TOWN OF PORTOLA VALLEY
STAFF REPORT

TO: Mayor and Members of the Town Council

FROM: Jeremy Dennis, Town Manager

DATE: November 11, 2020

RE: Wildfire Preparedness Committee Proposals 2

RECOMMENDATION
Staff recommends that the Town Council receive new proposals from the Wildfire Preparedness Committee and provide them with initial feedback and suggestions

BACKGROUND
On April 10, 2019, the Town Council created the ad hoc Wildfire Preparedness Committee (the Committee) to address outstanding wildfire resiliency issues. Its charter, adopted in May 2019, states the following:

"Given the inherent risk of wildfire in Portola Valley and the changing character of wildfires due to climate change, the Ad Hoc Committee on Wildfire Preparedness shall advise the Town Council, on a limited duration basis, on ways to reduce wildfire danger, and increase resident resiliency in a wildfire emergency." (Attachment 2)

The Committee met three times, and delegated its work to three subcommittees:

- Communications, Evacuation and Outreach
- Home Hardening/Insurance/Infrastructure Back-up
- Vegetation Management/Defensible Space

At the Council's Dember 2019 meeting, the Town Council adopted the majority of the Committee's initial recommendations; at status update on these recommendations are attached (Attachment 1).7

DISCUSSION
Over the last year, the Committee has been considering additional recommendations for adoption by the Town Council. The CZU Lightning Complex fire provided data for the Committee to consider.

At their October 13 meeting, the Committee approved for Council consideration a new set of proposals (Attachment 2). The Committee decided to present their ideas without recommendation at this time to allow the Council to provide additional feedback prior to formal submittal of recommendations.

The six proposals are:

- Regulating vegetation around underground transformers
- Prohibiting the planning of certain highly-flammable trees
- Increasing defensible space regulations on steep sloped lots
- Requiring large parcels to have vegetation management plans
- Additional right-of-way vegetation reduction with a dedicated revenue source from fundraising
- Grants for low-income residents to support some wildfire preparedness efforts on their properties

The Committee is seeking feedback and suggestions from the Town Council on these proposals and thoughts on next steps.

ATTACHMENT

1. October Quarterly Report, Wildfire Preparedness Committee Recommendations
2. Committee Proposals Slide Deck

TOWN OF PORTOLA VALLEY
STAFF REPORT

TO: Mayor and Members of the Town Council

FROM: Jeremy Dennis, Town Manager

DATE: October 28, 2020

RE: Wildfire Preparedness Committee Recommendations – Quarterly Report

RECOMMENDATION
Staff recommends that the Town Council accept this quarterly report on the status of recommendations adopted by the Council from the Wildfire Preparedness Committee in December.

BACKGROUND
The Town of Portola Valley exists within a wildland urban interface (WUI), where land use patterns transition between essentially unoccupied lands to areas of more intense development. Areas in a WUI are prone to wildfires due to the presence of increased vegetation alongside development, including homes. Recognizing the dangers of wildfires, the Town has addressed these concerns historically in the following ways:

- Firewise Community certification
- Participation in the local Fire Safe Council
- Maintenance of a WUI code
- Adoption of a Hazard Mitigation Plan
- Strong relationship with the Woodside Fire Protection District

As climate change has affected weather patterns and the environment, the risk of wildfires has greatly increased in Northern California. Recent notable wildfire-related activities include:

- A 2108 San Mateo County Grand Jury Report on the risk of wildfires in parts of the County, including Portola Valley

- The inclusion of portions of the Town in the CPUC/CalFire-developed Very High Fire Severity Zone, which has led to an active enhanced vegetation management effort by PG&E around its power infrastructure
- Increased non-renewals and some steep price increases for fire insurance
- An increase in Red Flag Days

On April 10, 2019, the Town Council created the ad hoc Wildfire Preparedness Committee (the Committee) to address outstanding wildfire resiliency issues. Its charter, adopted in May 2019, states the following: *"Given the inherent risk of wildfire in Portola Valley and the changing character of wildfires due to climate change, the Ad Hoc Committee on Wildfire Preparedness shall advise the Town Council, on a limited duration basis, on ways to reduce wildfire danger, and increase resident resiliency in a wildfire emergency."*

The Committee met three times, and delegated its work to three subcommittees:

- Communications, Evacuation and Outreach
- Home Hardening/Insurance/Infrastructure Back-up
- Vegetation Management/Defensible Space

The three subcommittee met multiple times, many times with outside partners and experts, and prepared a list of short-, medium- and long-term recommendations for the Council's consideration.

