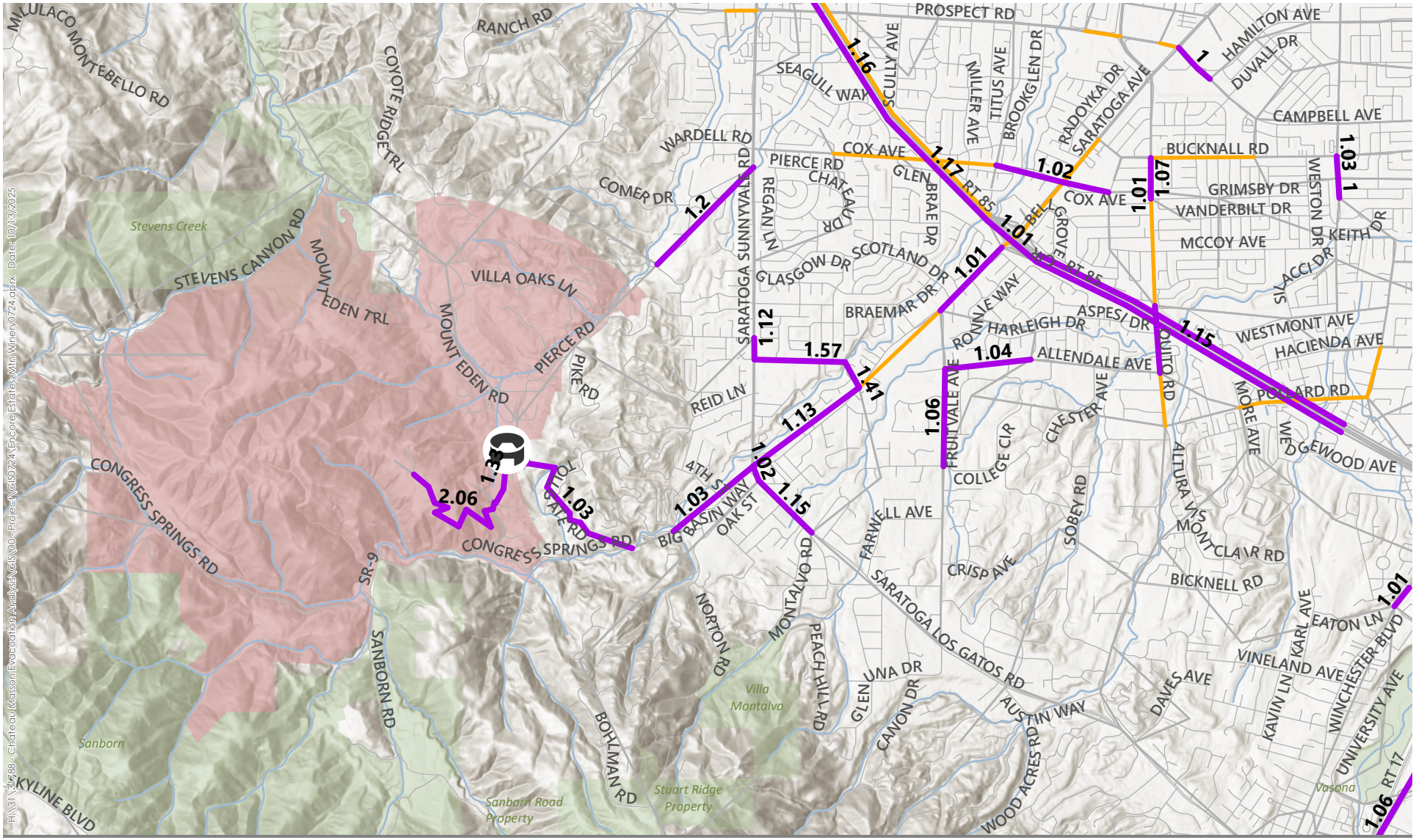
Evacuating Areas

0 0.5 Miles

**Hwy 9 closed at Pierce Road. Roadway is open to emergency vehicles only.*

KITTELSON & ASSOCIATES

Roadway Capacity - Project Evacuation
Scenario 1 - Hwy 9 Fire Ignition
Masson Estates Development
Saratoga, CA



Volume-to-Capacity Ratio

- V/C > 1.0
- V/C = 0.90 - 0.99
- V/C < 0.9

Masson Estates

Evacuating Areas

0 0.5 Miles

**Hwy 9 closed at Pierce Road. Roadway is open to emergency and evacuating vehicles only.*

KITTELSON & ASSOCIATES

Roadway Capacity - Project & Event Evacuation
Scenario 1 - Hwy 9 Fire Ignition
Masson Estates Development
Saratoga, CA

Estimated Travel Times

Table 4 shows the estimated travel times (in minutes) during wildfire scenario #1 for existing conditions under No Project and Plus Project scenarios without event traffic from the Mountain Winery venue. As seen in the table below, the increase in travel time with Project-only traffic varies between 0.0 to 0.4 minutes.

Table 5 shows the estimated travel times (in minutes) during wildfire scenario #1 for existing conditions under No Project and Plus Project scenarios with the addition of traffic from the Mountain Winery venue. As seen in the table below, the increase in travel time with Project and Mountain Winery venue traffic varies between 0.0 to 0.6 minutes.

Table 4. Estimated Travel Time (minutes), Wildfire Scenario #1 (Without Mountain Winery Event)

Origin	Destination	Evacuation Travel Times		
		No Project (mins)	Plus Project (mins)	Difference (mins)
Stevens Canyon Rd. Area	West Valley College	25.9	26.2	0.3
	Saratoga High School	19.7	19.8	0.1
	Sacred Heart Church	18.5	18.7	0.2
Sanborn Rd. Area	West Valley College	26.3	26.3	0.0
	Saratoga High School	29.9	30.0	0.1
	Sacred Heart Church	26.8	26.9	0.1
Mountain Winery Venue	West Valley College	22.0	22.4	0.4
	Saratoga High School	16.3	16.4	0.1
	Sacred Heart Church	14.6	14.9	0.3
Bohlman Rd. Area	West Valley College	16.1	16.2	0.1
	Saratoga High School	12.3	12.5	0.2
	Sacred Heart Church	8.7	8.7	0.0
E. of Pierce Rd.	West Valley College	15.4	15.5	0.1
	Saratoga High School	6.6	6.7	0.1
	Sacred Heart Church	7.0	7.2	0.2
Chateau Masson	West Valley College	18.5	18.9	0.4
	Saratoga High School	12.8	12.9	0.1
	Sacred Heart Church	11.1	11.4	0.3

Compiled by: Kittelson & Associates, Inc., 2025

Table 5. Estimated Travel Time (minutes), Wildfire Scenario #1 (With Mountain Winery Event)

Origin	Destination	Evacuation Travel Times		
		No Project Plus Event (mins)	Plus Project and Event (mins)	Difference (mins)
Stevens Canyon Rd. Area	West Valley College	29.4	29.6	0.2
	Saratoga High School	30.2	30.5	0.3
	Sacred Heart Church	25.5	25.5	0.0
Sanborn Rd. Area	West Valley College	27.4	27.4	0.0
	Saratoga High School	36.6	36.7	0.1
	Sacred Heart Church	28.6	28.6	0.0
Mountain Winery Venue	West Valley College	78.9	79.0	0.1
	Saratoga High School	75.0	75.3	0.3
	Sacred Heart Church	70.3	70.3	0.0
Bohlman Rd. Area	West Valley College	17.5	17.5	0.0
	Saratoga High School	14.5	14.7	0.2
	Sacred Heart Church	8.9	8.9	0.0
E. of Pierce Rd.	West Valley College	16.8	16.8	0.0
	Saratoga High School	11.3	11.9	0.6
	Sacred Heart Church	8.1	8.2	0.1
Chateau Masson	West Valley College	27.0	27.1	0.1
	Saratoga High School	23.1	23.4	0.3
	Sacred Heart Church	18.4	18.4	0.0

Compiled by: Kittelson & Associates, Inc., 2025

WILDFIRE SCENARIO #2

This section presents the congestion location and travel times analysis under wildfire scenario #2 for all the analysis scenarios. The origin and destination location are identified based on the evacuation area boundaries identified for this wildfire scenario and likely evacuation destinations in the City of Saratoga. However, evacuation destinations are subject to change during an actual evacuation event based on direction from the County Sheriff's Office or evacuating persons' personal preferences.

No Project and No Project Plus Event

Figure 9 and Figure 10 show the congestion locations during wildfire scenario #2 under No Project and No Project Plus Event scenarios, respectively. The following are the locations operating near or over capacity in the No Project scenarios:

- Pierce Road, near the intersection of Saratoga Sunnyvale Road
- Big Basin Way/Saratoga Avenue, between Ambric Knolls Road and State Route 85
- Herriman Avenue, between Saratoga Sunnyvale Road and Saratoga Avenue
- Saratoga Los Gatos Road, between Saratoga Avenue and Horseshoe Drive
- Fruitvale Avenue and Allendale Avenue, near the entrance of West Valley College

In the No Project Plus Event scenario, traffic from the Mountain Winery venue is estimated to add congestion and result in roadways over capacity at several roadways, including but not limited to:

- Mountain Winery Way to Pierce Road
- Big Basin Way, between Ambric Knolls Road and Saratoga Los Gatos Road
- Fruitvale Avenue and Allendale Avenue, near the entrance of West Valley College

Pierce Road is also estimated to be near capacity where the roadway intersects with State Route 9. This highlights potential queueing along Pierce Road as vehicles travel into Saratoga via State Route 9. Though the volume-to-capacity ratio changes along several roadways within the vicinity of the Project, increases are minimal.

Plus Project

Figure 11 shows the congestion locations during wildfire scenario #2 under the Plus Project scenario. The following locations are estimated to operate over capacity with the addition of the Project development but not including event traffic from Mountain Winery:

- Pierce Road near the intersection of Saratoga Sunnyvale Road
- Saratoga Avenue, between Ambric Knolls Road and State Route 85
- Herriman Avenue, between Saratoga Sunnyvale Road and Saratoga Avenue
- Saratoga Los Gatos, Road between Saratoga Avenue and Horseshoe Drive
- Fruitvale Avenue and Allendale Avenue, near the entrance of West Valley College

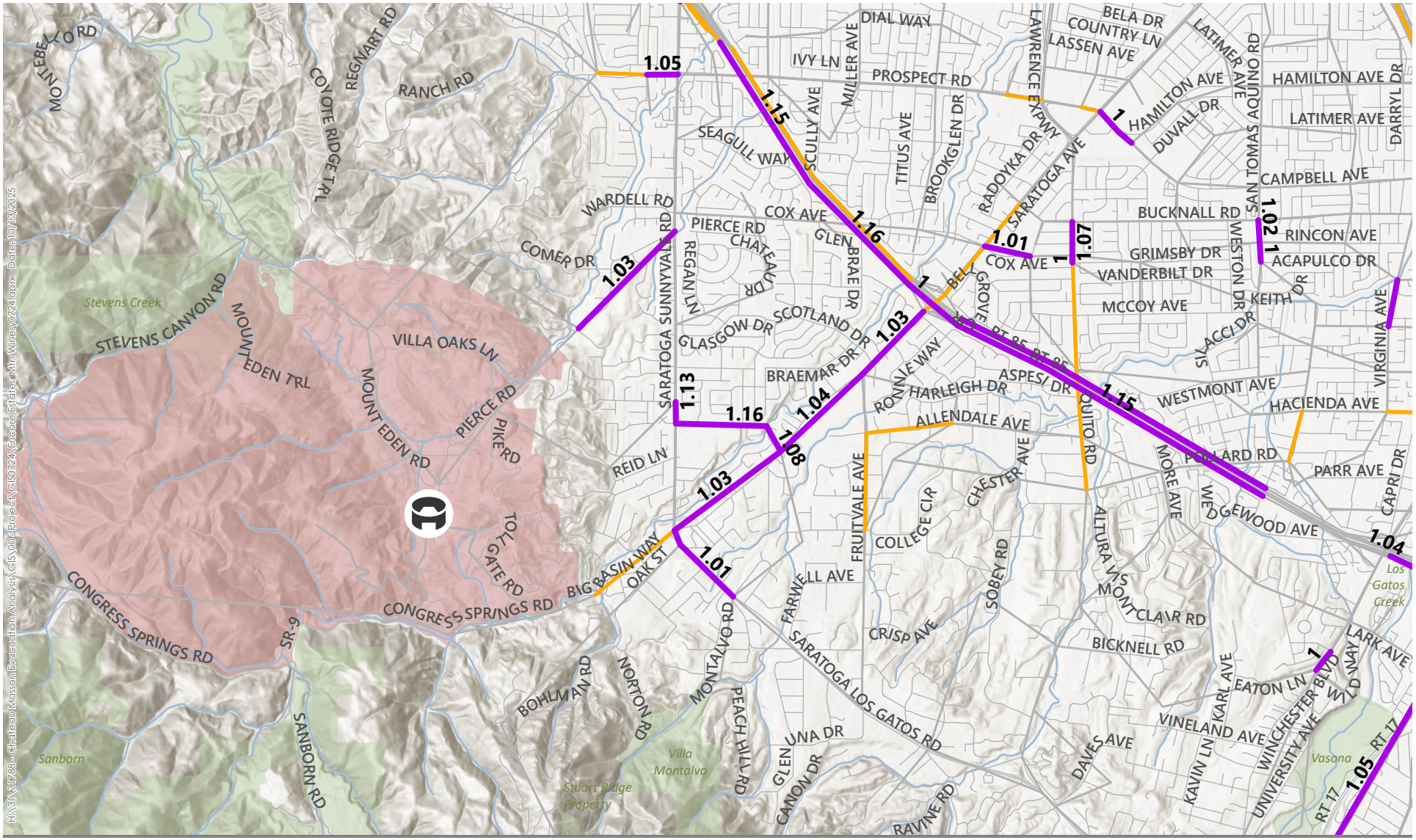
While evacuation traffic from the Project results in additional congestion in the area, changes in v/c ratio are minimal compared to the No Project scenario.

Plus Project and Event

With the addition of Project traffic and event traffic from Mountain Winery, congestion is estimated to increase to over capacity at the following locations (Figure 12):

- Mountain Winery Way to Pierce Road
- Pierce Road, from Mountain Winery Way to SR-9

Though the volume-to-capacity ratio changes along several roadways within the vicinity of the Project, increases are minimal compared to the No Project Plus Event scenario.



