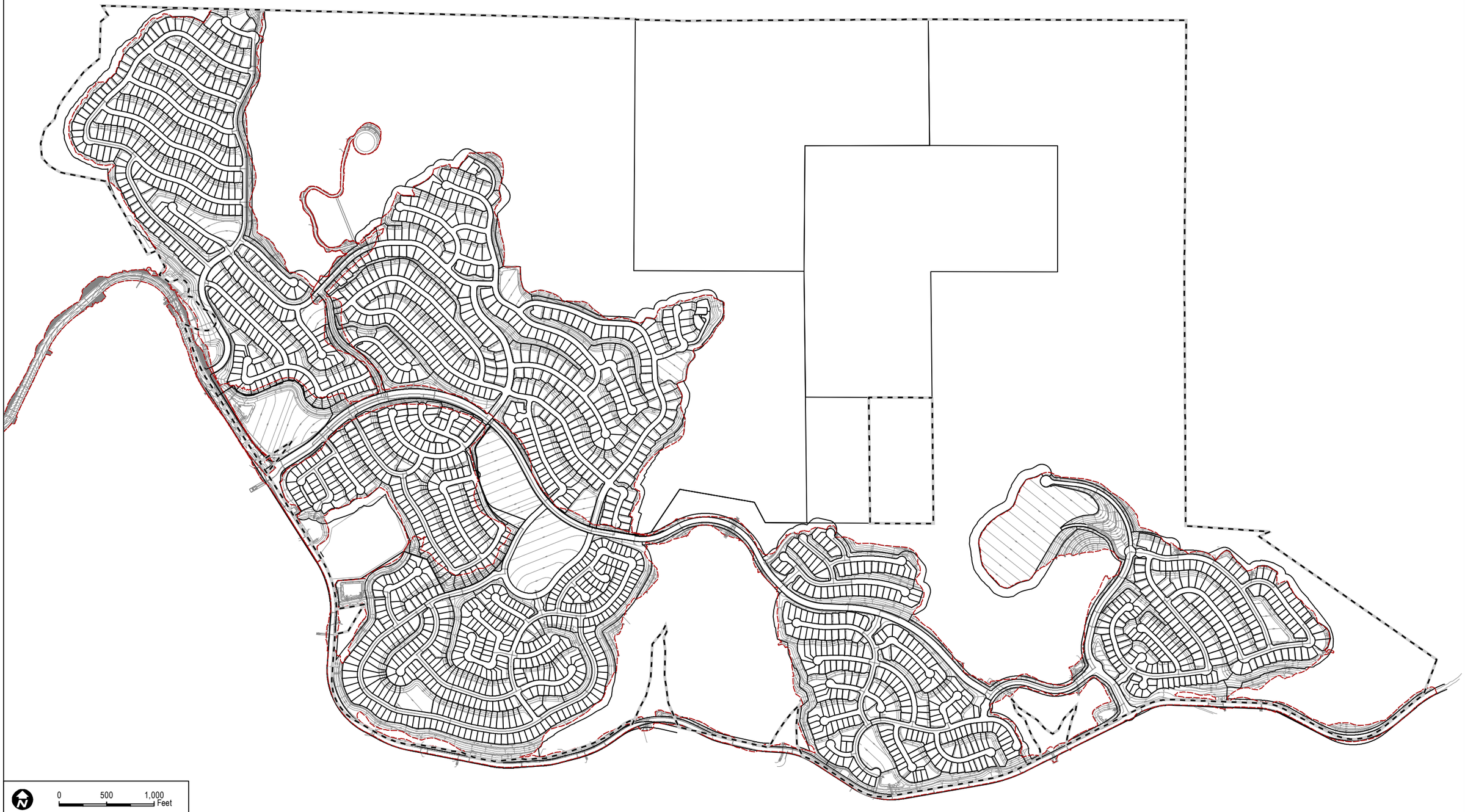
APPENDIX A

Site Tract Map



DUDEK

SOURCE: Hunsaker 2014

APPENDIX A

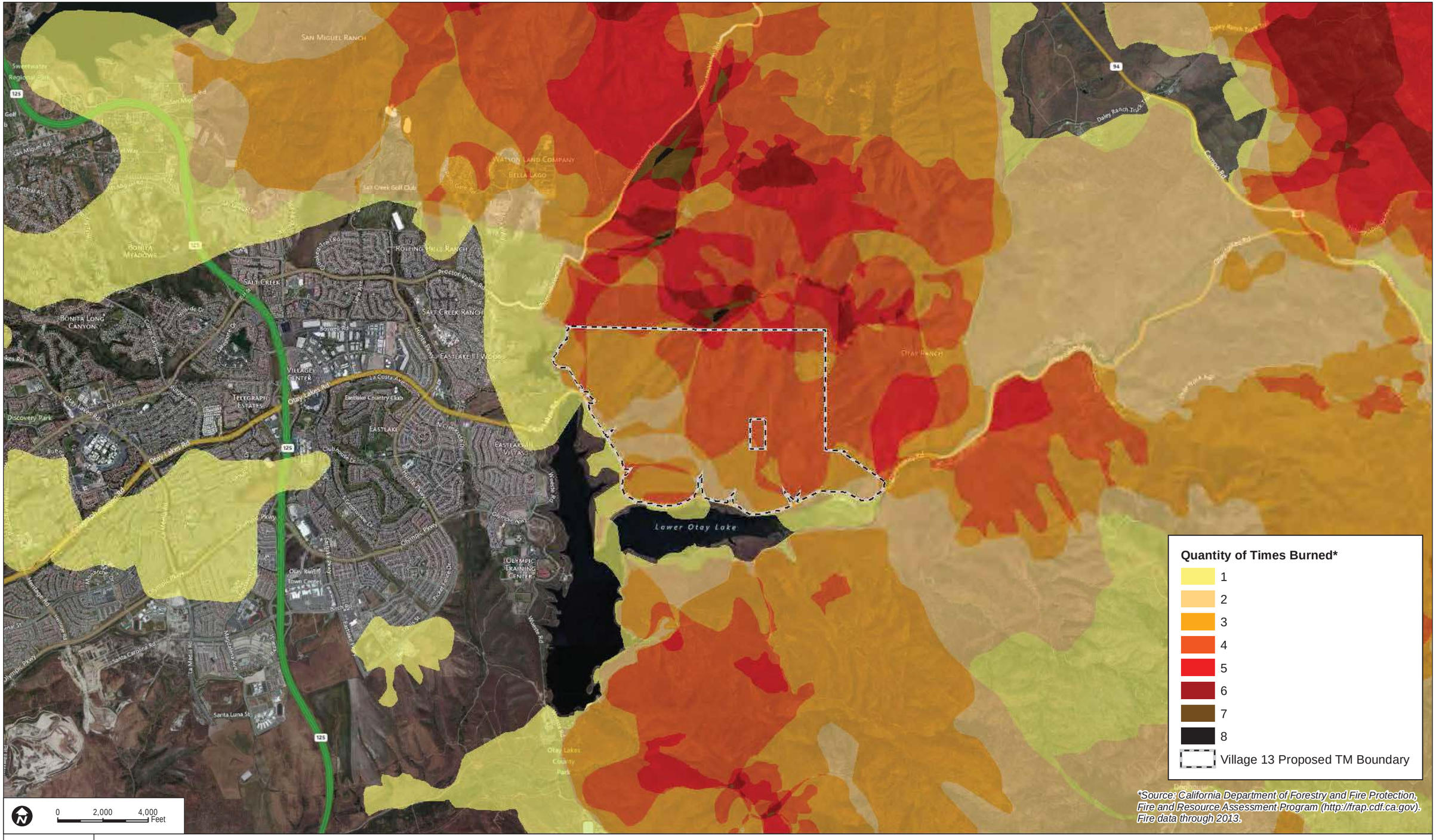
Site Tract Map

6524

THE OTAY RANCH RESORT VILLAGE FIRE PROTECTION PLAN

APPENDIX B

Fire History Exhibit



*Source: California Department of Forestry and Fire Protection, Fire and Resource Assessment Program (http://frap.cdf.ca.gov). Fire data through 2013.

DUDEK

SOURCE: CAL FIRE 2014; BING 2014

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APPENDIX B

Fire History

THE OTAY RANCH RESORT VILLAGE FIRE PROTECTION PLAN

APPENDIX C

Fire Behavior Modeling Input Data

APPENDIX C
BehavePlus Fire Behavior Analysis

BEHAVEPLUS FIRE BEHAVIOR MODELING

Fire behavior modeling includes a high level of analysis and information detail to arrive at reasonably accurate representations of how wildfire would move through available fuels on a given site. Fire behavior calculations are based on site-specific fuel characteristics supported by fire science research that analyzes heat transfer related to specific fire behavior. To objectively predict flame lengths, spread rates, and fireline intensities, the BehavePlus 5.0.5 fire behavior modeling system was applied using predominant fuel characteristics, slope percentages, and extreme weather variables for the site.

Predicting wildland fire behavior is not an exact science. As such, the movement of a fire will likely never be fully predictable, especially considering the variations in weather and the limits of weather forecasting. Nevertheless, practiced and experienced judgment, coupled with a validated fire behavior modeling system, results in useful and accurate fire prevention planning information.

To be used effectively, the basic assumptions and limitations of BehavePlus must be understood.

- First, it must be realized that the fire model describes fire behavior only in the flaming front. The primary driving force in the predictive calculations is dead fuels less than one-quarter inch in diameter. These are the fine fuels that carry fire. Fuels greater than one inch have little effect while fuels greater than three inches have no effect on fire behavior.
- Second, the model bases calculations and descriptions on a wildfire spreading through surface fuels that are within six feet of the ground and contiguous to the ground. Surface fuels are often classified as grass, brush, litter, or slash.
- Third, the software assumes that weather and topography are uniform. However, because wildfires almost always burn under non-uniform conditions, length of projection period and choice of fuel model must be carefully considered to obtain useful predictions.
- Fourth, the BehavePlus fire behavior computer modeling system was not intended for determining sufficient fuel modification zone widths. However, it does provide the average length of the flames, which is a key element for determining “defensible space” distances for minimizing structure ignition.