At their October 21 meeting, the Committee finalized their recommendations to the Council. The Committee presented their recommendations at the November 13 Council meeting, and were adopted at the December 11 Council meeting.

DISCUSSION

Per the direction of the Town Council, a quarterly report will be issued to provide a status update on recommendation implementation. The Wildfire Preparedness Committee received their first quarterly report on July 21, and this report (the second) on October 13 and recommended it to the Council.

Completed
Underway
Underway, continuous
Has not begun

1. Short-term (implemented in calendar year 2020)
    a. Identify Public Right-of-Way ignition sources by producing a list of target hazard trees and ladder fuel sites for future removal
    b. Increase outreach and education to residents on vegetation management on their properties
    c. Publish a list of highly flammable plants and fire-resistant plants in cooperation with the WFPD
    d. Send letter to Mid-Peninsula Open Space District signed by PV Council

requesting fuel reduction on Windy Hill

e. Prohibit construction, landscaping and gardening activities on Red Flag/PSPS events – Expected to be presented at a Town Council meeting later this calendar year
f. Insure Town Hall internet access during an emergency/PSPS (already underway)
g. Open Town EOC and Communications Room during PSPS events
h. Update evacuation plans with new exit routes, emergency gates, and updates from ongoing evacuation planning efforts led by regional fire chiefs, and approve such a plan when available for review
i. Work with Town institutions to understand their evacuation plans
j. Prioritize vegetation management on the Town's main evacuation routes to insure egress in an emergency
k. Work with wireless carriers to insure 36 hours of battery back-up on Town cell sites
l. Support Town AM radio as a secondary notification system for emergencies, with financial and staff support as necessary
m. Educate residents on the Town's emergency communications efforts, including the AM radio – staff preparing master documents on this topic
n. Promote wildfire resiliency efforts with regular "tips of the month"
o. Adopt a fire reach code that addresses the following for new construction:
    i. Ban all combustible roofing materials
    ii. Require ember-resistant vents
    iii. For decks attached to homes, require their construction with non-combustible materials
    iv. Require that all attached structures to homes, including fences and gates, be made of a non-combustible material
    v. Require non-combustible siding
    vi. Require enclosed eaves
    vii. Install multi-pane tempered glass windows and skylights (which should have mesh screens)
p. Work with insurance companies when drafting new building codes

Expected to be presented at a Town Council meeting later this calendar year

2. Medium-Term (implemented starting in calendar year 2020; some items are multi- year efforts)
    a. Increase the number of available "Chipper" days (to be determined on a need basis with WFPD)
    b. Support WFPD proposed ordinance for an ignition-free zone 0-5 feet from a dwelling, and made part of the town's Design Guidelines
    c. Produce and maintain shaded fuel breaks (shaded canopy) as defined by WFPD (100 feet at both sides of the road) along roadways with large adjacent parcels of land
    d. Working with Town emergency preparation partners, such as WPV-Ready, WPV-CERT and the WFPD via neighborhood watch programs to

educate residents on self-reliance and emergency preparedness

e. Work with our state and federal partners to support power back-up on cell sites for at least 36 hours
f. Replace town emergency gates with breakaway mechanism and improve signage
g. Encourage annual emergency evacuation drills for each WPV-Ready Division – to be discussed at next WPV-Ready Board meeting
h. Update the Design Guidelines to consider fire resiliency, including:
    i. House placement away from long and/or steep slopes
    ii. Keep roof lines simple to avoid litter accumulation
    iii. Incorporate the WFPD ordinance for an ignition-free 0-5 feet zone
    iv. Consider appropriate plant distribution on site
i. Encourage the retrofit of existing homes to accommodate fire resiliency, including:
    i. Non-combustible roofing
    ii. Ember-resistant vents
    iii. Non-combustible or IPE decking and fencing
    iv. Non-combustible or IPE wood siding
    v. Fire-resistant windows and skylights with mesh screens

Underway as part of item 1 o

ATTACHMENT #2

2020 Ad Hoc Wildfire Committee Recommendations

CZU Fire

1,487 structures destroyed

925 residences

*By **MAGGIE ANGST** | mangst@bayareanewsgroup.com | Bay Area News Group*

Worst Case

(*Before*): Mike Evans, co-owner of Tree of Life native plant nursery in Southern California, built this cabin over the course of three years. The cabin was carefully designed for fire safety, there was 100' clearance to mineral soil in all directions, and the forest understory was cleared for hundreds of yards all around. Both photographs by M. Evans.