Volume-to-Capacity Ratio

- V/C > 1.0
- V/C = 0.90 - 0.99
- V/C < 0.9

Masson Estates

Evacuating Areas

0 0.5 Miles

Roadway Capacity - No Project Evacuation
Scenario 2 - Mt. Eden Fire Ignition
Masson Estates Development
Saratoga, CA

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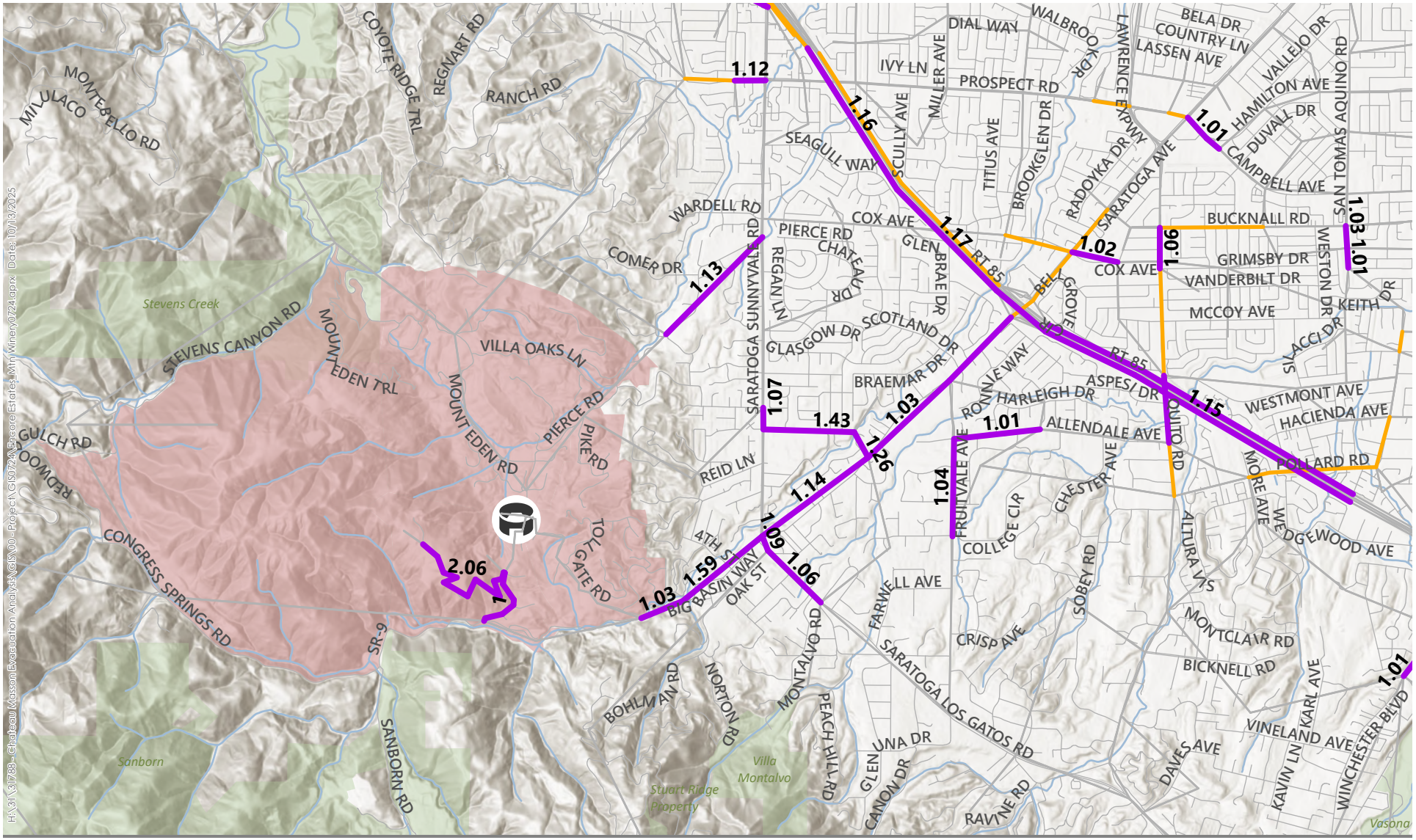


Volume-to-Capacity Ratio

- V/C > 1.0
- V/C = 0.90 - 0.99
- V/C < 0.9

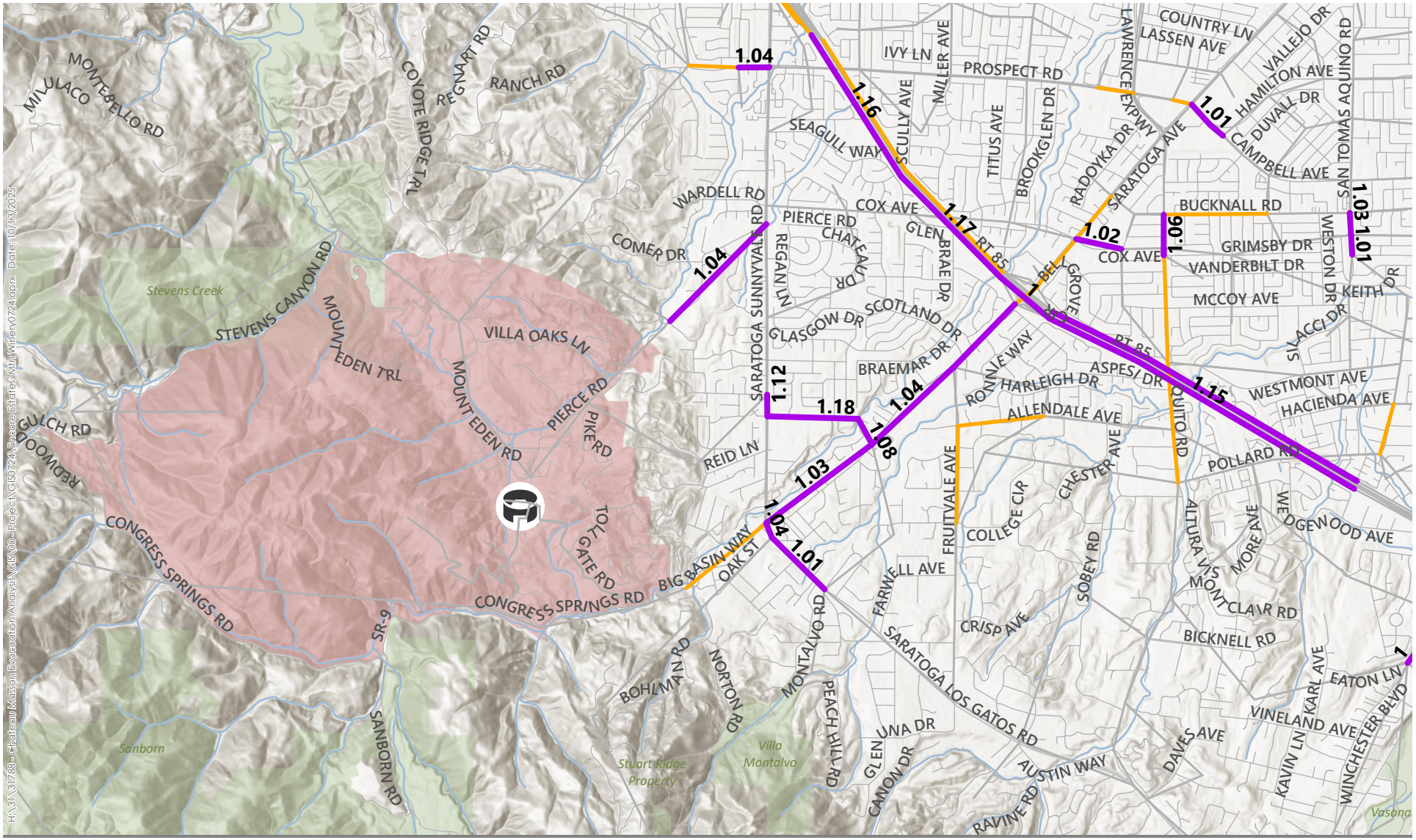
Masson Estates

Evacuating Areas

0 0.5 Miles

KITTELSON & ASSOCIATES

Roadway Capacity - No Project & Event Evacuation
Scenario 2 - Mt. Eden Fire Ignition
Masson Estates Development
Saratoga, CA



Volume-to-Capacity Ratio

- V/C > 1.0
- V/C = 0.90 - 0.99
- V/C < 0.9

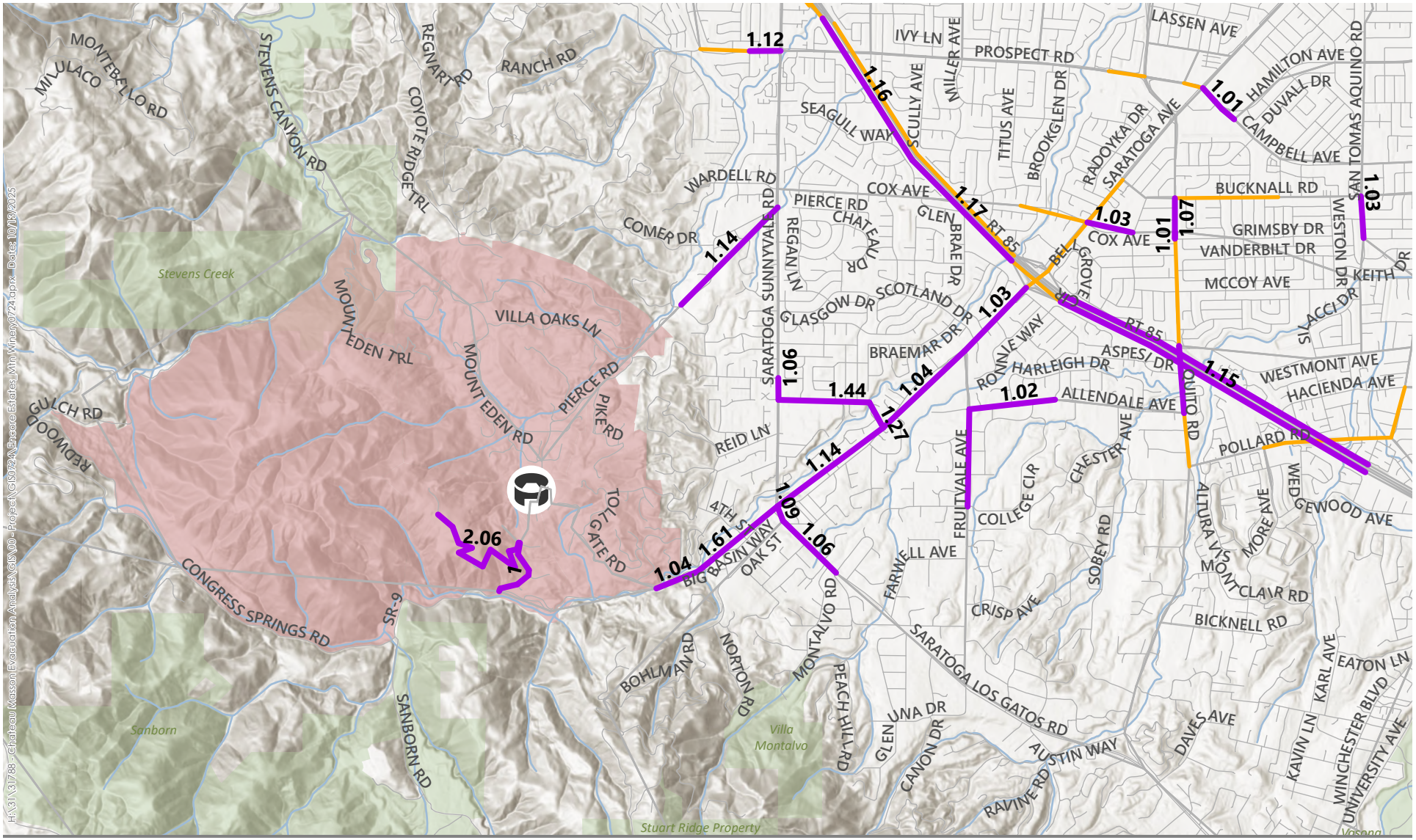
Masson Estates

Evacuating Areas

0 0.5 Miles

KITTELSON & ASSOCIATES

Roadway Capacity - Project Evacuation
Scenario 2 - Mt. Eden Fire Ignition
Masson Estates Development
Saratoga, CA



Volume-to-Capacity Ratio

- V/C > 1.0
- V/C = 0.90 - 0.99
- V/C < 0.9

Masson Estates

Evacuating Areas

0 0.5 Miles

Roadway Capacity - Project & Event Evacuation
Scenario 2 - Mt. Eden Fire Ignition
Masson Estates Development
Saratoga, CA

KITTELSON & ASSOCIATES

Estimated Travel Times

Table 6 shows the estimated travel times (in minutes) during wildfire scenario #2 for existing conditions under No Project and Plus Project scenarios without event traffic from the Mountain Winery venue. As seen in the table below, the increase in travel time with Project traffic varies between 0.1 to 0.4 minutes.

Table 7 shows the estimated travel times (in minutes) during wildfire scenario #2 for existing conditions under No Project and Plus Project scenarios with the addition of traffic from the Mountain Winery venue. As seen in the table below, the increase in travel time with Project traffic varies between 0.0 to 0.9 minutes.

Table 6. Estimated Travel Time (minutes), Wildfire Scenario #2 (Without Mountain Winery Event)

Origin	Destination	Evacuation Travel Times		
		No Project (mins)	Plus Project (mins)	Difference (mins)
Mountain Winery Venue	West Valley College	17.7	18.0	0.3
	Saratoga High School	13.9	14.3	0.4
	Sacred Heart Church	11.4	11.6	0.2
North of Pierce Road/Mt. Eden Way	West Valley College	18.9	19.0	0.1
	Saratoga High School	15.4	15.5	0.1
	Sacred Heart Church	15.8	15.9	0.1
East of Pierce Road	West Valley College	14.4	14.5	0.1
	Saratoga High School	6.1	6.3	0.2
	Sacred Heart Church	6.6	6.7	0.2
Chateau Masson	West Valley College	15.4	15.7	0.3
	Saratoga High School	11.6	12.0	0.4
	Sacred Heart Church	9.1	9.3	0.2

Compiled by: Kittelson & Associates, Inc., 2025

Table 7. Estimated Travel Time (minutes), Wildfire Scenario #2 (With Mountain Winery Event)

Origin	Destination	Evacuation Travel Times		
		No Project Plus Event (mins)	Plus Project and Event (mins)	Difference (mins)
Mountain Winery Venue	West Valley College	78.1	78.7	0.6
	Saratoga High School	75.0	75.8	0.8
	Sacred Heart Church	70.5	71.2	0.7
North of Pierce Road/Mt. Eden Way	West Valley College	20.1	20.1	0.0
	Saratoga High School	20.1	20.2	0.1
	Sacred Heart Church	18.4	18.4	0.0
East of Pierce Road	West Valley College	15.3	15.3	0.0
	Saratoga High School	9.4	9.5	0.1
	Sacred Heart Church	7.7	7.7	0.0
Chateau Masson	West Valley College	29.5	30.2	0.7
	Saratoga High School	26.4	27.3	0.9
	Sacred Heart Church	21.9	22.7	0.8

Compiled by: Kittelson & Associates, Inc., 2025

Evacuation Planning Considerations

This section describes different resources and strategies that may be considered to support future evacuation events. The strategies were identified based on previous congestion and evacuation studies, review of recent evacuation efforts, and existing plans, policies, and resources in the City of Saratoga and Santa Clara County.

Emergency Preparedness and Evacuation Resources

CITY OF SARATOGA EVACUATION ROUTE CAPACITY ASSESSMENT

The City of Saratoga has recently undergone a Citywide Evacuation Route Capacity Assessment to identify major evacuation routes and shelter locations in the City. The assessment evaluates the roadway capacity of evacuation routes under different evacuation scenarios to understand the expected volume and traffic of evacuees during emergency events and maps evacuation distances to safe destinations/gateways throughout the City. The assessment identified key evacuation routes that are expected to be near or over capacity during an evacuation, including Pierce Road, Big Basin Way, Saratoga Sunnyvale Road, and Saratoga Avenue.

The assessment includes a range of recommended strategies and policies to enhance evacuations in the City. These recommendations include:

- increasing capacity on public roadways, through roadway and/or shoulder expansion, traffic management at intersections, and street parking management;
- managing volume on public roadways, through carpooling or public transit, identifying nearby shelters to reduce volumes on roadways, and public pledges to only use one vehicle in an evacuation; and
- improving evacuation awareness, through early wildfire detection, real-time traffic management, and community evacuation programs.

Recommendations: The site developers should work with the City to determine which recommendations are feasible to implement at the Project site. Many of the recommendations listed in the assessment are included below for consideration.

SANTA CLARA COUNTY DISASTER PREPAREDNESS

Santa Clara County's Office of Emergency Management has an Disaster Preparedness website that hosts a list of resources for emergency preparedness and evacuations under a variety of hazards. The website provides tips and guidance on the following:

- Preparing for Wildfires, e.g., creating defensible space and using fire-resistant materials to protect buildings from wildfires

- Keeping important documents safe – e.g., making hard and soft copies of personal documents and reviewing homeowners or rental insurance to understand coverage under different hazards
- Evacuation routes – e.g., identifying the closest evacuation routes, shelters, and meeting spots to your home and identifying alternatives in case primary evacuation routes are unavailable
- Evacuation orders – e.g., when to leave, how to receive up-to-date evacuation information, and ways to stay safe during a wildfire.