Although BehavePlus has some limitations, it can still provide valuable fire behavior predictions which can be used as a tool in the decision-making process. In order to make reliable estimates of fire behavior, one must understand the relationship of fuels to the fire environment and be able to recognize the variations in these fuels. Natural fuels are made up of the various components of vegetation, both live and dead, that occur on a site. The type and quantity will depend upon the soil, climate, geographic features, and the fire history of the site. The major fuel groups of grass, shrub, trees, and slash are defined by their constituent types and quantities of litter and duff

layers, dead woody material, grasses and forbs, shrubs, regeneration, and trees. Fire behavior can be predicted largely by analyzing the characteristics of these fuels. Fire behavior is affected by seven principal fuel characteristics: fuel loading, size and shape, compactness, horizontal continuity, vertical arrangement, moisture content, and chemical properties.

The seven fuel characteristics help define the 13 standard fire behavior fuel models (Anderson 1982) and the more recent custom fuel models developed for southern California (Weise and Regelbrugge 1997). According to the model classifications, fuel models used in BehavePlus have been classified into four groups, based upon fuel loading (tons/acre), fuel height, and surface to volume ratio. Observation of the fuels in the field (on site) determines which fuel models should be applied in BehavePlus. The following describes the distribution of fuel models among general vegetation types for the standard 13 fuel models and the custom southern California fuel models:

- Grasses — Fuel Models 1 through 3
- Brush — Fuel Models 4 through 7, SCAL 14 through 18
- Timber — Fuel Models 8 through 10
- Logging Slash — Fuel Models 11 through 13

In addition, the aforementioned fuel characteristics were utilized in the recent development of 40 new fire behavior fuel models (Scott and Burgan 2005) developed for use in BehavePlus modeling efforts. These new models attempt to improve the accuracy of the standard 13 fuel models outside of severe fire season conditions, and to allow for the simulation of fuel treatment prescriptions. The following describes the distribution of fuel models among general vegetation types for the new 40 fuel models:

- Non-Burnable — Models NB1, NB2, NB3, NB8, NB9
- Grass — Models GR1 through GR9
- Grass-shrub — Models GS1 through GS4
- Shrub — Models SH1 through SH9
- Timber-understory — Models TU1 through TU5
- Timber litter — Models TL1 through TL9
- Slash blowdown — Models SB1 through SB4

BEHAVEPLUS FIRE BEHAVIOR MODELING INPUTS

To support the fire behavior modeling efforts conducted for this Fire Protection Plan, three fuel models were observed on the slopes to the south and east of the Project site and were subsequently used in the modeling analysis. While vegetation types other than the selected three are located on site, the selected areas represent the most likely wildfire threat for the Project site. Table 1 provides a description of the three fuel models:

Table 1
Fuel Model Characteristics

Fuel Model	Description	Tons/acre; Btu/lb.	Fuel Bed Depth (feet)
GS2	Moderate load, dry climate grass/shrub	2.6 tons/acre; 8,000 Btu/lb.	1.5
SCAL15	Chamise	10 tons/acre; 10,000 Btu/lb.	3.0
SH7	Very high load dry scrub	14 tons/acre; 8,000 Btu/lb.	6.0

Weather values for the modeling runs incorporated two different scenarios: a summer fire and a fall/early winter fire. Weather data was derived from the San Miguel Remote Automated Weather Station (RAWS), and the National Weather Service station in Chula Vista, California. Additionally, 50 mph wind speed values were utilized to represent catastrophic fire weather conditions as observed during the 2003 Cedar Fire. Slope values for this site were measured from site topographic maps and are presented in units of percent. The modeling runs utilized worst-case (steepest) slope values in areas adjacent to proposed development areas with measurements ranging from flat (0%) to 44%. The fire behavior modeling input variables for the Project site are presented in Table 2.

Table 2
BehavePlus Fire Behavior Modeling Inputs

Variable	Summer	Fall/Early Winter
Month	September	October
Temperature	89 °F	92 °F
Relative Humidity	14 %	12 %
1-hour Fuel Moisture	3 %	2 %
Live Fuel Moisture	70 %	55 %
Wind Speed	20 mph from SW	24 mph from NE/50 mph from NE
Slope	44 % (worst case)	0 %

BEHAVEPLUS FIRE BEHAVIOR MODELING RESULTS

Four fire behavior variables were selected as outputs from the BehavePlus analysis conducted for the project site, and include flame length (feet), rate of spread (mph), spotting distance (miles), and ignition probability (percentage). The aforementioned fire behavior variables are an important component in understanding fire risk and fire agency response capabilities. Flame length, the length of the flame of a spreading surface fire within the flaming front, is measured from midway in the active flaming combustion zone to the average tip of the flames (Andrews, Bevins, and Seli 2004). It is a somewhat subjective and non-scientific measure of fire behavior, but is extremely important to fireline personnel in evaluating fireline intensity and is worth considering as an important fire variable (Rothermel 1983). Fireline intensity is a measure of heat output from the flaming front, and also affects the potential for a surface fire to transition to a crown fire. Fire spread rate represents the speed at which the fire progresses through surface fuels and is another important variable in initial attack and fire suppression efforts. The information in Table 3 presents an interpretation of these fire behavior variables as related to fire suppression efforts. The results of fire behavior modeling efforts are presented in Table 4.

Table 3
Fire Suppression Interpretation

Flame Length (ft)	Fireline Intensity (Btu/ft/s)	Interpretations
Under 4 feet	Under 100 BTU/ft/s	Fires can generally be attacked at the head or flanks by persons using hand tools. Hand line should hold the fire.
4 to 8 feet	100-500 BTU/ft/s	Fires are too intense for direct attack on the head by persons using hand tools. Hand line cannot be relied on to hold the fire. Equipment such as dozers, pumpers, and retardant aircraft can be effective.
8 to 11 feet	500-1000 BTU/ft/s	Fires may present serious control problems -- torching out, crowning, and spotting. Control efforts at the fire head will probably be ineffective.
Over 11 feet	Over 1000 BTU/ft/s	Crowning, spotting, and major fire runs are probable. Control efforts at head of fire are ineffective.

Source: BehavePlus 5.0.5 fire behavior modeling program (Andrews, Bevins, and Seli 2004)

Table 4
BehavePlus Fire Behavior Modeling Results

Fuel Model	BehavePlus Output	Summer Fire	Fall Fire	Extreme Fall Fire
GS2	Surface Rate of Spread	0.7 mph	1.2 mph	—
	Flame Length	8.0 feet	11.0 feet	15.0 feet
	Spot Distance from Wind Driven Surface Fire	0.4 miles	0.6 miles	—
	Ignition Probability	89%	100%	—
SCAL15	Surface Rate of Spread	0.6 mph	1.1 mph	—
	Flame Length	14.0 feet	18.0 feet	20.0 feet
	Spot Distance from Wind Driven Surface Fire	0.6 miles	0.8 miles	—

Table 4
BehavePlus Fire Behavior Modeling Results

Fuel Model	BehavePlus Output	Summer Fire	Fall Fire	Extreme Fall Fire
	Ignition Probability	89%	100%	—
SH7	Surface Rate of Spread	1.1 mph	2.3 mph	—
	Flame Length	21 feet	31 feet	46.0 feet
	Spot Distance from Wind Driven Surface Fire	0.6 miles	1.1 miles	2.5 miles
	Ignition Probability	89%	100%	—

REFERENCES

Anderson, Hal E. 1982. Aids to Determining Fuel Models for Estimating Fire Behavior. USDA Forest Service Gen. Tech. Report INT-122. Intermountain Forest and Range Experiment Station, Ogden, Utah.

Andrews, Patricia L., Collin D. Bevins, and Robert C. Seli. 2004. BehavePlus fire modeling system, version 3.0: User's Guide. Gen. Tech. Rep. RMRS-GTR-106 Ogden, Utah: Department of Agriculture, Forest Service, Rocky Mountain Research Station. 132p.

Rothermel, R.C. 1983. How to Predict the Spread and Intensity of Forest and Range Fires. USDA Forest Service Gen. Tech. Report INT-143. Intermountain Forest and Range Experiment, Ogden, Utah.

Scott, Joe H. and Robert E. Burgan. 2005. Standard fire behavior fuel models: a comprehensive set for use with Rothermel’s surface fire spread model. Gen. Tech. Rep. RMRS-GTR-153. Fort Collins, Colorado: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 72 p.

Weise, D.R. and J. Regelbrugge. 1997. Recent chaparral fuel modeling efforts. Prescribed Fire and Effects Research Unit, Riverside Fire Laboratory, Pacific Southwest Research Station. 5p.