(*After*): The Cedar Fire of 2003 burned so hot that the structure fire started on the inside: a piece of furniture, a pillow, a towel, the tablecloth (who knows?) ignited, perhaps spontaneously.

Factors that Turn a Fire into a Wildfire

Ignition

- Time from ignition to detection
- Distance from first responders to location
- Distance from exact location to a maintained road
- Fuel load in nearby plants and other material
- Temperature
- Moisture content in plants
- Moisture content in the air
- Slopes and terrain
- Wind speed and direction

San Mateo County has fires on a weekly basis during high fire season.

Fire departments typically quickly respond and put out the fire within minutes or hours. [1]

We do not have the severe winds relative to other regions in California.

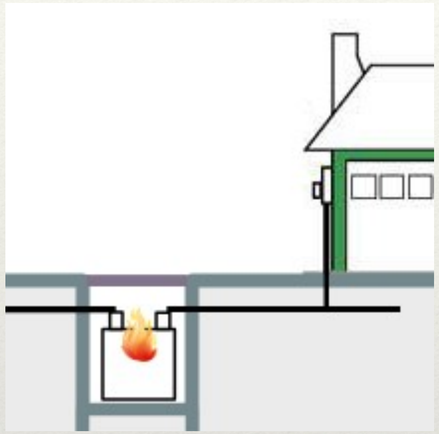
Our temperatures are generally more moderate.

We historically have had a predictable marine layer.

PV is either downhill or level to the wild lands.

[1] Based upon log of incidents via PulsePoint

Post CZU Wildfire Recommendations



Underground Transformer Regulation

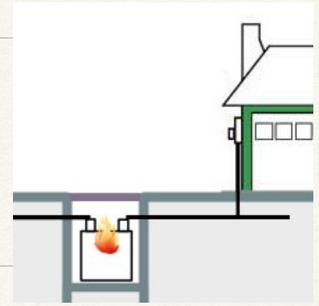
Ban the Flammable Five

Steep Slope Regulations

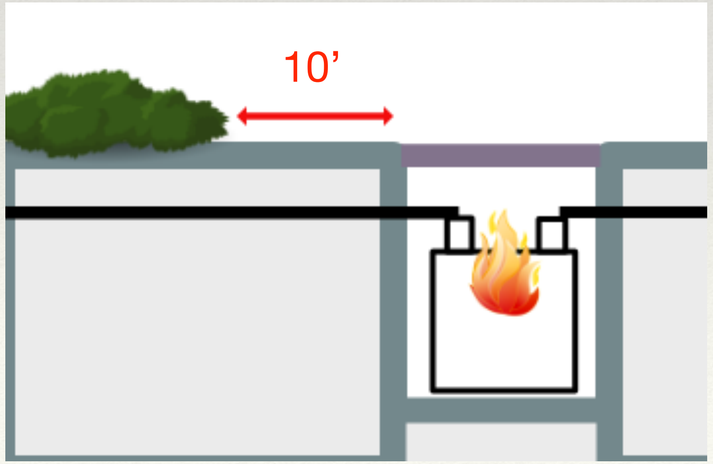
Undeveloped Land Regulations

Town Owned Roadway & Property Cleanup

Financing Town Cleanup



Underground Transformer Regulation



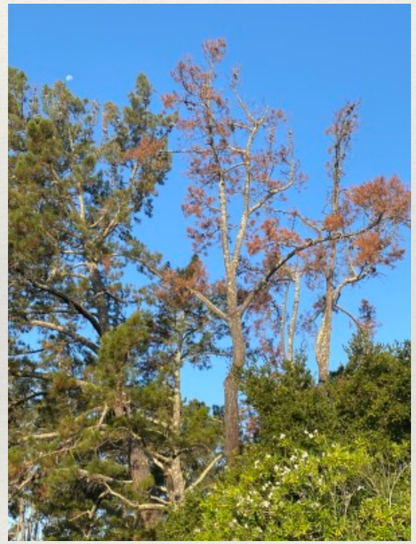
- On September 8th, an underground transformer blew up in the Ranch
- The cover flew off and open flames were visible
- WFPD regulation prohibiting planting within 10’ of transformer cover