Recommendations: Pursuant to the project requirements, the site developers will construct residential units with fire-resistant materials and create defensible space on site to reduce wildfire impacts to structures. As an additional mitigation, the developers might consider posting fact sheets on evacuation preparedness and resources in public facilities on site.

CAL FIRE READY, SET, GO!

CAL FIRE has developed Ready, Set, Go!, a three step plan to prepare for wildfires before they occur. The plan includes guidance on how to prepare your home for wildfires, preparing family evacuation plans, packing go-bags for evacuations, and checklists for when evacuations are necessary.

Recommendations: The site developers should consider sharing evacuation preparedness resources to residents by posting flyers in public facilities.

Evacuation Routes

The primary evacuation routes for the Project will be Pierce Road to the south and north, Saratoga Heights Drive to the east, and State Route 9 east and west. A new road, Masson Estates Way, would be constructed as part of the project. Masson Estates Way is a proposed entrance to the Project site and would be available to residents for evacuations. An emergency access route is also proposed for the site, connecting Masson Estates Court with Pierce Road to the south.

Masson Estates Way connects to Pierce Road, a primary evacuation route in the area. The intersection is proposed as a two-way stop-controlled intersection, with free flow traffic on Pierce Road. During an evacuation, the intersection may experience queuing and congestion as evacuees travel towards Saratoga for safety. Manual traffic control, such as closing roadways to inbound or non-evacuating traffic, contraflow, restricting left-turn movements, and/or traffic control points may provide smoother traffic flow or reducing conflicting traffic movements as people are evacuating.

Because the site developer only has ownership of private roadways on site, manual traffic control is limited to Masson Estates Way.

Recommendations: Coordinate with City of Saratoga, Santa Clara County Sheriff, Santa Clara County Roads and Airports, and Caltrans staff to identify personnel and procedures to manually control traffic at intersection pinch points on site in the event of an emergency. Coordination can also include how traffic will flow into Santa Clara County and Caltrans roadways.

Communications

In preparation for an emergency evacuation, the developer should consider additional communication tools and strategies to share resources and up-to-date alerts for residents and visitors to the Project. This section describes communication strategies that address how information may be shared among agencies, organizations, and the general public for evacuations. During an emergency evacuation event, two types of communication take place: (1) communication among entities involved in the management of response, and (2) communication between the City, County, and the general public.

COMMUNITY PREPAREDNESS MESSAGING RESOURCES

Santa Clara County has developed messaging resources to help amplify emergency preparedness messages for communities. Communication messaging resources include social media posts and links to official information sites. For wildfire emergencies, social media messages are posted to Nextdoor, X (Twitter), and Facebook. Emergency alerts are sent out to the public via AlertSCC. The Santa Clara County Fire Department also has an emergency preparedness page on their website with helpful links to local and national resources.

Recommendations: Messaging materials and resources should be made available throughout the community areas of the Project. Social media messages may be posted to the Project website and social media channels. Fact sheets and other messages may be printed out and posted in public areas.

EMERGENCY ALERTS

AlertSCC is Santa Clara County's emergency alert system. Users may sign up to receive emails, phone calls, or text messages with official notices. In the event of an evacuation order, the county would send an alert through AlertSCC.

Recommendations: The site developers should provide information to new residents about AlertSCC with details about signing up. Flyers and pamphlets may be created to share QR codes and weblinks to the AlertSCC website for residents to sign up for alerts.

SIGNAGE

Fixed signs Masson Estates Way may be used to mark designated evacuation routes in the event of an emergency. However, specific evacuation destinations and routes during an emergency will be determined by County Sheriff and Fire personnel and may vary depending on road conditions, the direction of wildfires, road congestion and other factors. Therefore, the signage on the Project site should help to direct residents, employees, and visitors towards site exits but not to specific off-site destinations.

Recommendations: The site developers should coordinate with City, County Sheriff, and Fire staff to establish and install appropriate signage within Project site to designate evacuation routes.

VARIABLE MESSAGE SIGNS

Variable message signs (VMS) are electric signs that can provide messaging on emergency alerts and evacuation orders during emergency events. Messages displayed on a VMS can be programmed locally or remotely via computer or phone, if VMS units are equipped with a cellular modem.

Recommendations: In consultation with the Santa Clara County Sheriff office, the site developers could provide one or more VMS to publicize evacuation alerts, updates, or other information to residents, employees, and visitors. A VMS can be installed along main roads on site or mounted on trailers to be set up where messaging would reach the most people. VMS units(s) could be used for information within the Project site or could be installed on Pierce Road or other primary evacuation routes to provide information to the general community.

WILDFIRE CAMERAS AND SENSORS

Fire cameras are installed around Santa Clara County and are helpful tools for early identification of wildfires. Fire cameras can discover fire ignitions and observe fire spread, which help to inform firefighters and first responders on the resources needed to put out the fire and evacuate surrounding communities. The closest cameras to the Project site are currently set up in Cupertino Hills, Mt. Bielawski, and Mt. Rodini.

Recommendations: The site developers could work with Santa Clara County and ALERTCalifornia to install one or more wildfire cameras on the site to assist with early detection. Early detection increases the available time for the community to evacuate, which benefits residents inside and outside the development.

CELL TOWERS

Santa Clara County posts evacuation orders on social media sites like Nextdoor, X (Twitter), and Facebook. For visitors who may be unfamiliar with the roadway network, cell service is critical to access navigation systems (e.g., Google Maps, Apple Maps, Waze, etc.) that direct people to evacuation destinations or other areas of safety.

Recommendations: The site developers could install one or more additional cell towers on the Project site to enhance cell service in the area. The cell tower would allow for more consistent access to alerts for both new and existing residents.

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KITTELSON & ASSOCIATES
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TECHNICAL MEMORANDUM

November 22, 2025 Project# 31788

To: Jason Brandman, First Carbon Solutions

From: Grace Carsky, Mike Aronson, Pavithran Balan

RE: Masson Estates Evacuation Analysis – Draft Results

Introduction

Kittelson & Associates, Inc. (Kittelson) is providing an evacuation transportation analysis for proposed development at the Masson Estates Site (Project) in Saratoga, CA. This assessment provides estimates of roadway capacity constraints during evacuations and changes in travel times associated with the proposed development. This memorandum presents the evacuation analysis methodology, results, and evacuation planning considerations for the proposed development.

PROJECT DESCRIPTION

The proposed Project site is located west of the intersection of Pierce Road and Saratoga Heights Drive in Saratoga, CA. The Project includes the construction of 25 single family homes. Access to the project site would be provided by a new street (Masson Estates Way). The project area is bounded by Pierce Road to the east, which connects to Big Basin Way (State Route 9) to the south, and Mt. Eden Road to the northeast. Access to the site is provided by a proposed roadway, Masson Estates Way, which branches off from Pierce Road and leads directly into the Project site.

Methodology

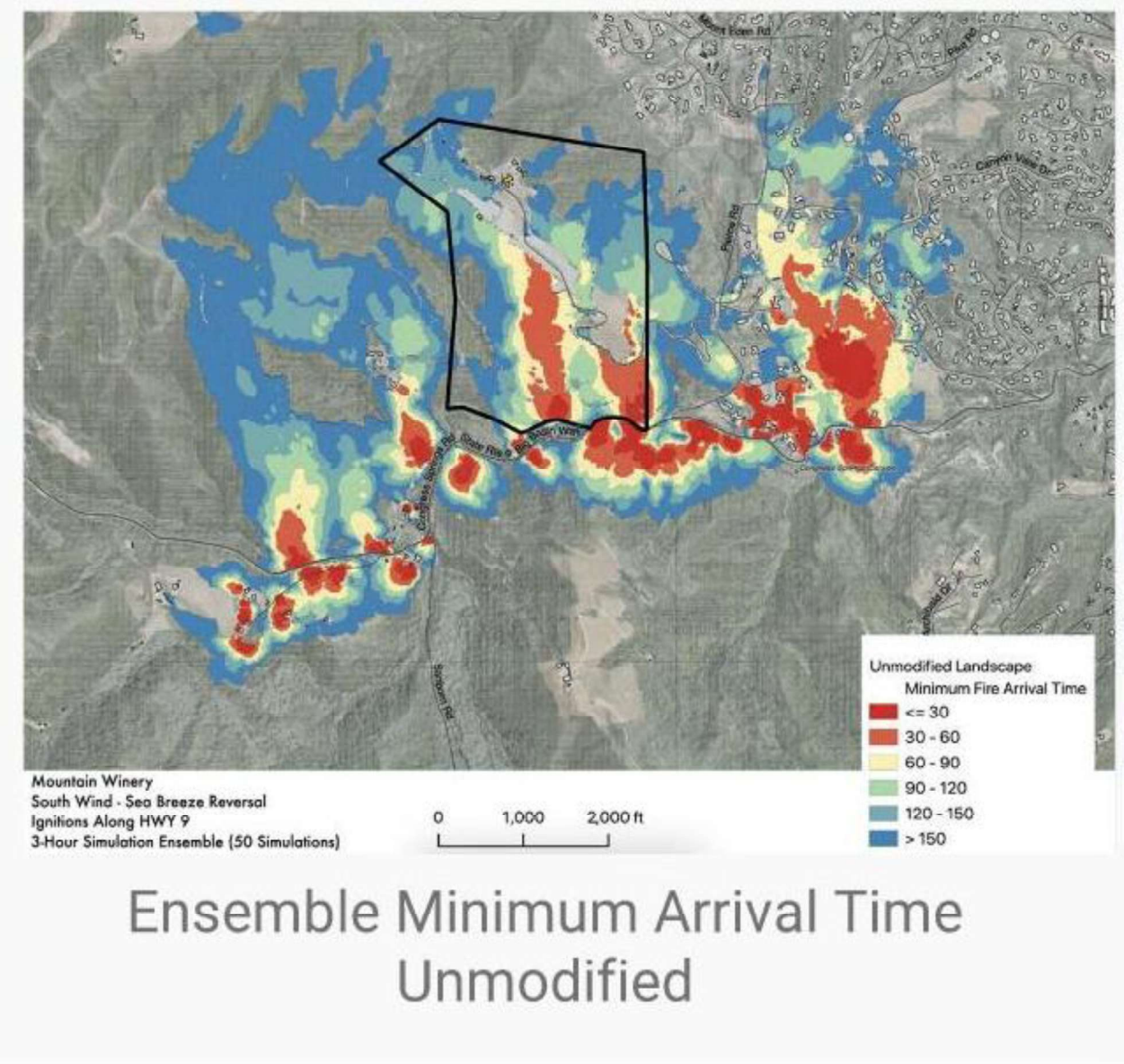
Wildfire Scenarios

To evaluate how the Project may affect congestion and travel times on the roadway network during wildfire evacuation scenarios, fire progression and fire behavior modeling was conducted for the Project area. This modeling considered wildfire history, ignition sources, fuels/vegetation, and historical weather patterns for the Project site and the surrounding area. Details of the wildfire modeling assumptions are included in the *Masson Estates Wildfire Protection Plan*.

The wildfire modeling identified two potential wildfire scenarios impacting the Project site. While these fire scenarios may not represent all possible wildfires that may occur in the Project area, these scenarios were selected because they are wildfires with a higher risk of ignition and spread, would directly impact residents and employees in the Project vicinity and nearby communities, and potentially impact major

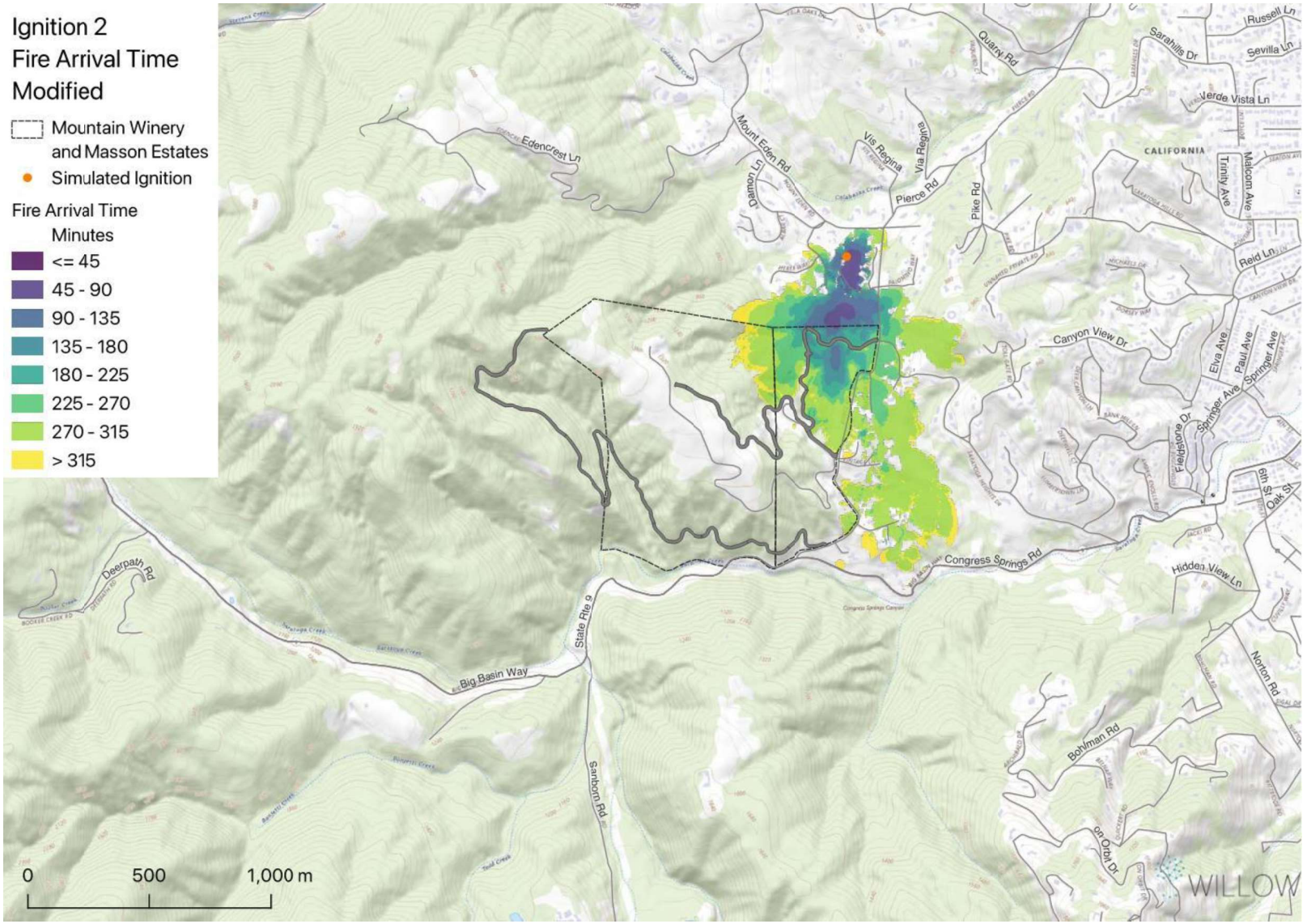
evacuation routes in the area. Figure 1 and Figure 2 show the fire progression and fire spread for the two scenarios.

Figure 1. Fire Progression – Wildfire Scenario #1



Source: Wildland Resource Management, 2025

Figure 2. Fire Progression – Wildfire Scenario #2



Source: Wildland Resource Management, 2025

Analysis Scenarios

This study evaluates the transportation related impacts of the Project during the two wildfire evacuation scenarios. To account for the worst-case scenario, all the scenarios are analyzed during the weekday PM peak hour, which represents the peak traffic volume during a typical week: the sum of background traffic in the area plus traffic from the Project development, and residents in the evacuation area are at home. Scenarios were also analyzed to assume an event is taking place at the Mountain Winery venue, where venue employees and guests would need to evacuate at the same time as residents on the Project site.[1]

Accordingly, this study evaluates transportation related impacts for the two wildfire scenarios under the following conditions:

- No Project
- No Project Plus Event
- Plus Project
- Plus Project & Event Conditions

Travel Modeling Tools

The evacuation analysis uses the Santa Clara Valley Transportation Authority (VTA) travel demand model to estimate roadway congestion and travel times in an evacuation under the four analysis scenarios. The current travel model includes a 2020 base year land use forecast and transportation improvement assumptions.