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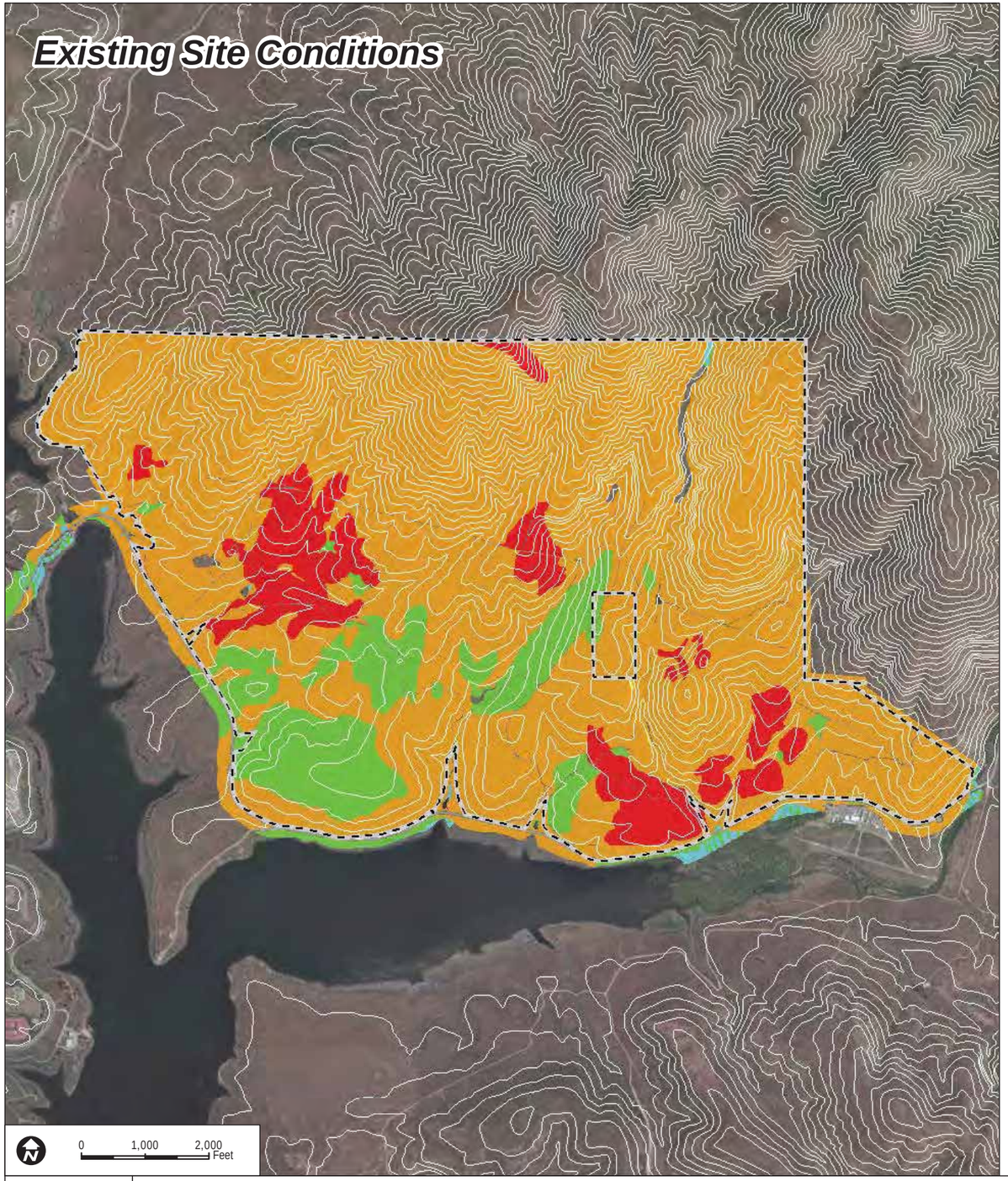
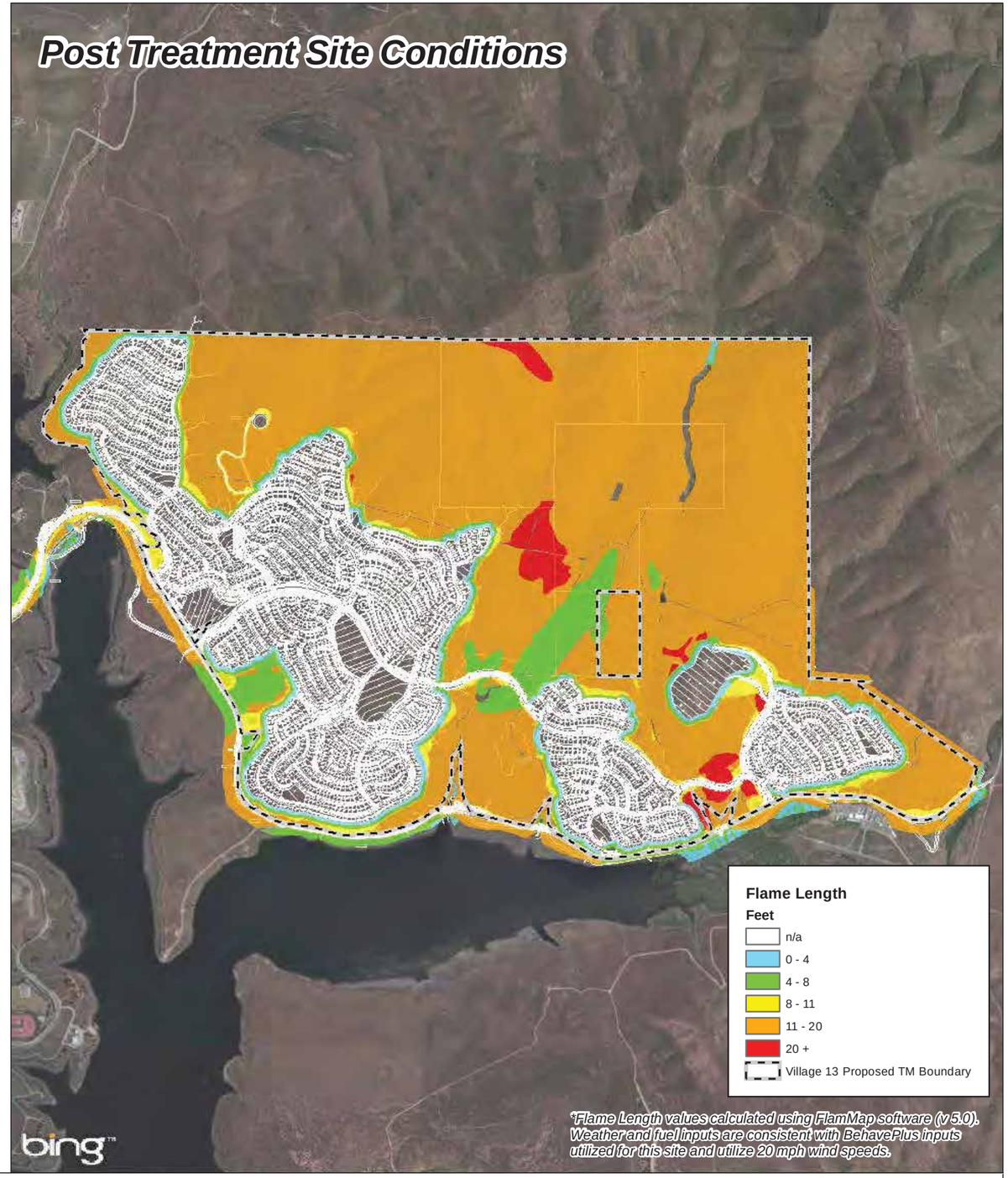
APPENDIX D

Fire Behavior Analysis – Summer Fire

Existing Site Conditions



Post Treatment Site Conditions



*Flame Length values calculated using FlamMap software (v 5.0). Weather and fuel inputs are consistent with BehavePlus inputs utilized for this site and utilize 20 mph wind speeds.

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SOURCE: SANGIS 2013; BING 2014; Hunsaker 2014

APPENDIX D

Fire Behavior Analysis - Summer Fire

APPENDIX E

Fire Behavior Analysis – Fall Fire

Existing Site Conditions

Post Treatment Site Conditions

0 1,000 2,000 Feet

Flame Length
Feet
- n/a
- 0 - 4
- 4 - 8
- 8 - 11
- 11 - 20
- 20 - 25
- 25 +
- Village 13 Proposed TM Boundary

*Flame Length values calculated using FlamMap software (v 5.0). Weather and fuel inputs are consistent with BehavePlus inputs utilized for this site and utilize 50 mph wind speeds.

bing™

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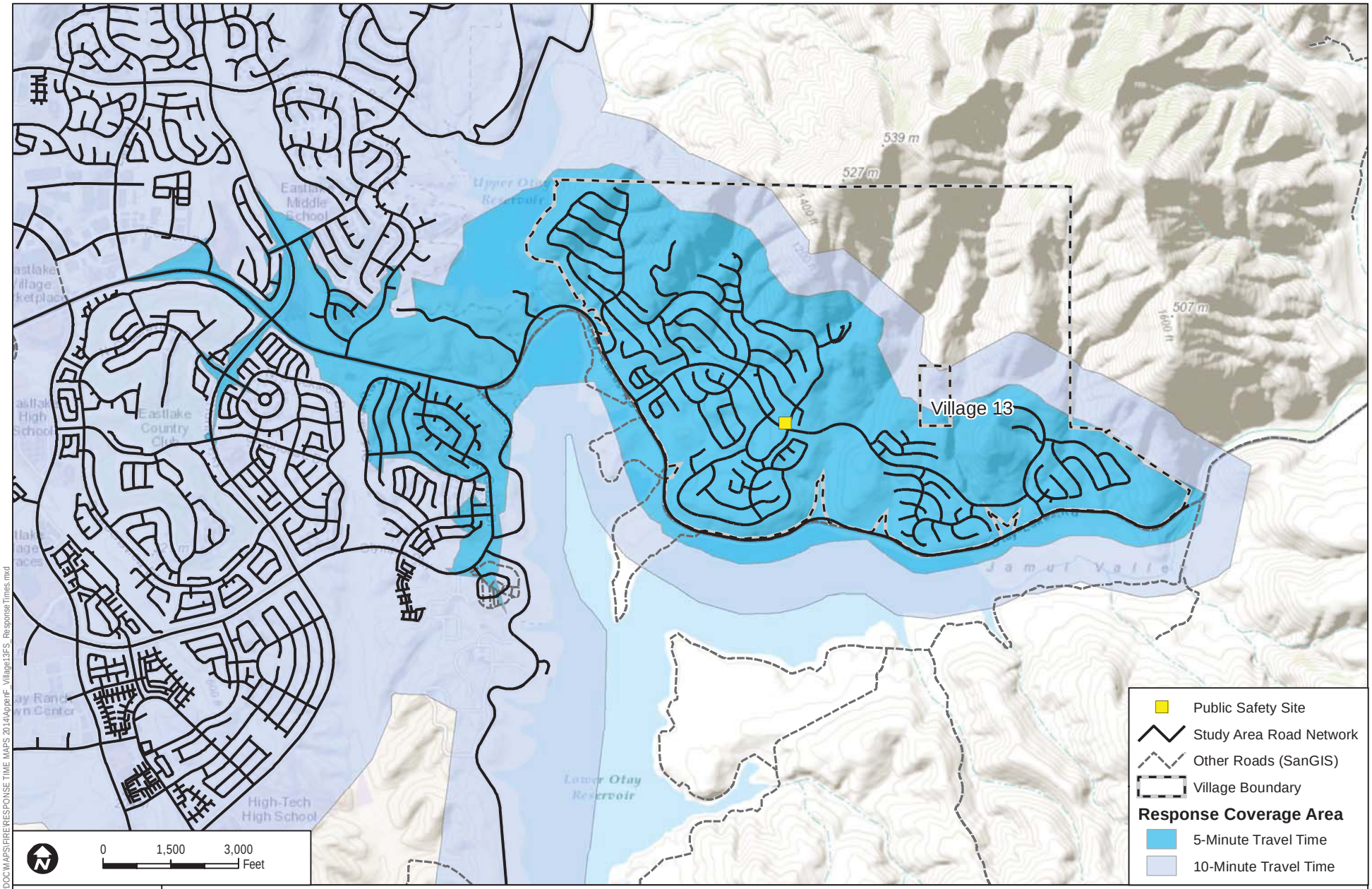
SOURCE: SANGIS 2013; BING 2014; Hunsaker 2014