Ban Planting the Flammable Five

juniper

acacia

cypress



pine

eucalyptus
varieties with peeling bark

- WFPD flammable five ordinance

Grass Roots Ecology "The following are some key invasive species to target: Remove invasive flammable trees including eucalyptus, acacia, cypress and many exotic conifers…. Junipers, which are *highly* flammable"

almost all “Eucalyptus”

Extremely Flammable Eucalyptus

Eucalyptus Globulus

most common variety

outside of Australia

Fire Resistant Eucalyptus [1]

Corymbia maculata
“Spotted Gum”

Corymbia Gumifera
“Red Bloodwood”

1 Landscaping for bushfire prone areas - Department of Education, Victoria, Australia

How Will a Ban be Effective?

Ban the
Flammable Five

- Homeowners replace plants over time
- With a ban, the town can let licensed gardeners know they are not permitted
- A marketing program using the Flammable Five will encourage the removal of existing trees
- ASCC can condition approval based upon removal of the flammable five

+Two to Remove

- Tag line is two plants to remove from your property
- Both are invasive
- Highly unusual to intentionally plant

Ban the
Flammable Five

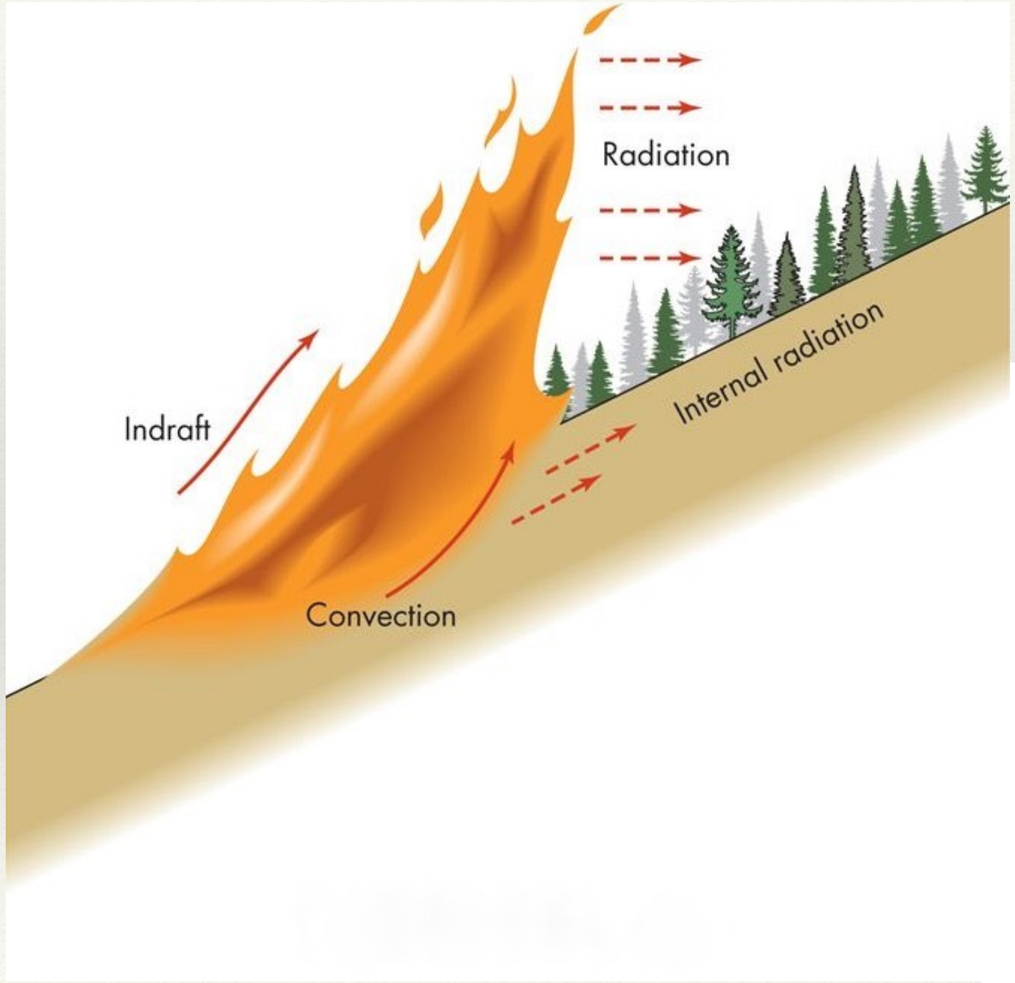
Flammable Five
+ Two to Remove

Coyote Brush

Broom
French Broom &
Scotch Broom

There are no "fire-proof" plants!
All plants must be maintained in good health, properly irrigated, an free of dead material, dry twigs, or fallen leaves and needles.