Evacuation Assumptions

This section outlines the assumptions made on when residents and employees in the evacuation area would need to evacuate and the conditions under which they would evacuate. All assumptions outlined below were discussed and agreed upon with an advisory group. The advisory group consisted of representatives from Santa Clara County Sheriff's Office and Santa Clara County Fire Department.

Time Period

Kittelson modeled transportation activity for the worst-case scenario under which people in surrounding areas would evacuate. This period is assumed to be the weekday PM peak hour when the sum of background traffic in the area plus traffic from the Project development is greatest during a typical week.

Travel Type

Baseline travel represents normal travel patterns during the weekday peak hour as included in the VTA travel demand model. Evacuation travel represents estimated evacuation trips and travel time from each

[1] Events at Mountain Winery typically begin at 7:00 pm or later, with doors opening two hours before the event time. This analysis conservatively assumes that the Mountain Winery venue would be at capacity during a peak PM evacuation.

evacuating Traffic Analysis Zone (TAZ) to an evacuation destination. Kittelson reviewed the model's TAZs and assigned each TAZ a combination of Baseline travel and Evacuation travel (10% and 90%, respectively), based on its presence in the designated evacuation area.

Evacuation Areas

For each of the two wildfire evacuation scenarios analyzed in this study, evacuation areas were determined based on discussions with the advisory group. Accordingly, the following are the evacuation areas assumed in this study. Genasys evacuation zones were used to identify the evacuating areas in each scenario.

- Wildfire Scenario #1 (Figure 3): Evacuation area includes the areas around Mount Eden Road to the north, Big Basin Way/State Route 9 to the south, Stevens Canyon Road to the west, and Pierce Road to the east.
    - Scenario 1 includes Genasys evacuation zones SAR-008, SCC-019, SCC-021, and SCC-025.
- Wildfire Scenario #2 (Figure 4): Evacuation area includes the areas around Garrod Road to the north, Big Basin Way/State Route 9 to the south, Stevens Canyon Road to the west, and Stoneridge Drive to the east.
    - Scenario 2 includes Genasys evacuation zones SAR-008, SAR-009, SCC-019, SCC-020, and SCC-021.

The evacuation areas are overlaid with the VTA travel demand model's TAZ map to identify the number of people that would need to be evacuated.

Number of Evacuating Trips

In general, modeled trips are a function of several patterns, including the land uses in an area, the socio-economic characteristics of the population in the area (e.g., auto ownership, income, and household size), and the type and extent of transportation facilities in an area. Kittelson obtained the Countywide land use information by TAZ from the VTA travel demand model to estimate households, population, and employment information.

The Santa Clara County auto ownership information by Census Tract is obtained from the American Community Survey (ACS) 2023 5-year estimates. Based on this data, there are an average of 1.93 vehicles per household in Santa Clara County. Therefore, the number of evacuating households is multiplied by 2 (rounded) to estimate the number of evacuating residential vehicles. Employees that need to evacuate are assumed to have their own vehicle. The Mountain Winery venue has the capacity for approximately 1,000 vehicles on site, all of which are assumed to evacuate in the Plus Event scenarios. Table 1 presents the number of evacuating vehicles by vehicle type.

Table 1. Number of Vehicles by Vehicle Type

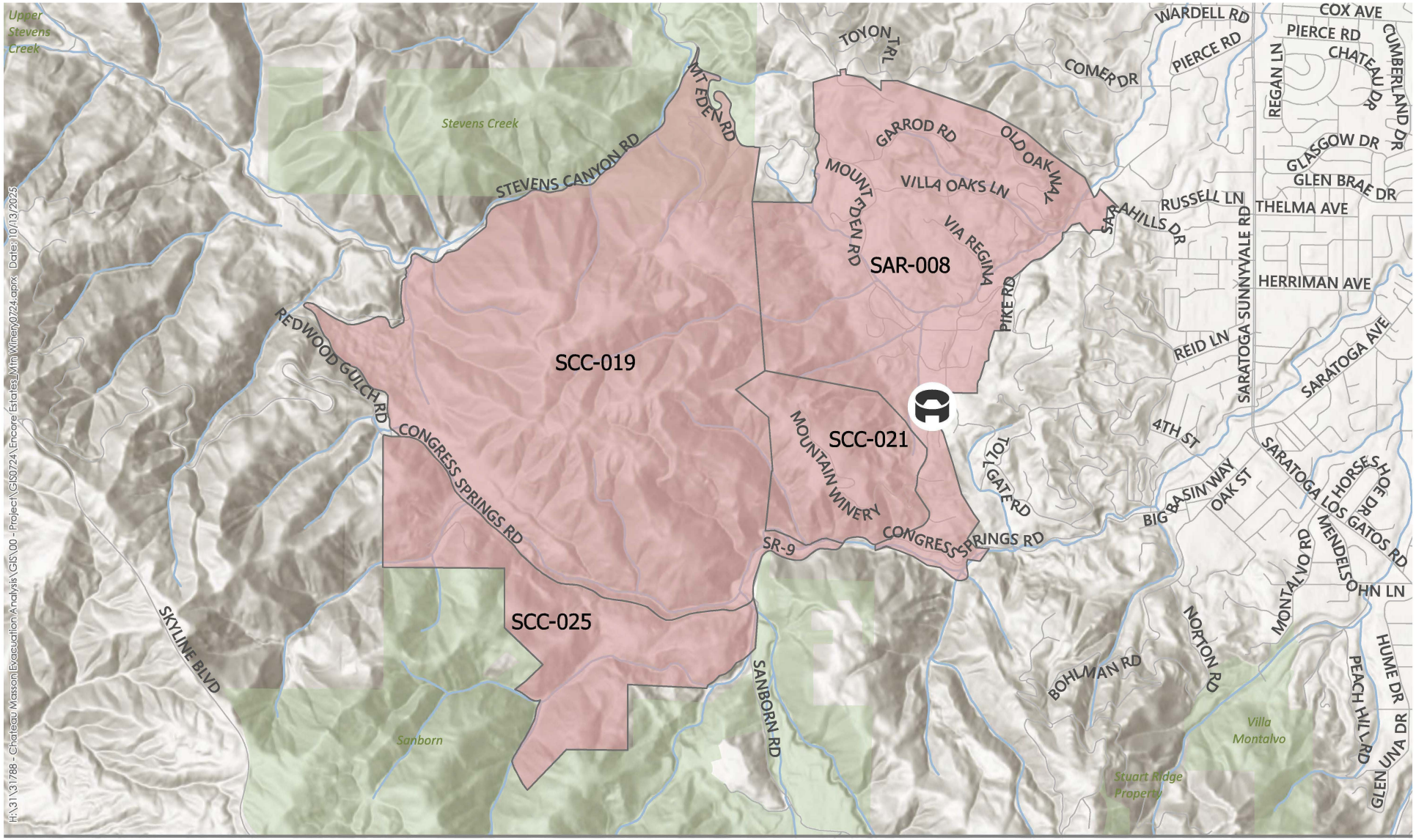
Vehicle Type	Number of Evacuating Vehicles
Households	2 vehicles per household
Employees	1 vehicle per employee
Event	1000 vehicles at Mountain Winery

Kittelson estimated total evacuation trips by calculating the trips generated at household uses, trips generated by employees at non-residential land uses, and trips made from the Mountain Winery venue. If a fire occurs during the night, most residents would be home, but most employees would not be at their workplace. If a fire occurs during the workday, most employees would be at their workplace, but many residents would not be at home. The evacuation analysis conservatively assumes that 75 percent of residents and 75 percent of employees would need to evacuate during a wildfire event. presents the estimated number of residents, employees, and visitors for each wildfire scenario.

Table 2. Estimated Number of Evacuating Vehicles by Vehicle Type.

Scenario	Resident Vehicles	Employee Vehicles	Mountain Winery Visitor Vehicles
Wildfire Scenario #1			
No Project	3,024	528	0
No Project Plus Event	3,024	528	1,000
Project	3,074	528	0
Project Plus Event	3,074	528	1,000
Wildfire Scenario #2			
No Project	3,784	583	0
No Project Plus Event	3,784	583	1,000
Project	3,834	583	0
Project Plus Event	3.834	583	1,000

Source: Kittelson & Associates, Inc., 2025.



Masson Estates

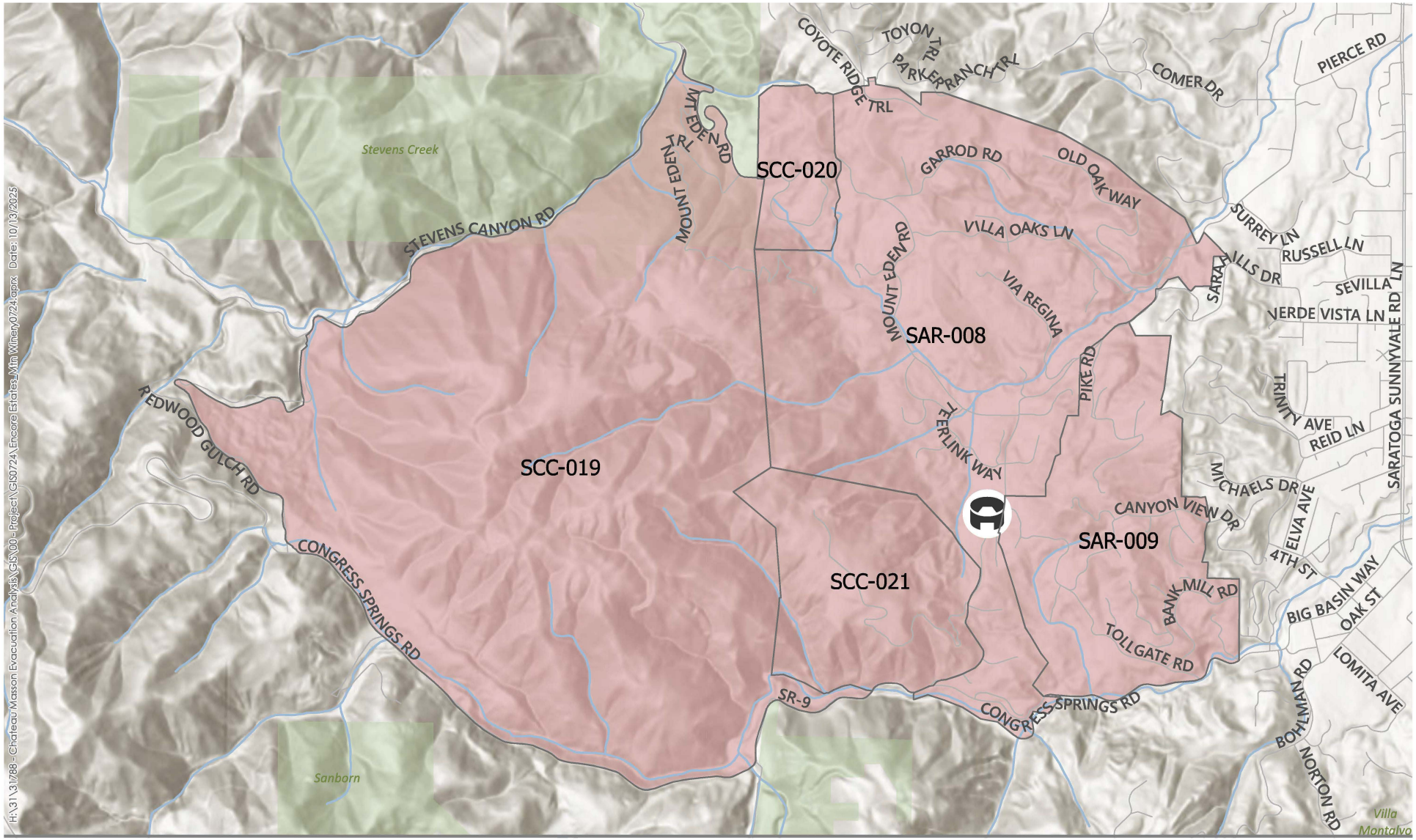
Evacuating Areas

Genasys Evacuation Zone

0 0.5 Miles

KITTELSON & ASSOCIATES

Evacuation Areas
Scenario 1 - Hwy 9 Fire Ignition
Masson Estates Development
Saratoga, CA



Masson Estates

Evacuating Areas

Genasys Evacuation Zone

0 0.5 Miles

KITTELSON & ASSOCIATES

Evacuating Areas
Scenario 2 - Mt. Eden Fire Ignition
Masson Estates Development
Saratoga, CA

Trip Distribution

For residents, employees, and event visitors in the evacuation area, trip distribution assumptions were based on existing land use, the location of evacuation destinations, and their relative proximity to the evacuation area. Given the location of the Project site, it was assumed all evacuees would evacuate to safe areas in the City of Saratoga.

Roadway Capacity and Roadway Closures

Kittelson modeled trip patterns using the typical capacities for each roadway within and outside the evacuation area, except for roadways otherwise identified for road closures by the advisory group. The scenarios represent conditions without implementation of any evacuation strategies, such as manual traffic control or contraflow lanes, which could increase roadway capacity in one direction versus the other. The roadways identified for roadway closures for each of the scenarios include:

- **Wildfire Scenario #1:** State Route 9 is closed in both directions west of Pierce Road. Evacuating traffic from the Project and surrounding communities would use Pierce Road (to the north) and Saratoga Heights Drive to evacuate into Saratoga.
- **Wildfire Scenario #2:** Pierce Road is closed in the southbound direction to evacuating traffic. Evacuees north of Mount Eden Road would use Pierce Road to evacute into Saratoga. Evacuees south of Mount Eden Road would use Saratoga Heights Drive and State Route 9 to evacuate to Saratoga.

Evacuation Destination and Route Choice

The number of trips to each evacuation destination was assigned based on the location and direction of the evacuation based on the trip distribution described above. These destinations were selected for each of the evacuation scenarios with a goal of identifying evacuation travel patterns and congestion in the evacuation area and in the region. The following sites were chosen to represent evacuation destinations:

- West Valley College
- Sacred Heart Church
- Saratoga High School

The trips were distributed equally from each of the evacuating TAZs to the evacuation destinations, as appropriate. The trip distribution is not intended to reflect a precise distribution of the routes that would be taken during an evacuation.

Evacuation Assignment

During an evacuation event, residents and employees will receive one of three evacuation assignment orders:

- **No Action** – residents and employees do not need to evacuate or prepare for an evacuation.
- **Evacuation Warning** – residents and employees in a specific evacuation zone are ordered to prepare for an evacuation but do not need to evacuate immediately.
- **Evacuation Order** – residents and employees in a specific evacuation zone are ordered to evacuate immediately.

Evacuation assignment is given for the peak hour of the evacuation, which is defined as the hour when most vehicles evacuate. For both wildfire scenarios, the peak hour is assumed to be the first hour of the evacuation.

When an area is assigned an evacuation order, it is assumed that 90 percent of residents and employees will evacuate over the duration of an evacuation and approximately 10 percent will remain behind. The estimated factors are based on survey results from people impacted by prior fires in California in UC Berkeley's Review of California Wildfire Evacuations from 2017 to 2019.[2] Based on Kittelson's conversations with the advisory group, it is assumed that all areas identified as evacuation areas are given an evacuation order.