APPENDIX E

Fire Behavior Analysis - Fall Fire

APPENDIX F

Fire Department Response Analysis –
Permanent Station Site



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6524

SEPTEMBER 2014

SOURCE: ESRI 2014, SanGIS 2013, Hunsaker 2012, Hale Engineering 2012

Appendix F

Fire Department Response Analysis

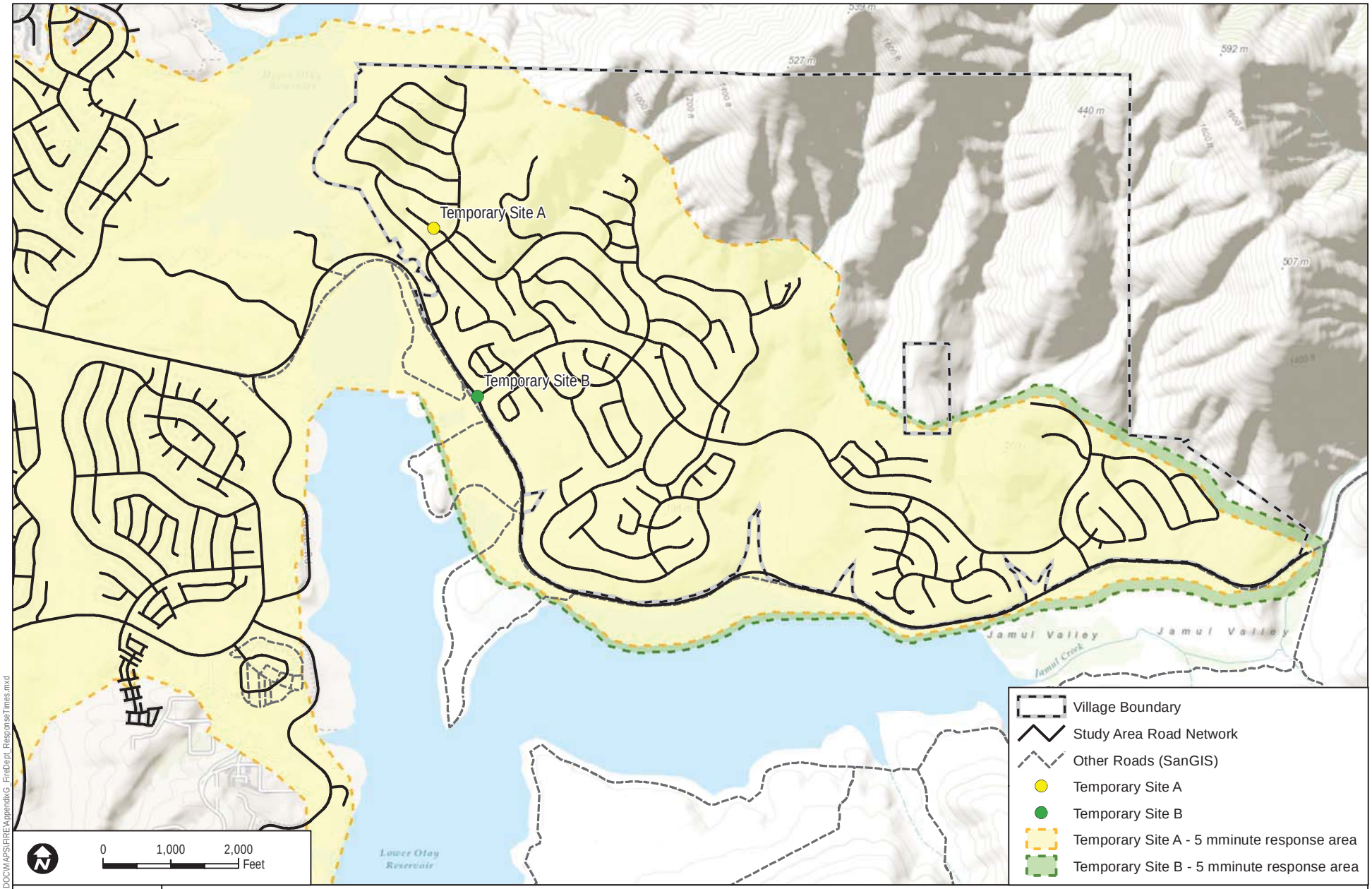
OTAY RANCH RESORT VILLAGE (VILLAGE 13)

NOTE: Represents 35 mph response travel speed.

Path: Z:\Projects\6524\01\MAPDOC\MAPS\FIRE\RESPONSE TIME MAPS 2014\AppendF_Village13FS_ResponseTimes.mxd

APPENDIX G

Fire Department Response Analysis – Temporary Options



DUDEK

6524

SEPTEMBER 2014

SOURCE: ESRI 2014, SanGIS 2013, Hunsaker 2012, Hale Engineering 2012

Appendix G

Fire Department Response Analysis

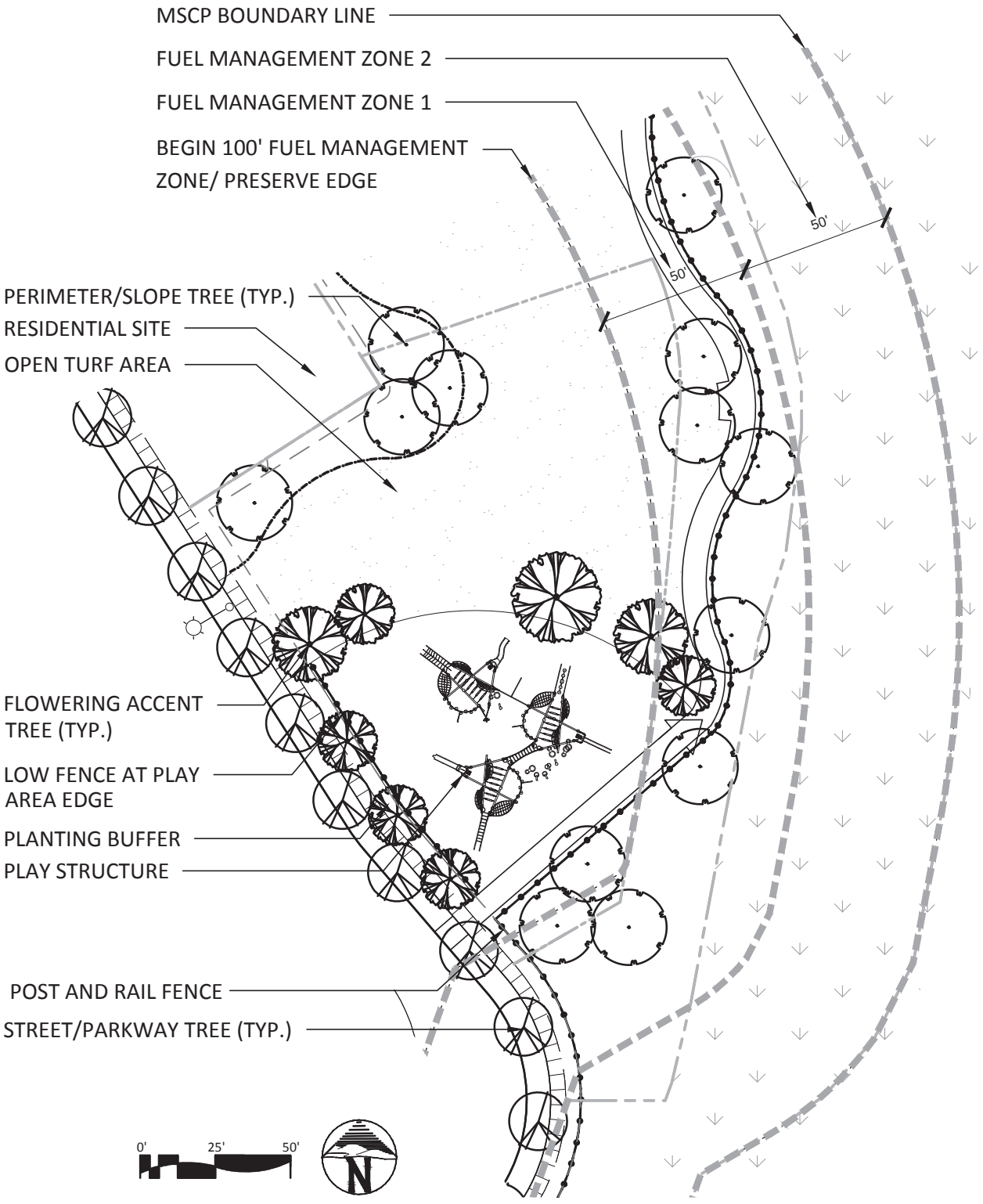
OTAY RANCH RESORT VILLAGE (VILLAGE 13)