Slopes



Source: Pearson Prentice Hall Inc.

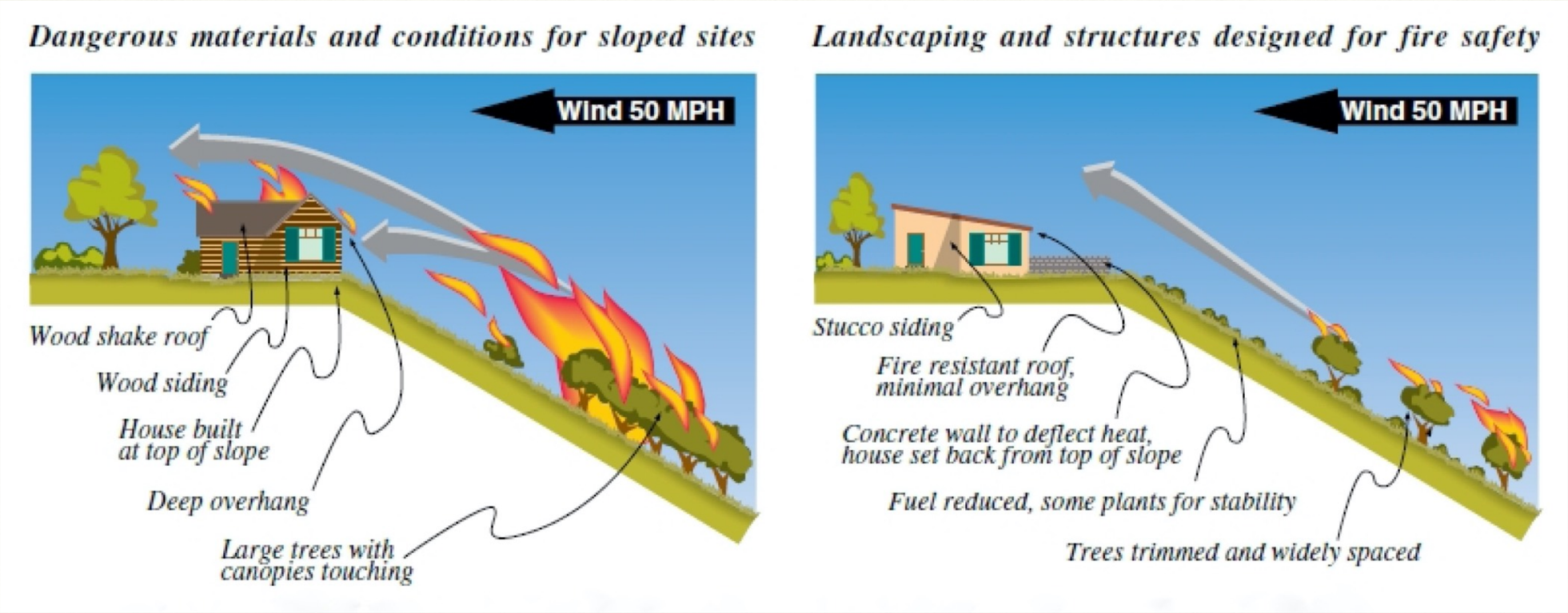
Steep Slope Regulations

Convection *is the transfer of heat by the movement of a gas or liquid. Because hot air rises, heat transfer through convection tends to move upward. During wildfires, burning materials on the forest floor create convection currents that preheat the leaves and branches of trees above the fire. The vertical air currents can also lift burning materials.*

Radiation *is the mechanism by which burning objects release energy in the form of heat. In general, the size of the burning object determines the amount of radiant heat released, with larger fuels burning hotter. In most cases, radiant heat from a wildfire will not ignite materials at distances greater than approximately 10 metres.*

Local winds *are those created by conditions specific to a particular area, such as terrain and topography.*