[2] *Wong, S., Broader, J. and Shaheen, P., 2022. Review of California Wildfire Evacuations from 2017 to 2019. [online] Escholarship.org. Available at:* <https://escholarship.org/uc/item/5w85z07g>

Evacuation Results

The VTA travel demand model was used to estimate travel times and volume-to-capacity (V/C) ratios for each analysis scenario to understand how the Project would impact residents, employees, and Mountain Winery guests in the evacuation area for each wildfire scenario. The following sections present the congestion locations and comparison of travel times for No Project, No Project Plus Event, Plus Project, and Plus Project and Event conditions for the two wildfire scenarios. The analysis is run assuming no manual traffic control is in place during the evacuation.

The congestion on a roadway segment is determined based on the V/C ratio of the segment derived from the VTA travel demand model. Congestion locations are classified as shown in Table 3.

Table 3. Congestion Classification based on Volume-to-Capacity (V/C) ratio

Volume-to-Capacity (V/C) ratio	Congestion Classification
≤ 0.9	Under Capacity
0.9 to 1.0	Near Capacity
≥ 1.0	Over Capacity

WILDFIRE SCENARIO #1

This section presents the congestion location and travel times analysis under wildfire scenario #1 for all the analysis scenarios. The origin and destination location are identified based on the evacuation area boundaries identified for this wildfire scenario and likely evacuation destinations in the City of Saratoga. However, evacuation destinations are subject to change during an actual evacuation event based on direction from the County Sheriff's Office or evacuating persons' personal preferences.

No Project and No Project Plus Event

Figure 5 and Figure 6 show the congestion locations during wildfire scenario #1 under No Project and No Project Plus Event evacuation scenarios, respectively. The following locations are estimated to operate near or over capacity in the No Project scenario due to the evacuation:

- Saratoga Avenue, between Saratoga Sunnyvale Road and State Route 85
- Herriman Avenue, between Saratoga Sunnyvale Road and Saratoga Avenue
- Saratoga Los Gatos, Road between Saratoga Avenue and Horseshoe Drive
- Fruitvale Avenue and Allendale Avenue, near the entrance of West Valley College

In the No Project Plus Event scenario, traffic from the Mountain Winery venue is estimated to add congestion and result in roadways over capacity at several roadways, including but not limited to:

- Mountain Winery Way to Pierce Road
- Saratoga Heights Drive/Tollgate Road, from Pierce Road to Big Basin Way
- Pierce Road, near the intersection of Saratoga Sunnyvale Road
- Saratoga Avenue, between Springer Avenue and State Route 85

While evacuation traffic from the Mountain Winery venue results in additional congestion in the area, changes in v/c ratio are minimal.

Plus Project

Figure 7 shows the congestion locations during wildfire scenario #1 under the Plus Project scenario. With the addition of the Project, congestion is estimated to increase to over capacity at the following locations:

- Saratoga Avenue, between Saratoga Sunnyvale Road and Herriman Avenue
- Herriman Avenue, between Saratoga Sunnyvale Road and Saratoga Avenue
- Saratoga Los Gatos Road, southeast of Saratoga Avenue

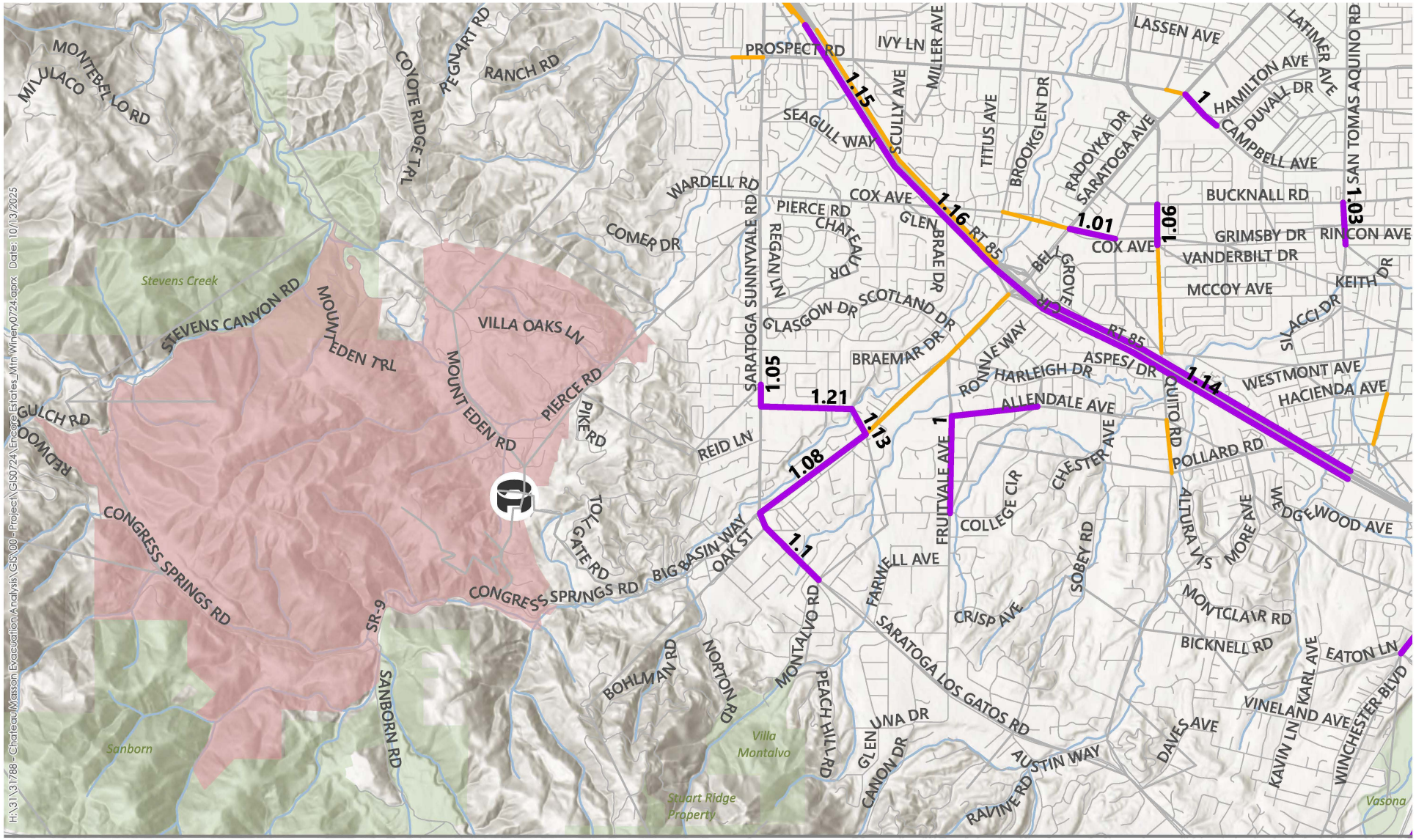
While evacuation traffic from the Project results in additional congestion in the area, changes in v/c ratio are minimal.

Plus Project and Event

With the addition of Project traffic and event traffic from Mountain Winery, congestion is estimated to increase to over capacity at the following locations (Figure 8):

- Mountain Winery Way to Pierce Road
- Saratoga Heights Drive/Tollgate Road, from Pierce Road to Big Basin Way
- Pierce Avenue, near the intersection of Saratoga Sunnyvale Road
- Saratoga Avenue, from Springer Avenue to State Route 85
- Fruitvale Avenue, near the entrance of West Valley College

Though the volume-to-capacity ratio changes along several roadways within the vicinity of the Project, increases are minimal and likely attributed to evacuating traffic from the Mountain Winery event.



Volume-to-Capacity Ratio

- V/C > 1.0
- V/C = 0.90 - 0.99
- V/C < 0.9

Masson Estates

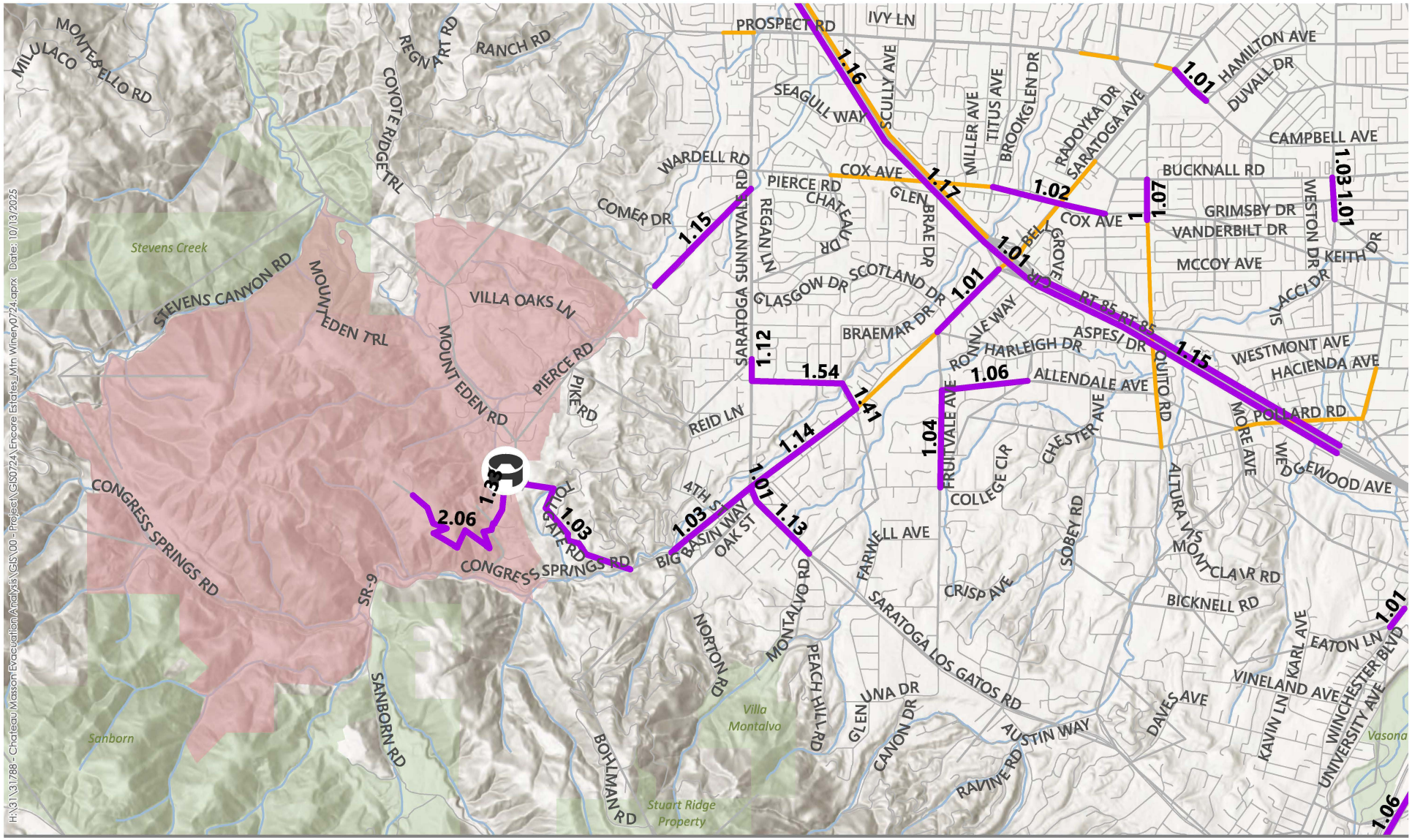
Evacuating Areas

0 0.5 Miles

**Hwy 9 closed at Pierce Road. Roadway is open to emergency and evacuating vehicles only.*

KITTELSON & ASSOCIATES

Roadway Capacity - No Project Evacuation
Scenario 1 - Hwy 9 Fire Ignition
Masson Estates Development
Saratoga, CA



Volume-to-Capacity Ratio

- V/C > 1.0
- V/C = 0.90 - 0.99
- V/C < 0.9

Masson Estates

Evacuating Areas

0 0.5 Miles

**Hwy 9 closed at Pierce Road. Roadway is open to emergency and evacuating vehicles only.*

KITTELSON & ASSOCIATES

Roadway Capacity - No Project & Event Evacuation
Scenario 1 - Hwy 9 Fire Ignition
Masson Estates Development
Saratoga, CA

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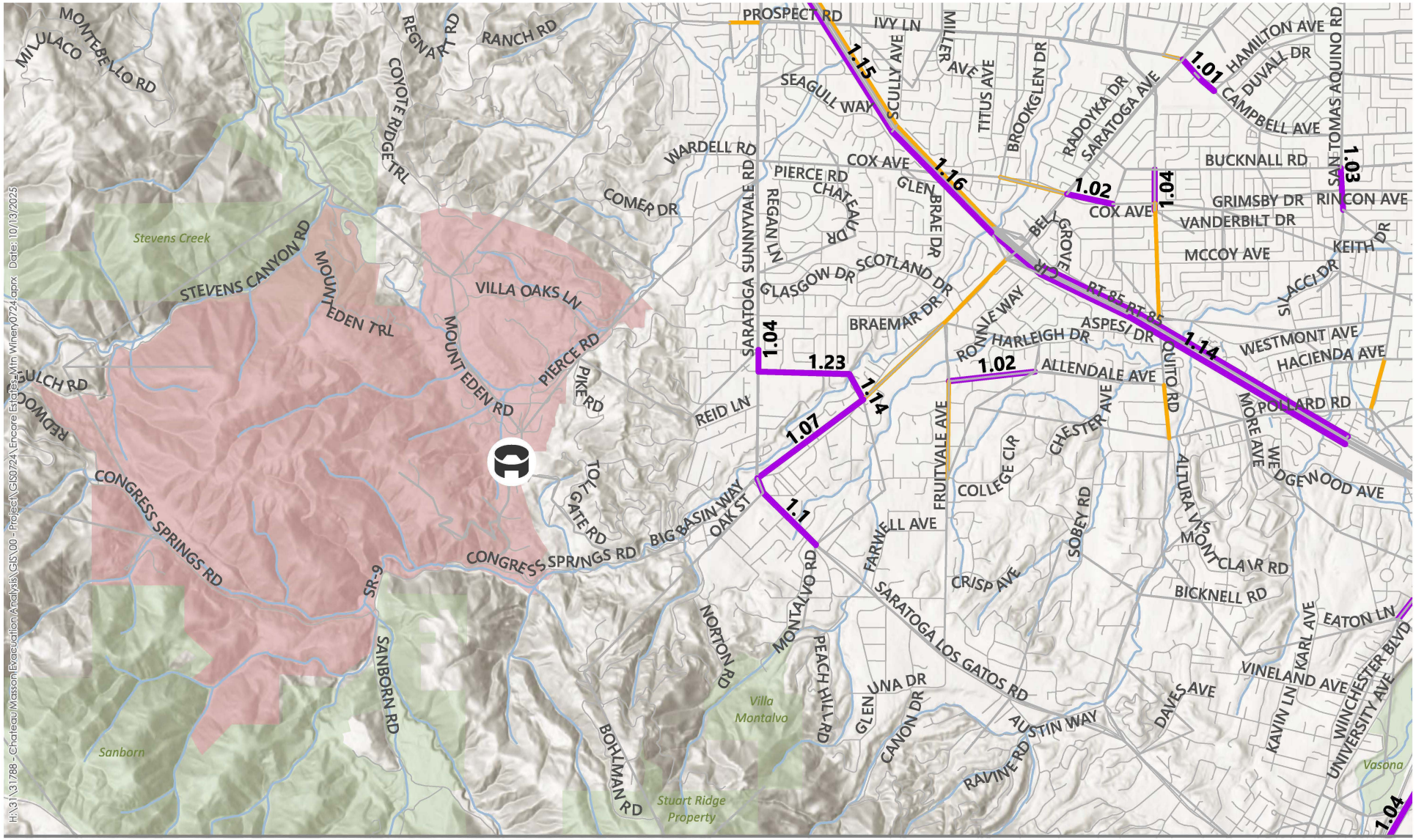