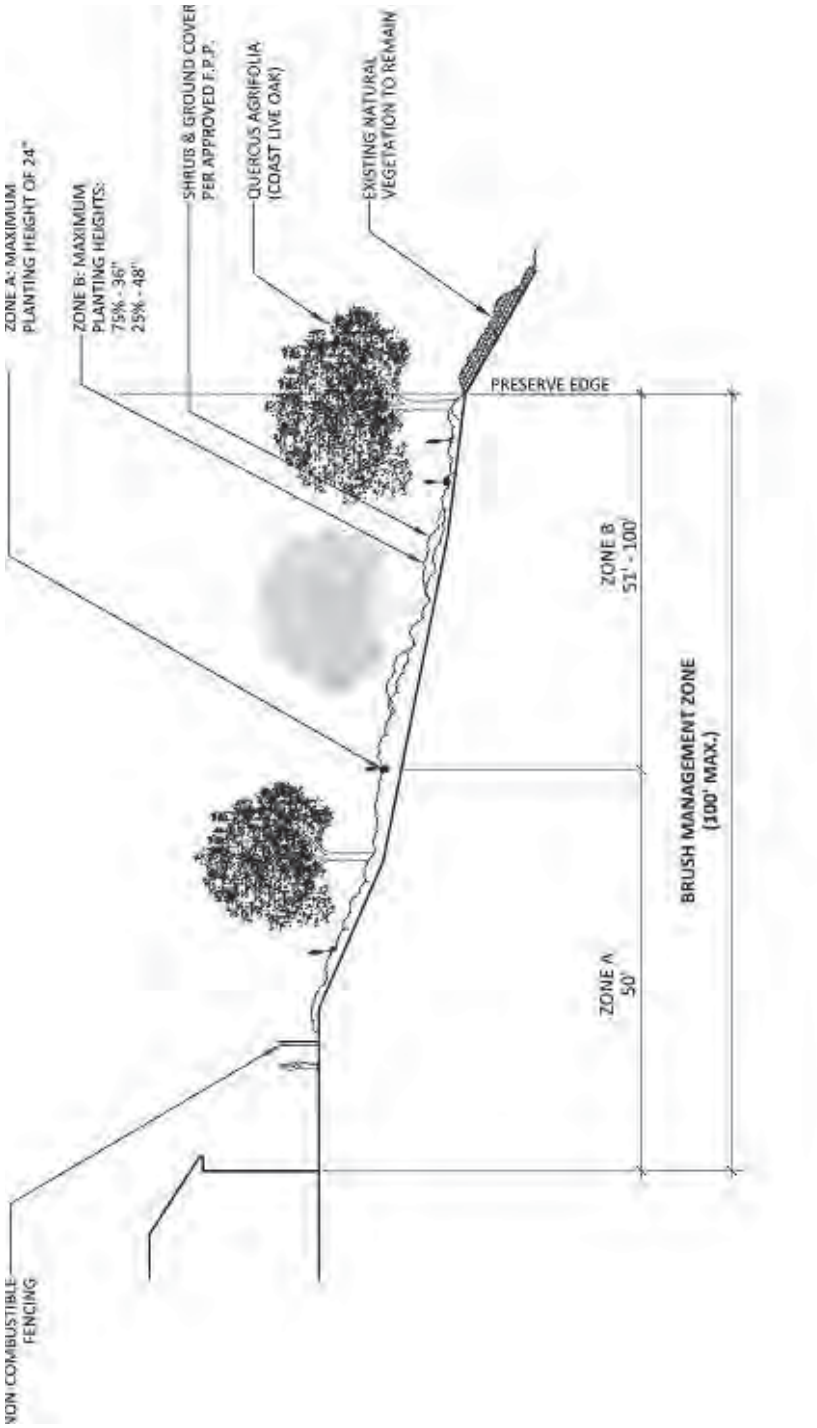
NOTE: Represents 35 mph response travel speeds.

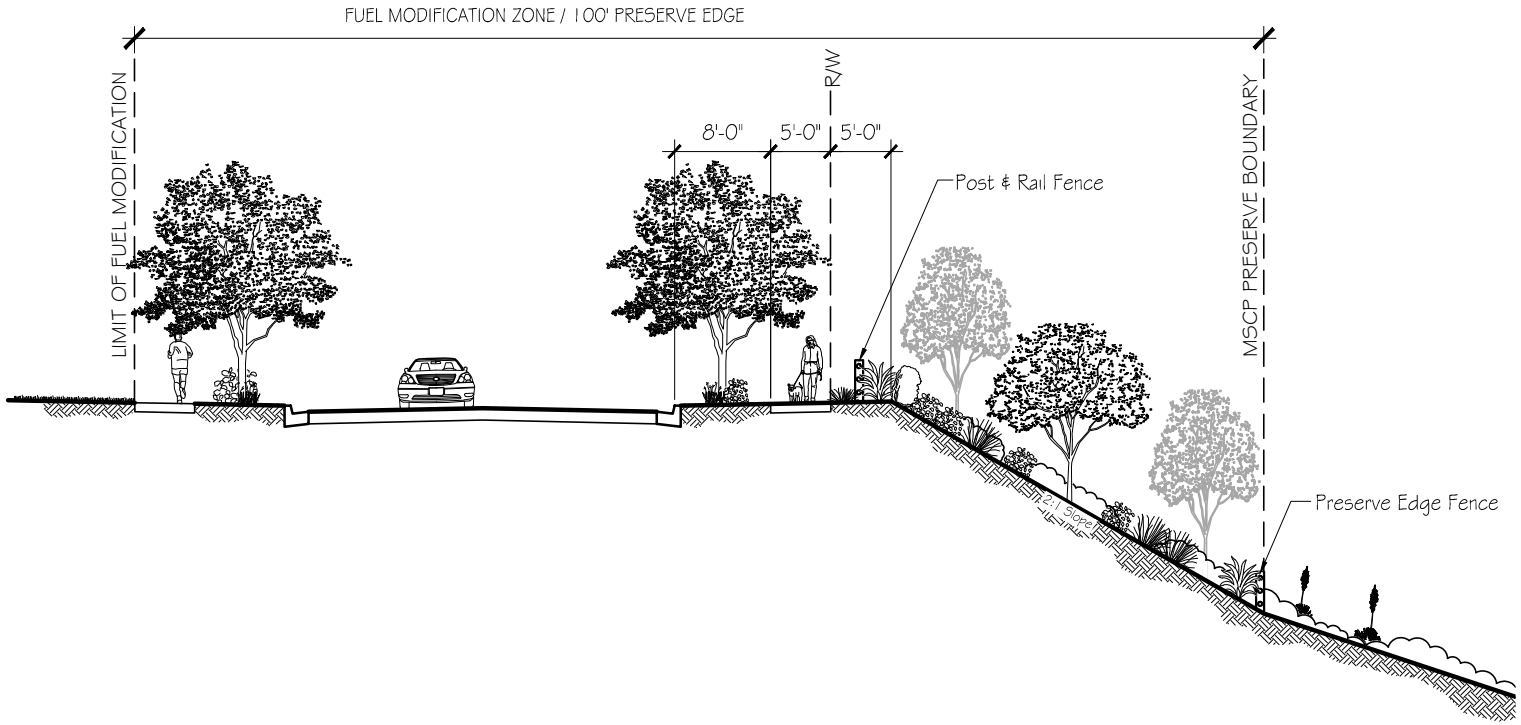
Path: Z:\Projects\6524\01\MAPDOC\MAPS\FIRE\Appendix G_FireDept_ResponseTimes.mxd

APPENDIX H-1 THROUGH H-3

Fuel Modification Zone Profile


MSCP BOUNDARY LINE
FUEL MANAGEMENT ZONE 2
FUEL MANAGEMENT ZONE 1
BEGIN 100' FUEL MANAGEMENT ZONE/ PRESERVE EDGE
50'
50'
PERIMETER/SLOPE TREE (TYP.)
RESIDENTIAL SITE
OPEN TURF AREA
FLOWERING ACCENT TREE (TYP.)
LOW FENCE AT PLAY AREA EDGE
PLANTING BUFFER
PLAY STRUCTURE
POST AND RAIL FENCE
STREET/PARKWAY TREE (TYP.)
0'
25'
50'
N


ZONE A: MAXIMUM
PLANTING HEIGHT OF 24"
ZONE B: MAXIMUM
PLANTING HEIGHTS:
75% - 36"
25% - 48"
SHRUB & GROUND COVER
PER APPROVED F.P.P.
QUERCUS AGRIFOLIA
(COAST LIVE OAK)
EXISTING NATURAL
VEGETATION TO REMAIN
PRESERVE EDGE
ZONE B
51' - 100'
ZONE A
50'
BRUSH MANAGEMENT ZONE
(100' MAX.)
NON COMBUSTIBLE
FENCING



Otay Ranch, Village 13

Typical Edge Condition

APPENDIX I

Approved Plant List

Landscape Palette

Area #1: Scenic Highway – Otay Lakes Road

Trees such as, but not limited to:

Arbutus unedo*	Strawberry Tree	Kc 0.3	CF
Platanus racemosa	California Sycamore	Kc 0.5	
Quercus agrifolia*	Coast Live	Kc 0.3	CF
Quercus suber*	Cork Oak	Kc 0.3	CF
Rhus lancea*	African Sumac	Kc 0.3	CF

Shrunbs and Groundcovers such as, but not limited to:

Agave attenuata*	Century Plant	Kc 0.3	CF
Agave shawii*	Coastal Agave	Kc 0.3	CF
Baccharis pilularis*	Dwarf Coyote Bush	Kc 0.3	CF
Ceanothus species*	Carmel Creeper	Kc 0.3	CF
Cistus species*	Rock Rose	Kc 0.3	CF
Dalea orcuttii	Baja Indigo Bush	Kc 0.3	CF
Cotoneaster dammeri Lowfast	Bearberry Cotoneaster	Kc 0.5	CF
Eriophyllum confertiflorum*	Golden Yarrow	Kc 0.1	CF
Mimulus auranticus*	Monkey Flower	Kc 0.3	CF
Muhlenbergia caillaris	Pink Wisp Grass	Kc 0.5	CF
Salvia mellifera*	Honey Sage	Kc 0.3	CF
Yucca schidigera*	Mojave Yucca	Kc 0.3	CF
Yucca whipplei*	Foothill Yucca	Kc 0.3	CF

Perimeter Slope Hydroseed Mix:

Eschscholzia californica*	California Poppy	Kc 0.3	CF
Isocoma menziessii	Goldenbush	Kc 0.1	CF
Lotus scoparius*	Deerweed	Kc 0.1	CF
Nassella pulchra	Purple Needle Grass	Kc 0.1	CF

Drainage Basin Hydroseed Mix:

Artemisia douglasiana	Mugwort	Kc 0.3	CF
Isocoma menziesii	Goldenbush	Kc 0.1	CF
Iva hayesiana*	San Diego Marsh Elder	Kc 0.3	CF
Sisrinchium bellum	Blue Eyed Grass	Kc 0.3	CF

Area #2: Village Entries

Trees such as, but not limited to:

Erythrina caffra*	Coral Tree	Kc 0.3	CF
Olea europea Wilsoni	Fruitless Olive Tree	Kc 0.3	
Phoenix canariensis	Canary Island Date Palm	Kc 0.3	
Phoenix dactylifera	Phoenix Date Palm (See Note #2)	Kc 0.3	CF
Podocarpus gracilior	Fern Pine	Kc 0.5	CF

Shrubs and Groundcovers such as, but not limited to:

Agapanthus Rancho White	White Lily-of-the-Nile	Kc 0.5	CF
Bougainvillea species	Bougainvillea	Kc 0.3	CF
Callistemon citrinus Compacta	Dwarf Lemon Bottlebrush	Kc 0.3	CF
Lantana montevidensis*	Lantana	Kc 0.3	CF
Lavandula angustifolia*	English Lavender	Kc 0.3	CF
Ligustrum japonicum 'Texanum'*	Japanese Privet	Kc 0.5	CF
Phormium species	Flax	Kc 0.5	CF
Rhaphiolepis indica*	India Hawthorn	Kc 0.5	CF
Rosmarinus officinalis*	Rosemary	Kc 0.3	CF
Trachelospermum jasminoides	Star Jasmine	Kc 0.5	CF

Grasses (Parkway planting) such as, but not limited to:

Paspalum vaginatum 'Aloha'	Seashore Paspalum	Kc 0.5	
Dianela spp.	Flax Lily	Kc 0.3	
Carex spp.	Sedge	Kc 0.5	

Area #3: Village Interior Parkways, Streets, Alleys and Traffic Circles

Trees such as, but not limited to:

Agonis flexuosa	Peppermint Tree	Kc 0.5	CF
Brachychiton acerifolius	Australian Flame Tree	Kc 0.5	CF
Brachychiton populneus	Bottle Tree	Kc 0.3	CF
Geijera parviflora	Australian Willow	Kc 0.5	CF
Koelreuteria paniculata	Golden Rain Tree	Kc 0.3	CF
Lagerstromia inidica	Crape Myrtle	Kc. 0.5	CF
Laurus nobils	Sweet Bay	Kc 0.3	CF
Olea europea Wilsoni	Fruitless Olive Tree	Kc 0.3	
Platanus racemosa*	California sycamore	Kc 0.3	CF
Podocarpus gracilior	Fern Pine	Kc 0.5	CF
Quercus agrifolia*	Coast Live	Kc 0.3	CF
Rhus lancea*	African Sumac	Kc 0.3	CF
Tipuana tipu	Tipu Trees	Kc 0.5	CF
Tristania conferta*	Brisbane box	Kc 0.5	

Shrunbs and Groundcovers such as, but not limited to:

Agapanthus Rancho White	White Lily-of-the-Nile	Kc 0.5	CF
Bougainvillea species	Bougainvillea	Kc 0.3	CF
Buxus microphylla 'Green Beauty'	Dwarf Boxwood	Kc 0.5	
Callistemon citrinus Compacta	Dwarf Lemon Bottlebrush	Kc 0.3	CF
Carissa macrocarpa Green Carpet*	Prostrate Natal Plum	Kc 0.5	CF
Cycas revoluta	Sago Palm	Kc 0.5	
Lantana montevidensis*	Lantana	Kc 0.3	CF
Lavandula angustifolia*	English Lavender	Kc 0.3	CF
Ligustrum japonicum 'Texanum'*	Japanese Privet	Kc 0.5	CF
Mimulus auranticus*	Monkey Flower	Kc 0.3	CF
Muhlenbergia capillaris	Pink Wisp Grass	Kc 0.5	CF
Myoporum parvifolium Putah Creek*	No Common Name	Kc 0.3	CF
Phoneix roebelenii	Pigmy Date Palm	Kc 0.5	
Phormium species	Flax	Kc 0.5	CF
Rhaphiolepis indica*	India Hawthorn	Kc 0.5	CF
Rosmarinus officinalis*	Rosemary	Kc 0.3	CF
Strelitzia nicolia	Giant Bird of Paradise	Kc 0.5	
Strelitzia reginae	Bird of Paradise	Kc 0.5	
Trachelospermum jasminoides	Star Jasmine	Kc 0.5	CF
Trachycarpus fortunei	Windmill Palm	Kc 0.5	
Zamia furfuraccea	Cardboard Palm	Kc 0.5	CF

Grasses (Parkway planting) such as, but not limited to:

Paspalum vaginatum 'Aloha'	Seashore Paspalum	Kc 0.5	
Dianela spp.	Flax Lily	Kc 0.3	
Carex spp.	Sedge	Kc 0.5	

Area #4: Commercial, Multi-Family, Schools and Single Family Residential Lots

Trees such as, but not limited to:

Agonis flexuosa	Peppermint Tree	Kc 0.5	CF
Brachychiton acerifolius	Australian Flame Tree	Kc 0.5	CF
Brachychiton populneus	Bottle Tree	Kc 0.3	CF
Geijera parviflora	Australian Willow	Kc 0.5	CF

Koelreuteria paniculata	Golden Rain Tree	Kc 0.5	CF
Lagerstromia inidica	Crape Myrtle	Kc. 0.5	CF
Laurus nobils	Sweet Bay	Kc 0.3	CF
Metrosideros exelsus	New Zealand Christmas Tree	Kc 0.5	
Olea europea Wilsoni	Fruitless Olive Tree	Kc 0.3	
Phoenix dactylifera	Phoenix Date Palm (See Note #2)	Kc 0.3	CF
Pittosporum undulatum	Victorian Box	Kc 0.5	CF
Podocarpus gracilior	Fern Pine	Kc 0.5	CF
Rhus lancea*	African Sumac	Kc 0.3	CF
Tristania conferta*	Brisbane box	Kc 0.5	

Shrunbs and Groundcovers such as, but not limited to:

Agapanthus Rancho White	White Lily-of-the-Nile	Kc 0.5	CF
Agapanthus africanus	Lily-of-the-Nile	Kc 0.5	CF
Aloe species*	Aloe	Kc 0.3	CF
Bougainvillea species	Bougainvillea	Kc 0.3	CF
Buxus microphylla 'Green Beauty'	Dwarf Boxwood	Kc 0.5	
Callistemon citrinus Compacta	Dwarf Lemon Bottlebrush	Kc 0.3	CF
Carissa macrocarpa Green Carpet*	Prostrate Natal Plum	Kc 0.5	CF
Ceanothus species*	Carmel Creeper	Kc 0.3	CF
Chamaerops humillis	Mediterranean Fan Palm	Kc 0.5	
Cistus species*	Rock Rose	Kc 0.3	CF
Cotoneaster dammeri Lowfast*	Bearberry Cotoneaster	Kc 0.5	CF
Cotoneaster lacteus	Parnys Red Clusterberry	Kc 0.5	CF
Cycas revoluta	Sago Palm	Kc 0.5	
Dietes bicolor*	Fortnight Lily	Kc 0.5	CF
Disctus Rivers	Royal Trumpet Vine	Kc 0.5	CF
Distictus buccinatoria	Blood-Red Trumpet Vine	Kc 0.5	CF
Echium fastuosum	Pride of Madeira	Kc 0.3	CF
Euryops pectinatus	Shrub Daisy	Kc 0.3	CF
Heteromeles arbutifolia*	Toyon	Kc 0.3	CF
Lantana montevidensis*	Lantana	Kc 0.3	CF
Lavendula species*	Lavender	Kc 0.3	CF
Ligustrum japonicum 'Texanum'*	Texas Privet	Kc 0.5	CF
Limonium perezii	Sea Lavender	Kc 0.5	CF
Marathon 2e	Dwarf Tall Fescue (See Note #3)	Kc 0.8	
Mimulus auranticus*	Monkey Flower	Kc 0.3	CF
Myoporum pacificum*	Pacifica Saltbush	Kc 0.5	CF
Myoporum parvifolium Putah Creek*	No Common Name	Kc 0.3	CF
Nandina domestica	Heavenly Bamboo	Kc 0.5	CF
Phoneix roebelenii	Pigmy Date Palm	Kc 0.5	
Phormium species	Flax	Kc 0.5	CF
Pittosporum tobira	Common Tobira	Kc 0.5	CF
Pittosporum tobira Wheelers Dwarf*	Dwarf Tobira	Kc 0.5	CF
Rosa species	Rose	Kc 0.5	CF
Rosmarinus officinalis	Rosemary	Kc 0.3	CF
Strelitzia nicolia	Giant Bird of Paradise	Kc 0.5	
Strelitzia reginae	Bird of Paradise	Kc 0.5	
Trachelospermum jasminoides	Star Jasmine	Kc 0.5	CF
Trachycarpus fortunei	Windmill Palm	Kc 0.5	
Verbena species	Verbena	Kc 0.5	CF
Wisteria sinensis	Chinese Wisteria	Kc 0.5	CF
Xyosma congestum	Shiny Xylosma	Kc 0.5	CF
Zamia furfuraccea	Cardboard Palm	Kc 0.5	CF

Grasses (Parkway planting) such as, but not limited to:

Paspalum vaginatum 'Aloha'	Seashore Paspalum	Kc 0.5
Dianela spp.	Flax Lily	Kc 0.3

Carex spp.	Sedge	Kc 0.5	

Area #5: The Resort

Trees such as, but not limited to:

Brachychiton acerifolius	Australian Flame Tree	Kc 0.5	CF
Brachychiton populneus	Bottle Tree	Kc 0.3	CF
Cupressus sempervirens Strica	Italian Cypress (See note #2)	Kc 0.3	
Ficus robiginosa	Rustyleaf Fig	Kc 0.5	
Geijera parviflora	Australian Willow	Kc 0.5	CF
Laurus nobils	Sweet Bay	Kc 0.3	CF
Olea europea Wilsoni	Fruitless Olive Tree	Kc 0.3	
Phoenix dactylifera	Phoenix Date Palm (See Note #2)	Kc 0.3	CF
Phoenix reclinata	Senegal Date Palm	Kc 0.5	
Pittosporum undulatum	Victorian Box	Kc 0.5	CF
Podocarpus gracilior	Fern Pine	Kc 0.5	CF
Rhus lancea*	African Sumac	Kc 0.3	CF
Sapium sebiferum	Chinese Tallow Tree	Kc 0.5	
Stenocarpus sinuatus	Firewheel Tree	Kc 0.5	
Tristania conferta*	Brisbane box	Kc 0.5	