Volume-to-Capacity Ratio

- V/C > 1.0
- V/C = 0.90 - 0.99
- V/C < 0.9

Masson Estates

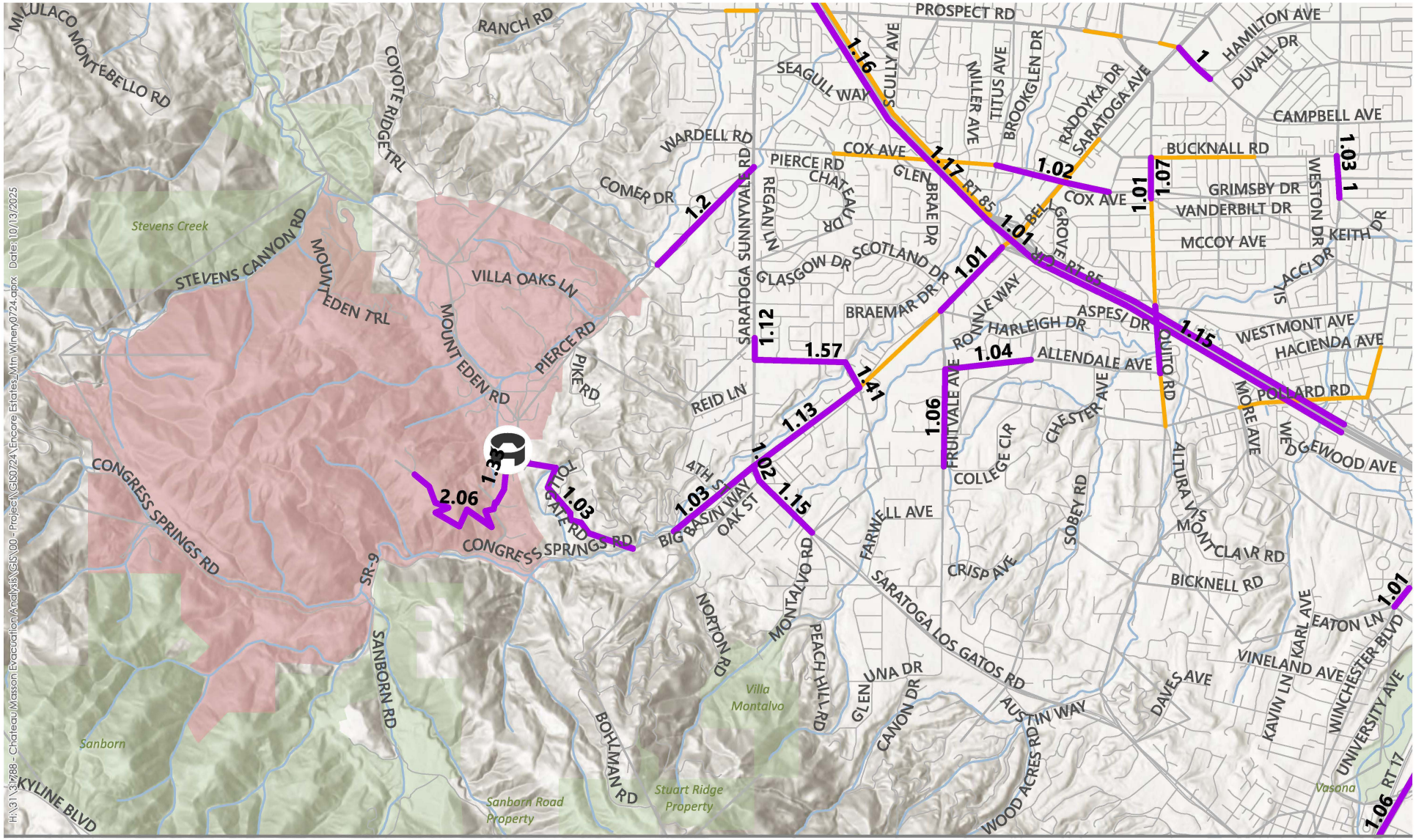
Evacuating Areas

0 0.5 Miles

**Hwy 9 closed at Pierce Road. Roadway is open to emergency vehicles only.*

KITTELSON & ASSOCIATES

Roadway Capacity - Project Evacuation
Scenario 1 - Hwy 9 Fire Ignition
Masson Estates Development
Saratoga, CA



Volume-to-Capacity Ratio

- V/C > 1.0
- V/C = 0.90 - 0.99
- V/C < 0.9

Masson Estates

Evacuating Areas

0 0.5 Miles

**Hwy 9 closed at Pierce Road. Roadway is open to emergency and evacuating vehicles only.*

KITTELSON & ASSOCIATES

Roadway Capacity - Project & Event Evacuation
Scenario 1 - Hwy 9 Fire Ignition
Masson Estates Development
Saratoga, CA

Estimated Travel Times

Table 4 shows the estimated travel times (in minutes) during wildfire scenario #1 for existing conditions under No Project and Plus Project scenarios without event traffic from the Mountain Winery venue. As seen in the table below, the increase in travel time with Project-only traffic varies between 0.0 to 0.4 minutes.

Table 5 shows the estimated travel times (in minutes) during wildfire scenario #1 for existing conditions under No Project and Plus Project scenarios with the addition of traffic from the Mountain Winery venue. As seen in the table below, the increase in travel time with Project and Mountain Winery venue traffic varies between 0.0 to 0.6 minutes.

Table 4. Estimated Travel Time (minutes), Wildfire Scenario #1 (Without Mountain Winery Event)

Origin	Destination	Evacuation Travel Times		
		No Project (mins)	Plus Project (mins)	Difference (mins)
Stevens Canyon Rd. Area	West Valley College	25.9	26.2	0.3
	Saratoga High School	19.7	19.8	0.1
	Sacred Heart Church	18.5	18.7	0.2
Sanborn Rd. Area	West Valley College	26.3	26.3	0.0
	Saratoga High School	29.9	30.0	0.1
	Sacred Heart Church	26.8	26.9	0.1
Mountain Winery Venue	West Valley College	22.0	22.4	0.4
	Saratoga High School	16.3	16.4	0.1
	Sacred Heart Church	14.6	14.9	0.3
Bohlman Rd. Area	West Valley College	16.1	16.2	0.1
	Saratoga High School	12.3	12.5	0.2
	Sacred Heart Church	8.7	8.7	0.0
E. of Pierce Rd.	West Valley College	15.4	15.5	0.1
	Saratoga High School	6.6	6.7	0.1
	Sacred Heart Church	7.0	7.2	0.2
Chateau Masson	West Valley College	18.5	18.9	0.4
	Saratoga High School	12.8	12.9	0.1
	Sacred Heart Church	11.1	11.4	0.3

Compiled by: Kittelson & Associates, Inc., 2025

Table 5. Estimated Travel Time (minutes), Wildfire Scenario #1 (With Mountain Winery Event)

Origin	Destination	Evacuation Travel Times		
		No Project Plus Event (mins)	Plus Project and Event (mins)	Difference (mins)
Stevens Canyon Rd. Area	West Valley College	29.4	29.6	0.2
	Saratoga High School	30.2	30.5	0.3
	Sacred Heart Church	25.5	25.5	0.0
Sanborn Rd. Area	West Valley College	27.4	27.4	0.0
	Saratoga High School	36.6	36.7	0.1
	Sacred Heart Church	28.6	28.6	0.0
Mountain Winery Venue	West Valley College	78.9	79.0	0.1
	Saratoga High School	75.0	75.3	0.3
	Sacred Heart Church	70.3	70.3	0.0
Bohlman Rd. Area	West Valley College	17.5	17.5	0.0
	Saratoga High School	14.5	14.7	0.2
	Sacred Heart Church	8.9	8.9	0.0
E. of Pierce Rd.	West Valley College	16.8	16.8	0.0
	Saratoga High School	11.3	11.9	0.6
	Sacred Heart Church	8.1	8.2	0.1
Chateau Masson	West Valley College	27.0	27.1	0.1
	Saratoga High School	23.1	23.4	0.3
	Sacred Heart Church	18.4	18.4	0.0

Compiled by: Kittelson & Associates, Inc., 2025

WILDFIRE SCENARIO #2

This section presents the congestion location and travel times analysis under wildfire scenario #2 for all the analysis scenarios. The origin and destination location are identified based on the evacuation area boundaries identified for this wildfire scenario and likely evacuation destinations in the City of Saratoga. However, evacuation destinations are subject to change during an actual evacuation event based on direction from the County Sheriff's Office or evacuating persons' personal preferences.

No Project and No Project Plus Event

Figure 9 and Figure 10 show the congestion locations during wildfire scenario #2 under No Project and No Project Plus Event scenarios, respectively. The following are the locations operating near or over capacity in the No Project scenarios:

- Pierce Road, near the intersection of Saratoga Sunnyvale Road
- Big Basin Way/Saratoga Avenue, between Ambric Knolls Road and State Route 85
- Herriman Avenue, between Saratoga Sunnyvale Road and Saratoga Avenue
- Saratoga Los Gatos Road, between Saratoga Avenue and Horseshoe Drive
- Fruitvale Avenue and Allendale Avenue, near the entrance of West Valley College

In the No Project Plus Event scenario, traffic from the Mountain Winery venue is estimated to add congestion and result in roadways over capacity at several roadways, including but not limited to:

- Mountain Winery Way to Pierce Road
- Big Basin Way, between Ambric Knolls Road and Saratoga Los Gatos Road
- Fruitvale Avenue and Allendale Avenue, near the entrance of West Valley College

Pierce Road is also estimated to be near capacity where the roadway intersects with State Route 9. This highlights potential queueing along Pierce Road as vehicles travel into Saratoga via State Route 9. Though the volume-to-capacity ratio changes along several roadways within the vicinity of the Project, increases are minimal.

Plus Project

Figure 11 shows the congestion locations during wildfire scenario #2 under the Plus Project scenario. The following locations are estimated to operate over capacity with the addition of the Project development but not including event traffic from Mountain Winery:

- Pierce Road near the intersection of Saratoga Sunnyvale Road
- Saratoga Avenue, between Ambric Knolls Road and State Route 85
- Herriman Avenue, between Saratoga Sunnyvale Road and Saratoga Avenue
- Saratoga Los Gatos, Road between Saratoga Avenue and Horseshoe Drive
- Fruitvale Avenue and Allendale Avenue, near the entrance of West Valley College

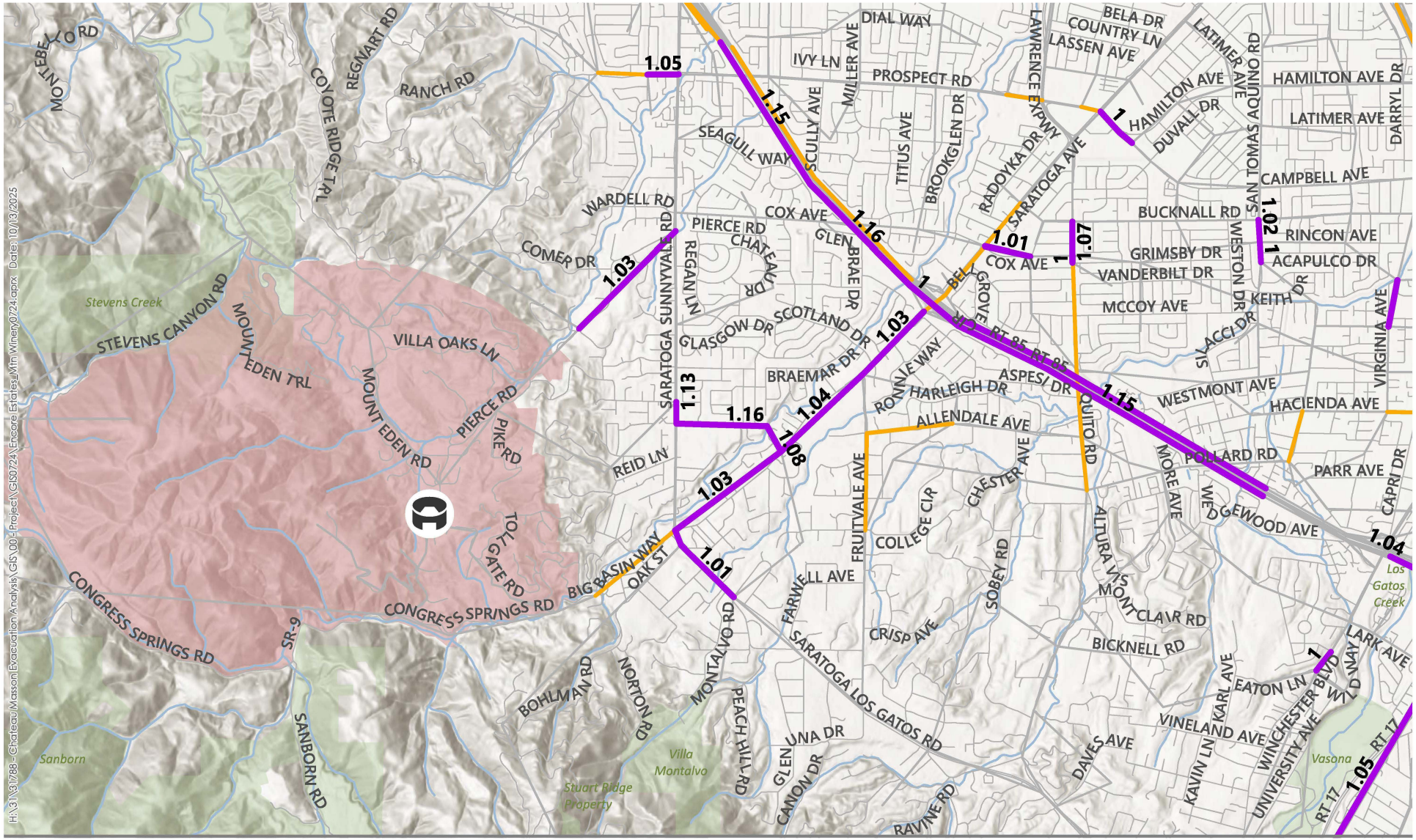
While evacuation traffic from the Project results in additional congestion in the area, changes in v/c ratio are minimal compared to the No Project scenario.

Plus Project and Event

With the addition of Project traffic and event traffic from Mountain Winery, congestion is estimated to increase to over capacity at the following locations (Figure 12):

- Mountain Winery Way to Pierce Road
- Pierce Road, from Mountain Winery Way to SR-9

Though the volume-to-capacity ratio changes along several roadways within the vicinity of the Project, increases are minimal compared to the No Project Plus Event scenario.