Shrunbs and Groundcovers such as, but not limited to:

Agapanthus Rancho White	White Lily-of-the-Nile	Kc 0.5	CF
Agapanthus africanus	Lily-of-the-Nile	Kc 0.5	CF
Aloe species*	Aloe	Kc 0.3	CF
Bougainvillea species	Bougainvillea	Kc 0.3	CF
Buxus microphylla 'Green Beauty'	Dwarf Boxwood	Kc 0.5	
Callistemon citrinus Compacta	Dwarf Lemon Bottlebrush	Kc 0.3	CF
Carissa macrocarpa Green Carpet*	Prostrate Natal Plum	Kc 0.5	CF
Ceanothus species*	Carmel Creeper	Kc 0.3	CF
Chamaerops humillis	Mediterranean Fan Palm	Kc 0.5	
Cistus species*	Rock Rose	Kc 0.3	CF
Cycas revoluta	Sago Palm	Kc 0.5	
Distictus buccinatoria	Blood-Red Trumpet Vine	Kc 0.5	CF
Echium fastuosum	Pride of Madeira	Kc 0.3	CF
Lantana montevidensis*	Lantana	Kc 0.3	CF
Lavendula species*	Lavender	Kc 0.3	CF
Ligustrum japonicum 'Texanum'*	Texas Privet	Kc 0.5	CF
Limonium perezii	Sea Lavender	Kc 0.5	CF
Marathon 2e	Dwarf Tall Fescue (See Note #3)	Kc 0.8	
Mimulus auranticus*	Monkey Flower	Kc 0.3	CF
Myoporum parvifolium Putah Creek*	No Common Name	Kc 0.3	CF
Myrtus species	Myrtle	Kc 0.5	CF
Nandina domestica	Heavenly Bamboo	Kc 0.5	CF
Phormium species	Flax	Kc 0.5	CF
Phoneix roebelenii	Pigmy Date Palm	Kc 0.5	
Pittosporum tobira Wheelers Dwarf*	Dwarf Tobira	Kc 0.5	CF
Rosa species	Rose	Kc 0.5	CF
Rosmarinus officinalis	Rosemary	Kc 0.3	CF
Salvia mellifera	Honey Sage	Kc 0.3	CF
Strelitzia nicolia	Giant Bird of Paradise	Kc 0.5	
Strelitzia reginae	Bird of Paradise	Kc 0.5	
Trachelospermum jasminoides	Star Jasmine	Kc 0.5	CF
Trachycarpus fortunei	Windmill Palm	Kc 0.5	
Verbena species	Verbena	Kc 0.5	CF
Wisteria sinensis	Chinese Wisteria	Kc 0.5	CF
Zamia furfuraccea	Cardboard Palm	Kc 0.5	CF

Grasses (Parkway planting) such as, but not limited to:

Paspalum vaginatum 'Aloha'	Seashore Paspalum	Kc 0.5	
Dianela spp.	Flax Lily	Kc 0.3	
Carex spp.	Sedge	Kc 0.5	

Area #6: Active Interior Recreation Areas, Pedestrian Parks and Swim Clubs

Trees such as, but not limited to:

Erythrina caffra*	Coral Tree	Kc 0.3	CF
Olea europea Wilsoni	Fruitless Olive Tree	Kc 0.3	
Podocarpus gracilior	Fern Pine	Kc 0.5	CF
Quercus agrifolia*	Coast Live Oak	Kc 0.3	CF
Tipuana tipu	Tipu Trees	Kc 0.5	CF
Tristania conferta*	Brisbane box	Kc 0.5	

Shrunbs and Groundcovers such as, but not limited to:

Agapanthus Rancho White	White Lily-of-the-Nile	Kc 0.5	CF
Bougainvillea species	Bougainvillea	Kc 0.3	CF
Buxus microphylla 'Green Beauty'	Dwarf Boxwood	Kc 0.5	
Callistemon citrinus Compacta	Dwarf Lemon Bottlebrush	Kc 0.3	CF
Carissa macrocarpa Green Carpet*	Prostrate Natal Plum	Kc 0.5	CF
Ceanothus species*	Carmel Creeper	Kc 0.3	CF
Cistus species*	Rock Rose	Kc 0.3	CF
Echium fastuosum	Pride of Madeira	Kc 0.3	CF
Lantana montevidensis*	Lantana	Kc 0.3	CF
Ligustrum japonicum 'Texanum'	Japanese Privet	Kc 0.5	CF
Marathon 2e	Dwarf Tall Fescue (See Note #3)	Kc 0.8	
Mimulus auranticus*	Monkey Flower	Kc 0.3	CF
Myoporum Pacificum*	No Common Name	Kc 0.5	CF
Myoporum parvifolium Putah Creek*	No Common Name	Kc 0.3	CF
Phormium species	Flax	Kc 0.5	CF
Rosmarinus officinalis*	Rosemary	Kc 0.3	CF
Strelitzia reginae	Bird of Paradise	Kc 0.5	
Trachelospermum jasminoides	Star Jasmine	Kc 0.5	CF
Verbena species	Verbena	Kc 0.5	CF
Wisteria sinensis	Chinese Wisteria	Kc 0.5	CF

Grasses (Parkway planting) such as, but not limited to:

Paspalum vaginatum 'Aloha'	Seashore Paspalum	Kc 0.5	
Dianela spp.	Flax Lily	Kc 0.3	
Carex spp.	Sedge	Kc 0.5	

Area #7: Perimeter Drought Tolerant and Fire Resistant Pedestrian Parks

Trees such as, but not limited to:

Arbutus unedo*	Strawberry Tree	Kc 0.3	CF
Ceratonia siliqua*	Carob Tree	Kc 0.3	CF
Cercis occidentalis*	Western Redbud	Kc 0.3	CF
Quercus agrifolia*	Coast Live	Kc 0.3	CF
Quercus suber*	Cork Oak	Kc 0.3	CF
Rhus lancea*	African Sumac	Kc 0.3	CF

Shrunbs and Groundcovers such as, but not limited to:

Agave attenuata*	Century Plant	Kc 0.3	CF
Agave shawii*	Coastal Agave	Kc 0.3	CF
Archtostapylos Emerald Carpet*	Emerald Carpet Manzanita	Kc 0.3	CF
Baccharis pilularis*	Dwarf Coyote Bush	Kc 0.3	CF
Ceanothus species*	Carmel Creeper	Kc 0.3	CF

Cistus species*	Rock Rose	Kc 0.3	CF
Dalea orcuttii*	Baja Indigo Bush	Kc 0.3	CF
Eriophyllum confertiflorum*	Golden Yarrow	Kc 0.1	CF
Heteromeles arbutifolia*	Toyon	Kc 0.3	CF
Lantana montevidensis*	Lantana	Kc 0.3	CF
Marathon 2e	Dwarf Tall Fescue(See Note #3)	Kc 0.8	
Mimulus auranticus*	Monkey Flower	Kc 0.3	CF
Myoporum parvifolium Putah Creek*	No Common Name	Kc 0.3	CF
Rhus lentii*	Pink Flowering Sumac	Kc 0.3	CF
Rosmarinus officinalis*	Rosemary	Kc 0.3	CF
Salvia mellifera*	Honey Sage	Kc 0.3	CF
Sambucus species*	Elderberry	Kc 0.3	CF
Yucca schidigera*	Mojave Yucca	Kc 0.3	CF
Yucca whipplei*	Foothill Yucca	Kc 0.3	CF

Area #8: Interface with Preserve

Trees such as, but not limited to:

Ceratonia siliqua*	Carob Tree	Kc 0.3	CF
Geijera parviflora	Australian Willow	Kc 0.5	CF
Quercus agrifolia*	Coast Live	Kc 0.3	CF
Quercus suber*	Cork Oak	Kc 0.3	CF
Rhus lancea*	African Sumac	Kc 0.3	CF
Tristania conferta*	Brisbane box	Kc 0.5	

Shrunbs and Groundcovers such as, but not limited to:

Agave attenuata*	Century Plant	Kc 0.3	CF
Agave shawii*	Coastal Agave	Kc 0.3	CF
Archtostapylos Emerald Carpet*	Emerald Carpet Manzanita	Kc 0.3	CF
Baccharis pilularis*	Dwarf Coyote Bush	Kc 0.3	CF
Ceanothus species*	Carmel Creeper	Kc 0.3	CF
Cistus species*	Rock Rose	Kc 0.3	CF
Cotoneaster dammeri 'Lowfast	Bearberry Cotoneaster	Kc 0.5	CF
Dalea orcuttii*	Baja Indigo Bush	Kc 0.3	CF
Echium fastuosum	Pride of Madeira	Kc 0.3	CF
Epilobium californicum	California Fushcia	Kc 0.3	CF
Heteromeles arbutifolia*	Toyon	Kc 0.3	CF
Mimulus auranticus*	Monkey Flower	Kc 0.3	CF
Myoporum parvifolium Putah Creek*	No Common Name	Kc 0.3	CF
Pennisetum spatheolatum*	Rye Puffs	Kc 0.3	CF
Rhamnus californica*	California Coffeeberry	Kc 0.3	CF
Rhus lentii*	Pink Flowering Sumac	Kc 0.3	CF
Rosmarinus officinalis*	Rosemary	Kc 0.3	CF
Salvia mellifera*	Honey Sage	Kc 0.3	CF
Sambucus species*	Elderberry	Kc 0.3	CF
Yucca schidigera*	Mojave Yucca	Kc 0.3	CF
Yucca whipplei*	Foothill Yucca	Kc 0.3	CF

Hydroseed Mix:

Dichelostemma capitatum	Wild-Hyacinth	Kc 0.5	
Distichlis spicata	Salt Grass		
Dudleya edulis	Lady's Fingers	Kc 0.3	
Dudleya pulverulenta	Chalk Duleya	Kc 0.3	
Lasthenia californica	Goldfields		
Layia platyglossa	Tidy Tips		
Lupinus bicolor*	Miniature Lupine	Kc 0.3	
Sisyrinchium bellum*	Blue-Eyed Grass	Kc 0.3	CF

Notes:

1. KC = Crop Coefficient as defined by University of California Cooperative Extension, California Department of Resources “Wulcols III” report, dated August 2000.
2. Crop Coefficient as defined by University of California Cooperative Extension, California Department of Resources “Wulcols III” report, dated August 2000.
3. CF = Indicates plant material that is considered “California Friendly”, as published by “The Water Conservation Garden” at Cuyamaca College.
4. Cupressus sempervirens Strica (Italian Cypress) is permitted only within the resort developments in limited quantities. These trees must be a minimum of 100 feet away from any part of the open-space preserve.
5. Marathon 2e Fescue Lawn may only be used inactive recreational areas and in minimal amounts within residential applications, as defined under the "Single Family Detached Water Savings" exhibit within this document.
6. Proposed palm species will be planted in limited groupings at entries and along some parkways, streets, etc with Fire Authority approval.
7. All plant material on this proposed plant palette is subject to Fire Authority Having Jurisdiction approval.

* Indicates plants that are on the County of San Diego "Suggested Plant Material For Defensible Space and/or the County of Los Angeles Fire -Wise Plant List.

APPENDIX J

Prohibited Plant List

APPENDIX I
Prohibited Plant List

Prohibited Trees

Botanical Name	Common Name	Resource
Abies species	Fir trees	S
Acacia species	Acacia	HS
Agonis juniperina	Juniper myrtle	S
Araucaria species	Norfolk island Pine	S
Callistemon species	Bottlebrush	H
Cedrus species	Cedar	HS
Chamaecyparis species	False cypress	S
Cinnamomum camphora	Camphor tree	H
Conifers	Evergreen trees	H
Cryptomeria japonica	Japanese cryptomeria	S
Cupressocyparis leylandii	Leylandii cypress	S
Cupressus forbesii	Tecate cypress	S
Cupressus glabra	Arizona cypress	S
Cupressus sempervirens	Italian cypress	S
Cupressus species	Cypress	H
Eucalyptus species	Eucalyptus	HS
Eucalyptus	Eucalyptus species	K
Juniperus species	Juniper	H
Larix species	Larch	S
Olea europea	Olive tree	H
Palmae species	Palms	HS
Parkinsonia aculeata	Mexican palo verde	K
Pinus species	Pine	HS
Pittosporum undulatum	Victorian box	K
Podocarpus species	Fern pine	S
Prunus caroliniana	Carolina cherry laurel	K
Prunus lyonil	Catalina cherry	K
Pseudotsuga menziesii	Douglas fir	S
Quercus engelmannii	Engelmann oak	K
Quercus suber	Cork Oak	K
Schinus molle	California Pepper Tree	H
Tamarix species	Tamarix	C
Taxodium species	Cypress	S
Taxus species	Yew	S
Tsuga species	Hemlock	S
Washingtonia filifera	California Fan Palm	H

Prohibited Groundcovers, Shrubs, and Vines

Botanical Name	Common Name	Resource
Acacia species	Acacia	HS
Achillea millefolium	Common yarrow	K
Adenostoma fasciculatum	Chamise	HS
Adenostoma sparsifolium	Red shanks	HS
Aeonium decorum	Aeonium	K
Aeonium simsii	NCN	K
Ajuga reptans	Carpet bugle	K
Anthemis cotula	Mayweed	H
Aptenia cordifolia x 'red apple'	Red apple	K
Arbutus menziesii	Madrone	H
Arctostaphylos species	Manzanita	H
Artemisia pycnocephala	Beach sagewort	K
Artemisia californica	California sagebrush	HS
Artemisia caucasica	Caucasica artemisia	H
Artemisia pycnocephala	Sandhill sage	H
Artemisia species	Sages	H
Arundo donax	Giant cane	C
Atriplex species	Saltbush	H
Atriplex canescens	Four-wing saltbush	K
Atriplex lentiformis ssp. *breweri*	Brewer saltbush	K
Baccharis pilularis consanguinea	Chaparral bloom	H
Baccharis pilularis var. *pilularis*	Twin peaks	K
Baccharis species	Coyote bush	H
Bambusa species	Bamboo	S
Bougainvillea species	Bougainvillea	H
Brassica nigra	Black mustard	H
Brassica rapa	Yellow mustard	H
Cardaria draba	Hoary cress, perennial peppergrass	H
Carpobrotus species	Ice plant, hottentot fig	H
Carpobrotus chilensis	Sea fig ice plant	K
Chrysanthemum leucanthemum	Oxeye daisy	K
Cirsium vulgare	Wild artichoke	H
Conyza canadensis	Horseweed	H
Coprosma pumila	Prostrate coprosma	S
Cortaderia selloana	Pampas grass	HC
Crassula lactea	NCN	K
Crassula multicava	NCN	K
Crassula ovata	Jade tree	K
Crassula tetragona	NCN	K
Cytisus spp.	Scotch broom, French broom, etc.	HC
Delosperma 'alba'	White trailing ice plant	K
Dodonaea viscosa	Hopseed bush	S
Drosanthemum floribundum	Rosea ice plant	K
Drosanthemum hispidum	NCN	K

Prohibited Groundcovers, Shrubs, and Vines

Botanical Name	Common Name	Resource
Drosanthemum speciosum	Dewflower	K
Eriogonum fasciculatum	Common buckwheat	H
Eriogonum species	Common buckwheat	HS
Eschscholzia mexicana	Mexican poppy	K
Fremontodendron species	Flannel bush	H
Gaillardia x grandiflora	Blanketflower	K
Gazania hybrids	South African daisy	K
Gazania rigens leucolaena	Trailing gazania	K
Hedera helix	English ivy	H
Helix canariensis	English ivy	K
Heterotheca grandiflora	Telegraph plant	HS
Hypericum calycinum	Aaron's beard	K
Juniperus species	Juniper	S
Lactuca serriola	Prickly lettuce	H
Lampranthus aurantiacus	Bush ice plant	K
Lampranthus filicaulis	Redondo creeper	K
Lampranthus spectabilis	Trailing ice plant	K
Limonium pectinatum	NCN	K
Limonium perezii	Sea lavender	K
Lonicera japonica	Japanese honeysuckle	S
Lonicera japonica 'halliana'	Hall's Japanese honeysuckle	K
Lotus corniculatus	Bird's foot trefoil	K
Mahonia species	Mahonia	H
Malephora luteola	Trailing ice plant	K
Miscanthus species	Eulalie grass	S
Muhlenbergia species	Deer grass	S
Nerium oleander	Oleander	K
Nicotania bigelovii	Indian tobacco	H
Nicotania glauca	Tree tobacco	H
Ophiopogon japonicus	Mondo grass	K
Osteospermum fruticosum	Trailing African daisy	K
Penstemon spectabilis	Beard tongue	K
Pennisetum setaceum	Fountain grass	C
Perovskia atriplicifolia	Russian sage	H
Pickeringia 'montana'	Chaparral pea	S
Plantago sempervirens	Evergreen plantain	K
Portulacaria afra	Elephant's food	K
Potentilla tabernaemontani	Spring cinquefoil	K
Rhamnus alaternus	Italian buckhorn	K
Rhus diversiloba	Poison oak (worker/firefighter safety)	H
Rhus laurina	Laurel sumac	H
Rhus lentii	Pink flowering sumac	H
Ricinus communis	Castor bean	H
Romneya coulteri 'white cloud'	White cloud matilija poppy	K

Prohibited Groundcovers, Shrubs, and Vines

Botanical Name	Common Name	Resource
Rosmarinus species	Rosemary	S
Salsola australis	Russian thistle	H
Salvia mellifera	Black sage	S
Salvia species	Sage	H
Sedum acre	Goldmoss sedum	K
Sedum album	Green stonecrop	K
Sedum confusum	NCN	K
Sedum lineare	NCN	K
Sedum x rubrotinctum	Pork and beans	K
Senecio serpens	NCN	K
Solanum xantii	Purple nightshade (toxic)	H
Silybum marianum	Milk thistle	H
Tamarix spp.	Tamarisk	K
Tecomaria capensis	Cape honeysuckle	K
Thuja species	Arborvitae	S
Trifolium hirtum 'hyron'	Hyron rose clover	K
Trifolium fragiferum 'o'connor's	O'Connor's legume	K
Urtica urens	Burning nettle	S
Verbena species	Verbena	K
Vinca major	Periwinkle	H
Vinca minor	Dwarf periwinkle	K
Vulpia myuros 'zorro'	Zorro annual fescue	K
Yucca species	Yucca	K

EXCEPTIONS

1. The use of palm trees is prohibited within any Vegetation Management Zones, however Palm trees may be permitted within the interior of the development (in moderation), with prior approval from the SDRFPD. Proper spacing, irrigation and maintenance required.
2. Bougainvillea species may be used in certain interior areas (in very moderate amounts), with prior approval from the SDRFPD.

NOTES:

Various documents are referenced as sources for plant material information in this list of prohibited plant material. The titles of some of those reference documents suggest that some of the plant materials may be somewhat "Fire Retardant." It must be understood that under various fire conditions, all plant materials will burn. Accordingly, some seemingly "Fire Retardant" plants appear in this Prohibited Plant List.

Plant species included on this Prohibited Plant List that also occur on the Landscape Concept Plan may be used in limited quantities in interior locations, with approval of the SDRFPD.

"Fire Resistant." Others are documented as "High Fire Risk." Notwithstanding any other descriptors, the preparers of this document have determined that plants in this Prohibited Plant List shall not be used within the Brush Management Zones within this project.

All vegetation used in Vegetation Management Zones and elsewhere in this development shall be subject to approval of the County Fire Marshal.

Any deviations from the Prohibited Plant List must be submitted to the County Fire Marshal for approval

SOURCES:

C: City of Chula Vista, Fire Retardant and/or Drought Tolerant Plant List, Landscape Manual, November 1994

H: Hunt Research Corporation Report, Otay Ranch, Village 7/2 - Fire Protection Plan, June 14, 2005

S: County of San Diego, Suggested Plant List for Defensible Space, http://www.sdcounty.ca.gov/dplu/dos/UndesirablePlants.pdf

K: Appendix K, City of Chula Vista MSCP Subarea Plan: San Diego County Fire Chief's Association Fuel Modification Zone Plant List, July 15, 1997