Volume-to-Capacity Ratio

- V/C > 1.0
- V/C = 0.90 - 0.99
- V/C < 0.9

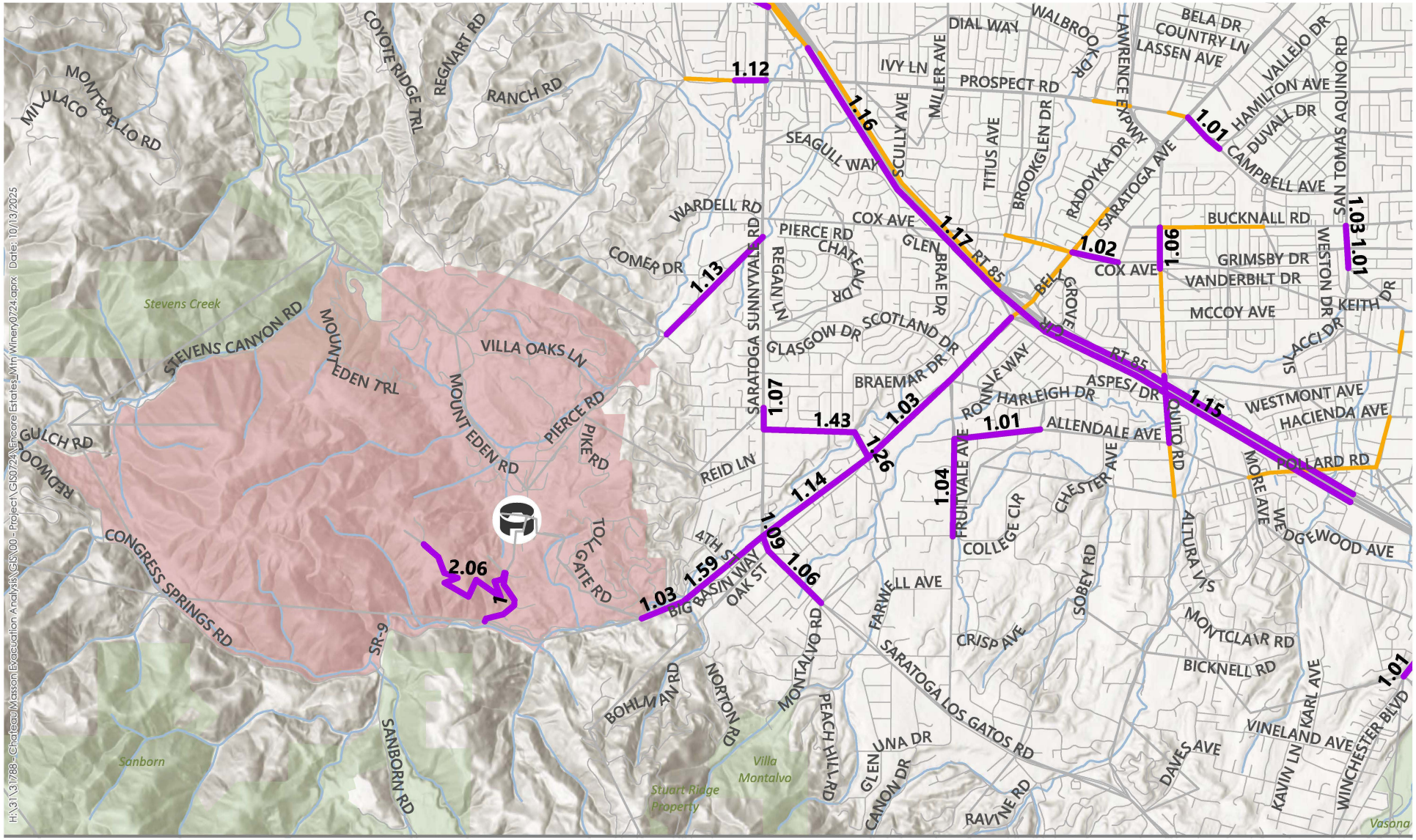
Masson Estates

Evacuating Areas

0 0.5 Miles

KITTELSON & ASSOCIATES

Roadway Capacity - No Project Evacuation
Scenario 2 - Mt. Eden Fire Ignition
Masson Estates Development
Saratoga, CA



Volume-to-Capacity Ratio

- V/C > 1.0
- V/C = 0.90 - 0.99
- V/C < 0.9

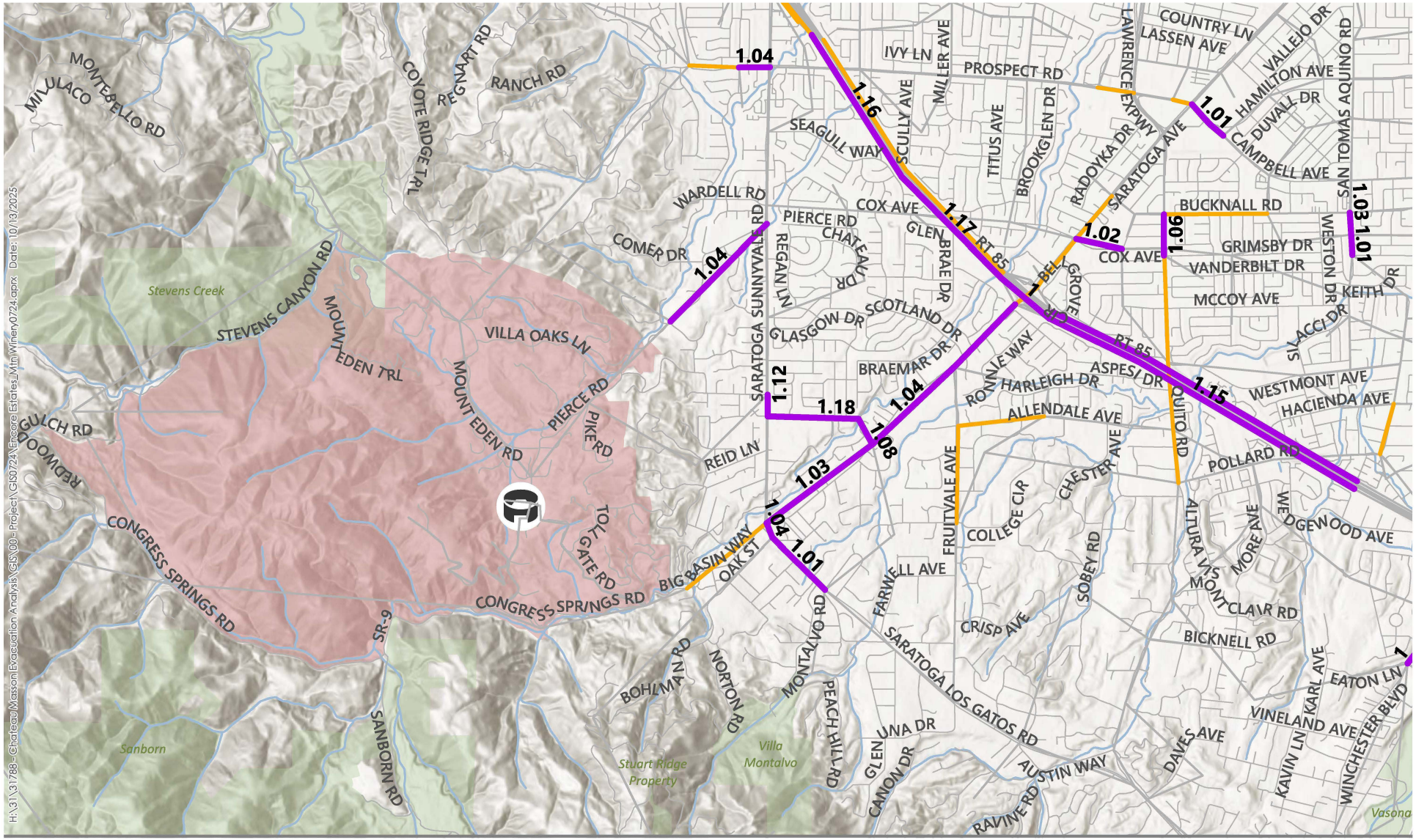
Masson Estates

Evacuating Areas

0 0.5 Miles

Roadway Capacity - No Project & Event Evacuation
Scenario 2 - Mt. Eden Fire Ignition
Masson Estates Development
Saratoga, CA

KITTELSON & ASSOCIATES



Volume-to-Capacity Ratio

- V/C > 1.0
- V/C = 0.90 - 0.99
- V/C < 0.9

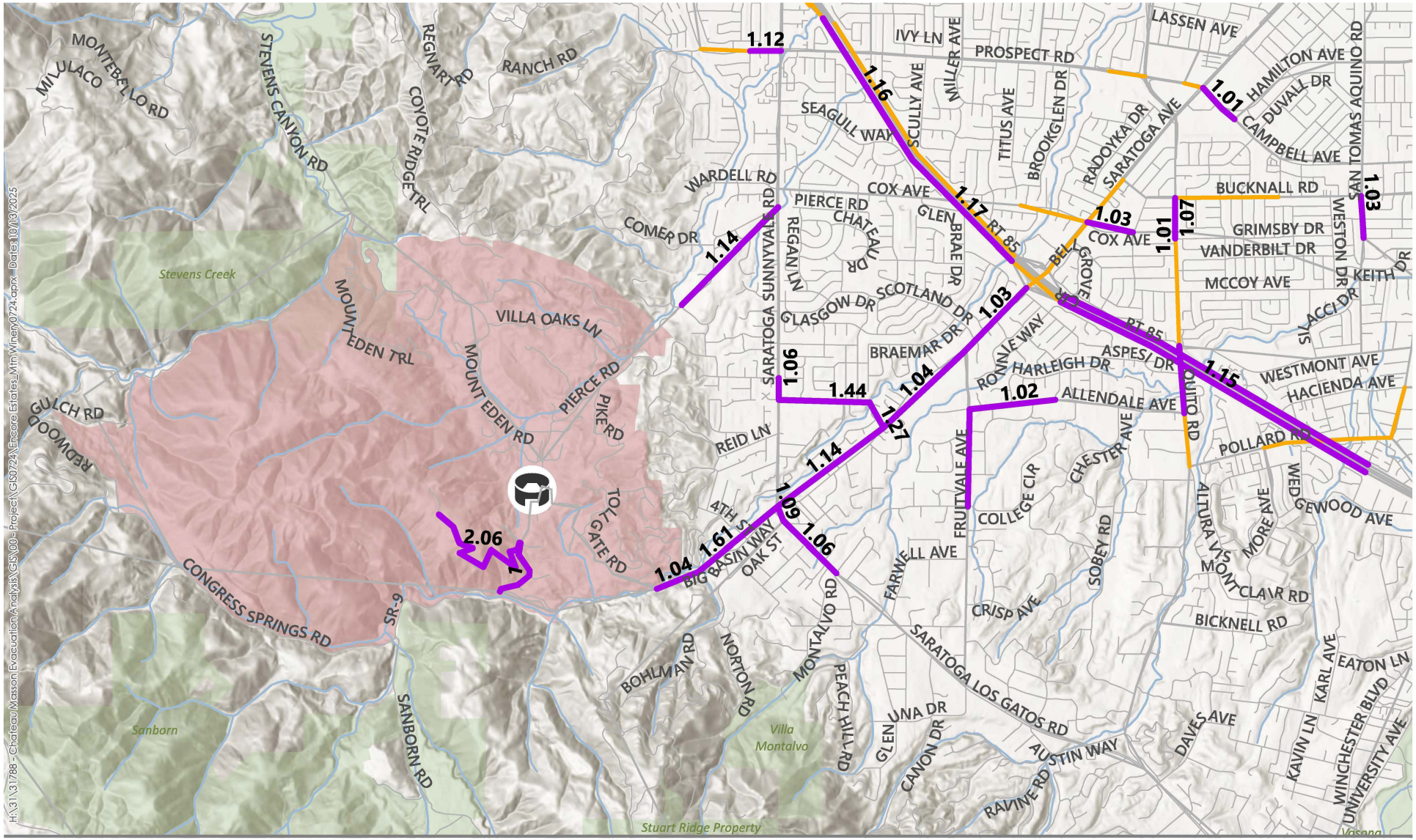
Masson Estates

Evacuating Areas

0 0.5 Miles

KITTELSON & ASSOCIATES

Roadway Capacity - Project Evacuation
Scenario 2 - Mt. Eden Fire Ignition
Masson Estates Development
Saratoga, CA



Volume-to-Capacity Ratio

- V/C > 1.0
- V/C = 0.90 - 0.99
- V/C < 0.9

Masson Estates

Evacuating Areas

Roadway Capacity - Project & Event Evacuation
Scenario 2 - Mt. Eden Fire Ignition
Masson Estates Development
Saratoga, CA

KITTELSON & ASSOCIATES

Estimated Travel Times

Table 6 shows the estimated travel times (in minutes) during wildfire scenario #2 for existing conditions under No Project and Plus Project scenarios without event traffic from the Mountain Winery venue. As seen in the table below, the increase in travel time with Project traffic varies between 0.1 to 0.4 minutes.

Table 7 shows the estimated travel times (in minutes) during wildfire scenario #2 for existing conditions under No Project and Plus Project scenarios with the addition of traffic from the Mountain Winery venue. As seen in the table below, the increase in travel time with Project traffic varies between 0.0 to 0.9 minutes.

Table 6. Estimated Travel Time (minutes), Wildfire Scenario #2 (Without Mountain Winery Event)

Origin	Destination	Evacuation Travel Times		
		No Project (mins)	Plus Project (mins)	Difference (mins)
Mountain Winery Venue	West Valley College	17.7	18.0	0.3
	Saratoga High School	13.9	14.3	0.4
	Sacred Heart Church	11.4	11.6	0.2
North of Pierce Road/Mt. Eden Way	West Valley College	18.9	19.0	0.1
	Saratoga High School	15.4	15.5	0.1
	Sacred Heart Church	15.8	15.9	0.1
East of Pierce Road	West Valley College	14.4	14.5	0.1
	Saratoga High School	6.1	6.3	0.2
	Sacred Heart Church	6.6	6.7	0.2
Chateau Masson	West Valley College	15.4	15.7	0.3
	Saratoga High School	11.6	12.0	0.4
	Sacred Heart Church	9.1	9.3	0.2

Compiled by: Kittelson & Associates, Inc., 2025

Table 7. Estimated Travel Time (minutes), Wildfire Scenario #2 (With Mountain Winery Event)

Origin	Destination	Evacuation Travel Times		
		No Project Plus Event (mins)	Plus Project and Event (mins)	Difference (mins)
Mountain Winery Venue	West Valley College	78.1	78.7	0.6
	Saratoga High School	75.0	75.8	0.8
	Sacred Heart Church	70.5	71.2	0.7
North of Pierce Road/Mt. Eden Way	West Valley College	20.1	20.1	0.0
	Saratoga High School	20.1	20.2	0.1
	Sacred Heart Church	18.4	18.4	0.0
East of Pierce Road	West Valley College	15.3	15.3	0.0
	Saratoga High School	9.4	9.5	0.1
	Sacred Heart Church	7.7	7.7	0.0
Chateau Masson	West Valley College	29.5	30.2	0.7
	Saratoga High School	26.4	27.3	0.9
	Sacred Heart Church	21.9	22.7	0.8

Compiled by: Kittelson & Associates, Inc., 2025

Evacuation Planning Considerations

This section describes different resources and strategies that may be considered to support future evacuation events. The strategies were identified based on previous congestion and evacuation studies, review of recent evacuation efforts, and existing plans, policies, and resources in the City of Saratoga and Santa Clara County.

Emergency Preparedness and Evacuation Resources

CITY OF SARATOGA EVACUATION ROUTE CAPACITY ASSESSMENT

The City of Saratoga has recently undergone a Citywide Evacuation Route Capacity Assessment to identify major evacuation routes and shelter locations in the City. The assessment evaluates the roadway capacity of evacuation routes under different evacuation scenarios to understand the expected volume and traffic of evacuees during emergency events and maps evacuation distances to safe destinations/gateways throughout the City. The assessment identified key evacuation routes that are expected to be near or over capacity during an evacuation, including Pierce Road, Big Basin Way, Saratoga Sunnyvale Road, and Saratoga Avenue.

The assessment includes a range of recommended strategies and policies to enhance evacuations in the City. These recommendations include:

- increasing capacity on public roadways, through roadway and/or shoulder expansion, traffic management at intersections, and street parking management;
- managing volume on public roadways, through carpooling or public transit, identifying nearby shelters to reduce volumes on roadways, and public pledges to only use one vehicle in an evacuation; and
- improving evacuation awareness, through early wildfire detection, real-time traffic management, and community evacuation programs.

Recommendations: The site developers should work with the City to determine which recommendations are feasible to implement at the Project site. Many of the recommendations listed in the assessment are included below for consideration.

SANTA CLARA COUNTY DISASTER PREPAREDNESS

Santa Clara County's Office of Emergency Management has an Disaster Preparedness website that hosts a list of resources for emergency preparedness and evacuations under a variety of hazards. The website provides tips and guidance on the following:

- Preparing for Wildfires, e.g., creating defensible space and using fire-resistant materials to protect buildings from wildfires

- Keeping important documents safe – e.g., making hard and soft copies of personal documents and reviewing homeowners or rental insurance to understand coverage under different hazards
- Evacuation routes – e.g., identifying the closest evacuation routes, shelters, and meeting spots to your home and identifying alternatives in case primary evacuation routes are unavailable
- Evacuation orders – e.g., when to leave, how to receive up-to-date evacuation information, and ways to stay safe during a wildfire.

Recommendations: Pursuant to the project requirements, the site developers will construct residential units with fire-resistant materials and create defensible space on site to reduce wildfire impacts to structures. As an additional mitigation, the developers might consider posting fact sheets on evacuation preparedness and resources in public facilities on site.

CAL FIRE READY, SET, GO!

CAL FIRE has developed Ready, Set, Go!, a three step plan to prepare for wildfires before they occur. The plan includes guidance on how to prepare your home for wildfires, preparing family evacuation plans, packing go-bags for evacuations, and checklists for when evacuations are necessary.

Recommendations: The site developers should consider sharing evacuation preparedness resources to residents by posting flyers in public facilities.

Evacuation Routes

The primary evacuation routes for the Project will be Pierce Road to the south and north, Saratoga Heights Drive to the east, and State Route 9 east and west. A new road, Masson Estates Way, would be constructed as part of the project. Masson Estates Way is a proposed entrance to the Project site and would be available to residents for evacuations. An emergency access route is also proposed for the site, connecting Masson Estates Court with Pierce Road to the south.

Masson Estates Way connects to Pierce Road, a primary evacuation route in the area. The intersection is proposed as a two-way stop-controlled intersection, with free flow traffic on Pierce Road. During an evacuation, the intersection may experience queuing and congestion as evacuees travel towards Saratoga for safety. Manual traffic control, such as closing roadways to inbound or non-evacuating traffic, contraflow, restricting left-turn movements, and/or traffic control points may provide smoother traffic flow or reducing conflicting traffic movements as people are evacuating.

Because the site developer only has ownership of private roadways on site, manual traffic control is limited to Masson Estates Way.

Recommendations: Coordinate with City of Saratoga, Santa Clara County Sheriff, Santa Clara County Roads and Airports, and Caltrans staff to identify personnel and procedures to manually control traffic at intersection pinch points on site in the event of an emergency. Coordination can also include how traffic will flow into Santa Clara County and Caltrans roadways.

Communications

In preparation for an emergency evacuation, the developer should consider additional communication tools and strategies to share resources and up-to-date alerts for residents and visitors to the Project. This section describes communication strategies that address how information may be shared among agencies, organizations, and the general public for evacuations. During an emergency evacuation event, two types of communication take place: (1) communication among entities involved in the management of response, and (2) communication between the City, County, and the general public.

COMMUNITY PREPAREDNESS MESSAGING RESOURCES

Santa Clara County has developed messaging resources to help amplify emergency preparedness messages for communities. Communication messaging resources include social media posts and links to official information sites. For wildfire emergencies, social media messages are posted to Nextdoor, X (Twitter), and Facebook. Emergency alerts are sent out to the public via AlertSCC. The Santa Clara County Fire Department also has an emergency preparedness page on their website with helpful links to local and national resources.

Recommendations: Messaging materials and resources should be made available throughout the community areas of the Project. Social media messages may be posted to the Project website and social media channels. Fact sheets and other messages may be printed out and posted in public areas.

EMERGENCY ALERTS

AlertSCC is Santa Clara County's emergency alert system. Users may sign up to receive emails, phone calls, or text messages with official notices. In the event of an evacuation order, the county would send an alert through AlertSCC.

Recommendations: The site developers should provide information to new residents about AlertSCC with details about signing up. Flyers and pamphlets may be created to share QR codes and weblinks to the AlertSCC website for residents to sign up for alerts.

SIGNAGE

Fixed signs Masson Estates Way may be used to mark designated evacuation routes in the event of an emergency. However, specific evacuation destinations and routes during an emergency will be determined by County Sheriff and Fire personnel and may vary depending on road conditions, the direction of wildfires, road congestion and other factors. Therefore, the signage on the Project site should help to direct residents, employees, and visitors towards site exits but not to specific off-site destinations.

Recommendations: The site developers should coordinate with City, County Sheriff, and Fire staff to establish and install appropriate signage within Project site to designate evacuation routes.

VARIABLE MESSAGE SIGNS

Variable message signs (VMS) are electric signs that can provide messaging on emergency alerts and evacuation orders during emergency events. Messages displayed on a VMS can be programmed locally or remotely via computer or phone, if VMS units are equipped with a cellular modem.

Recommendations: In consultation with the Santa Clara County Sheriff office, the site developers could provide one or more VMS to publicize evacuation alerts, updates, or other information to residents, employees, and visitors. A VMS can be installed along main roads on site or mounted on trailers to be set up where messaging would reach the most people. VMS units(s) could be used for information within the Project site or could be installed on Pierce Road or other primary evacuation routes to provide information to the general community.

WILDFIRE CAMERAS AND SENSORS

Fire cameras are installed around Santa Clara County and are helpful tools for early identification of wildfires. Fire cameras can discover fire ignitions and observe fire spread, which help to inform firefighters and first responders on the resources needed to put out the fire and evacuate surrounding communities. The closest cameras to the Project site are currently set up in Cupertino Hills, Mt. Bielawski, and Mt. Rodini.

Recommendations: The site developers could work with Santa Clara County and ALERTCalifornia to install one or more wildfire cameras on the site to assist with early detection. Early detection increases the available time for the community to evacuate, which benefits residents inside and outside the development.

CELL TOWERS

Santa Clara County posts evacuation orders on social media sites like Nextdoor, X (Twitter), and Facebook. For visitors who may be unfamiliar with the roadway network, cell service is critical to access navigation systems (e.g., Google Maps, Apple Maps, Waze, etc.) that direct people to evacuation destinations or other areas of safety.

Recommendations: The site developers could install one or more additional cell towers on the Project site to enhance cell service in the area. The cell tower would allow for more consistent access to alerts for both new and existing residents.

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J.3 - San José Water Company Fire Flow Availability

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SAN JOSE WATER

April 7, 2025

Deputy Fire Marshal Caleb Flanagan
Santa Clara County Fire Department - Fire Prevention Division
1315 Dell Ave.
Campbell, CA 95008

Reference: Pierce Road Homes, Pierce Rd., Saratoga, CA
APN: 503-46-005

Dear Mr. Flanagan:

Per a request on or about April 2, 2025, we conducted a computer simulation to determine fire flow availability at the referenced location. You indicated a flow with one hydrant for the purpose of the simulation to determine if 1,000 GPM is available. The table below gives the results of the computer simulation, which are valid for one year from the date of the simulation. Elevations are interpolated from United States Geological Survey contours.

Hyd. No.	Location	GPM	Residual PSI	Static PSI
F-00430 Elev. = 713'	Pierce Rd., approx. 10' N/N Saratoga Heights Dr.	1,000	136	147
Date of Simulation: April 7, 2025				

Determining the adequacy of fire protection from the information provided herein is the responsibility of those qualified to do so. San Jose Water Company undertakes to supply only such water at such pressure as may be available any time through the normal operation of its system. Section 774 of the Public Utilities Code limits the liability of the utility resulting from a claim regarding the provision or maintenance of an adequate water supply, water pressure, equipment or other fire protection facility or service.

Sincerely,

Marty Henderson
Engineering Support Supervisor

sjwater.com

1265 South Bascom Ave.
San Jose, CA 95128

Email: Engineering.dept@sjwater.com

MH:mh
Pierce Rd Homes County Fire.docx
cc: Fire Flow File

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J.4 - SCCFD Development Review Comments

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SANTA CLARA COUNTY FIRE DEPARTMENT
14700 Winchester Blvd., Los Gatos, CA 95032 | (408) 378-4010 | www.sccfd.org

PLAN REVIEW No. 24 2738

BLDG PERMIT No.

DEVELOPMENTAL REVIEW COMMENTS

Plans and Scope of Review:

This project shall comply with the following:
The California Fire (CFC) & Building (CBC) Code, 2022 edition, as adopted by the City of Saratoga Municipal Code (SMC) and, California Code of Regulations (CCR).

The scope of this project includes the following:
Preliminary review for a proposed new 25 lot subdivision. The plans were reviewed for both PRC 4290 requirements in addition to local ordinances, standards, and code requirements.

Plans Status:
Plan are **APPROVED** with the following conditions.

Plan Review Comments:
1. **Review of this Developmental proposal is limited to acceptability of site access, water supply and may include specific additional requirements as they pertain to fire department operations, and shall not be construed as a substitute for formal plan review to determine compliance with adopted model codes. Prior to performing any work, the applicant shall make application to, and receive from, the Building Department all applicable construction permits.**

2. **NOTE:** The subject property is located within the Very High Fire Hazard Severity Zone (VHFHSZ) of the Local Responsibility Area (LRA). Pursuant to Californina Public Resources Code (PRC) 4290, the California Board of Forestry and Fire Protection is required to "…adopt regulations implementing minimum fire safety standards related to defensible space" applicable to "the perimeters and access to all residential, commercial, and industrial building construction." In 2018, the Legislature passed and the Governor signed SB 901 (Dodd), which expanded the applicability of the regulations promulgated under PRC 4290 to land in the Local Responsibility Area (LRA) Very High Fire Hazard Severity Zone. All comments below that result from PRC 4290 are identified by **. Where a conflict exists between local & 4290 requirements, the more stringent requirement shall apply.

**3. *This project complies with PRC 4290 regulations. Exception request approved for modification to Toll Gate Rd. Micro slurry proposed to increase traction in areas of road exceeding 16%. See PC 24 1285.*

City	PLANS	SPECS	NEW	RMDL	AS	OCCUPANCY	CONST. TYPE	ApplicantName	DATE	PAGE
STG	☒	☐	☒	☐	☒	R-3/U	*VB	Dahlin Group	7/3/2024	1 OF 3

SEC/FLOOR	AREA	LOAD	PROJECT DESCRIPTION	PROJECT TYPE OR SYSTEM
3	7090		Residential Development	Design Review

NAME OF PROJECT	LOCATION
PIERCE ROAD HOMES	Pierce Road Saratoga

TABULAR FIRE FLOW	REDUCTION FOR FIRE SPRINKLERS	REQUIRED FIRE FLOW @ 20 PSI	BY
2250	50%	1125	Flanagan, Caleb

SANTA CLARA COUNTY FIRE DEPARTMENT
14700 Winchester Blvd., Los Gatos, CA 95032 | (408) 378-4010 | www.sccfd.org

PLAN REVIEW No. 24 2738

BLDG PERMIT No.

DEVELOPMENTAL REVIEW COMMENTS

3. **Dead-end Roads: (a) The maximum length of a dead-end road, including all dead-end roads accessed from that dead-end road, shall not exceed the following cumulative lengths, regardless of the number of parcels served: parcels zoned for less than one acre - 800 feet. Parcels zoned for 1 acre to 4.99 acres - 1,320 feet. Parcels zoned for 5 acres to 19.99 acres - 2,640 feet. Parcels zoned for 20 acres or larger - 5,280 feet. All lengths shall be measured from the edge of the road surface at the intersection that begins the road to the end of the road surface at its farthest point. Where a dead-end road crosses areas of differing zoned parcel sizes requiring different length limits, the shortest allowable length shall apply. California Code of Regulations, Title 14, Division 1.5, Chapter 7, Subchapter 2, Articles 1-5, § 1273.08.

-Sheets 5-10 demonstrate emergency vehicle access easement roads that eliminates dead end road condition.

-Access road to meet minimum width, turning radii, slope and loading capacity requirements.

4. **Fire Hydrant Systems Required:** Where a portion of the facility or building hereafter constructed or moved into or within the jurisdiction is more than 400 feet from a hydrant on a fire apparatus access road, as measured by an approved route around the exterior of the facility or building, onsite fire hydrants and mains shall be provided where required by the fire code official. Exception: For Group R-3 and Group U occupancies, equipped throughout with an approved automatic sprinkler system installed in accordance with Section 903.3.1.1, 903.3.1.2 or 903.3.1.3, the distance requirement shall be not more than 600 feet [CFC, Section 507.5.1]. *NOTE: Hydrants shall be installed prior to combustible construction.*

-Hydrants shown on sheet 6.

5. **Required Fire Flow:** *Based on pre-liminary information*, the minimum required fire flow for this project is 2,250 Gallons Per Minute (GPM) at 20 psi residual pressure. Since an automatic fire sprinkler system will be installed, the fire flow will be reduced by 50%, establishing a required adjusted fire flow of 1,125 GPM at 20 psi residual pressure. Note: The minimum required number and spacing of the hydrants shall be in accordance with CFC Table C105.1 as amended by SCCFD.

-New hydrants shall meet the minimum required fire flow. Fire flow may increase once all information is provided but current fire flow requirements are 1,125 gpm at 20 psi.

6. **Fire Apparatus Access Roadway Required:** Provide an access roadway with a paved all-weather surface, a minimum unobstructed width of 20 feet, vertical clearance of 13 feet 6 inches, minimum circulating turning radius of 50 feet outside and 30 feet inside, and a maximum slope of 15%. Installations shall conform to Fire Department Standard Details and Specifications sheet A-1. CFC Sec. 503.

-Turning radii shall comply with 50' outside / 30' inside.

-Slope percentages shown on sheet 6-9.

City	PLANS	SPECS	NEW	RMDL	AS	OCCUPANCY	CONST. TYPE	ApplicantName	DATE	PAGE
STG	☒	☐	☒	☐	☒	R-3/U	*VB	Dahlin Group	7/3/2024	2 OF 3

SEC/FLOOR	AREA	LOAD	PROJECT DESCRIPTION	PROJECT TYPE OR SYSTEM
3	7090		Residential Development	Design Review

NAME OF PROJECT	LOCATION
PIERCE ROAD HOMES	Pierce Road Saratoga

TABULAR FIRE FLOW	REDUCTION FOR FIRE SPRINKLERS	REQUIRED FIRE FLOW @ 20 PSI	BY
2250	50%	1125	Flanagan, Caleb

SANTA CLARA COUNTY FIRE DEPARTMENT
14700 Winchester Blvd., Los Gatos, CA 95032 | (408) 378-4010 | www.sccfd.org

PLAN REVIEW No. 24 2738

BLDG PERMIT No.

DEVELOPMENTAL REVIEW COMMENTS

7. **Fire Department Turnaround Required:** Provide an approved fire department engine driveway turnaround with a minimum radius of 40 feet outside. Maximum grade in any direction shall be a maximum of 5%. Installations shall conform with Fire Department Standard Details and Specifications D-1. CFC Sec. 503. Show compliance turnaround on plans.
-Turnaround A proposed on all dead end roads and driveways that exceed 150 feet.

8. **Fire Sprinklers Required:** Approved automatic sprinkler systems in new and existing buildings and structures shall be provided in the locations described in this Section or in Sections 903.2.1 through 903.2.18.
-Sprinklers shall be required for all new residences

9. **Early Warning Fire Alarm System Required:** Installation of an early warning fire alarm system in accordance with the provisions of this Article is required as a condition for the granting of any building or other permit under Chapter 16 in each of the following cases: 1) All new residential structures classified as "R" occupancies in the most recent version of the California Building Code, commercial structures and community facilities located within the designated Wildland-Urban Interface Fire Area.
-EWAS shall be required for all new residences.

This review shall not be construed to be an approval of a violation of the provisions of the California Fire Code or of other laws or regulations of the jurisdiction. A permit presuming to give authority to violate or cancel the provisions of the fire code or other such laws or regulations shall not be valid. Any addition to or alteration of approved construction documents shall be approved in advance [CFC, Ch.1, 105.3.6].

City	PLANS	SPECS	NEW	RMDL	AS	OCCUPANCY	CONST. TYPE	ApplicantName	DATE	PAGE
STG	☒	☐	☒	☐	☒	R-3/U	*VB	Dahlin Group	7/3/2024	3 OF 3

SEC/FLOOR	AREA	LOAD	PROJECT DESCRIPTION	PROJECT TYPE OR SYSTEM
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TABULAR FIRE FLOW	REDUCTION FOR FIRE SPRINKLERS	REQUIRED FIRE FLOW @ 20 PSI	BY
2250	50%	1125	Flanagan, Caleb

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