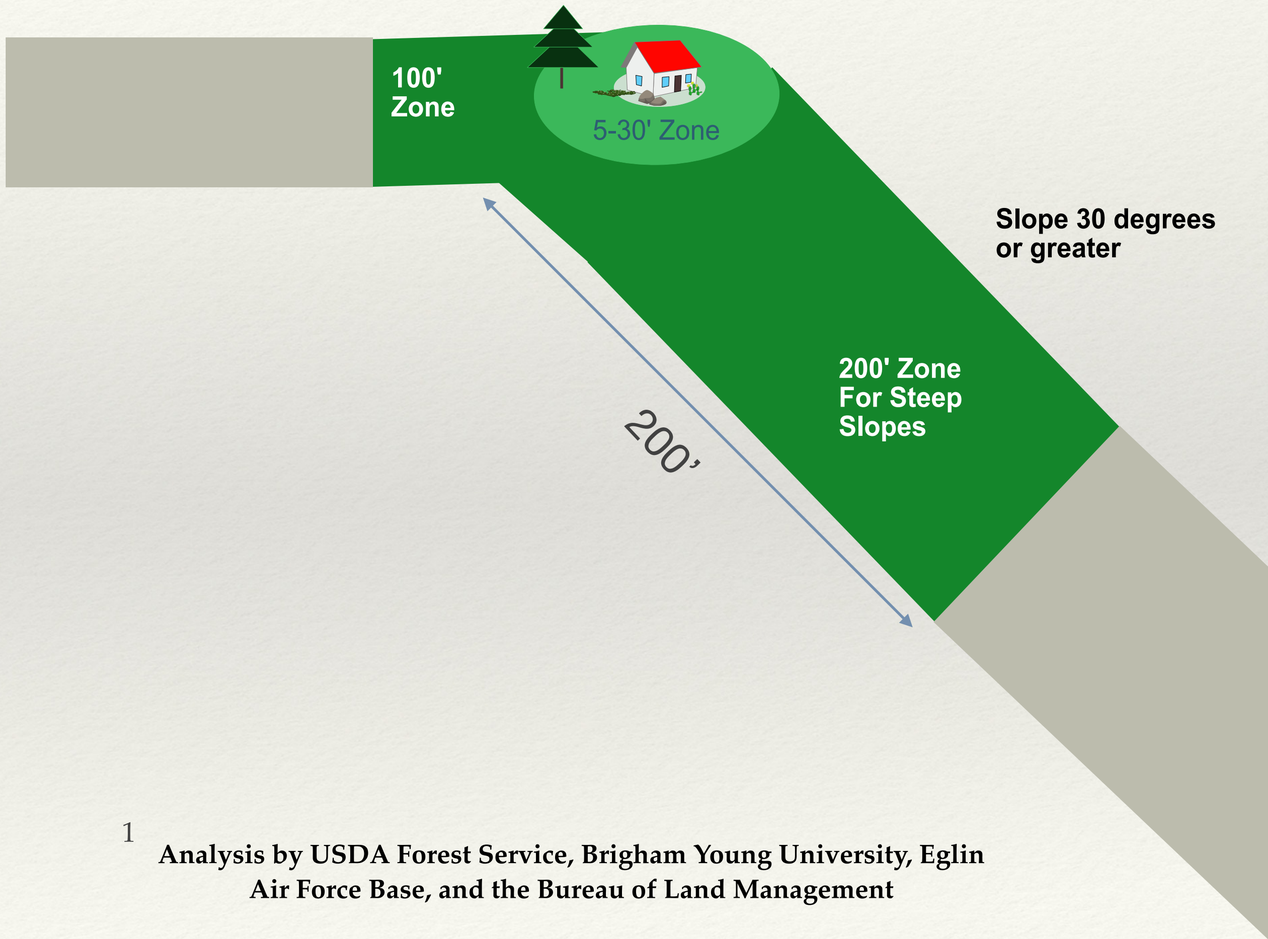
Slopes



Source: East Bay Municipal Utility District – Firescape: Landscaping to Reduce Fire Hazard

WFPD Slope Regulation

- Certain areas of town with long steep slopes are subject to fire risk and need to be maintained more aggressively
- Slopes greater than 30% with any wind are significantly more dangerous [1]
- WFPD defensible zone distance goes up to 200’ for slopes 30° or greater

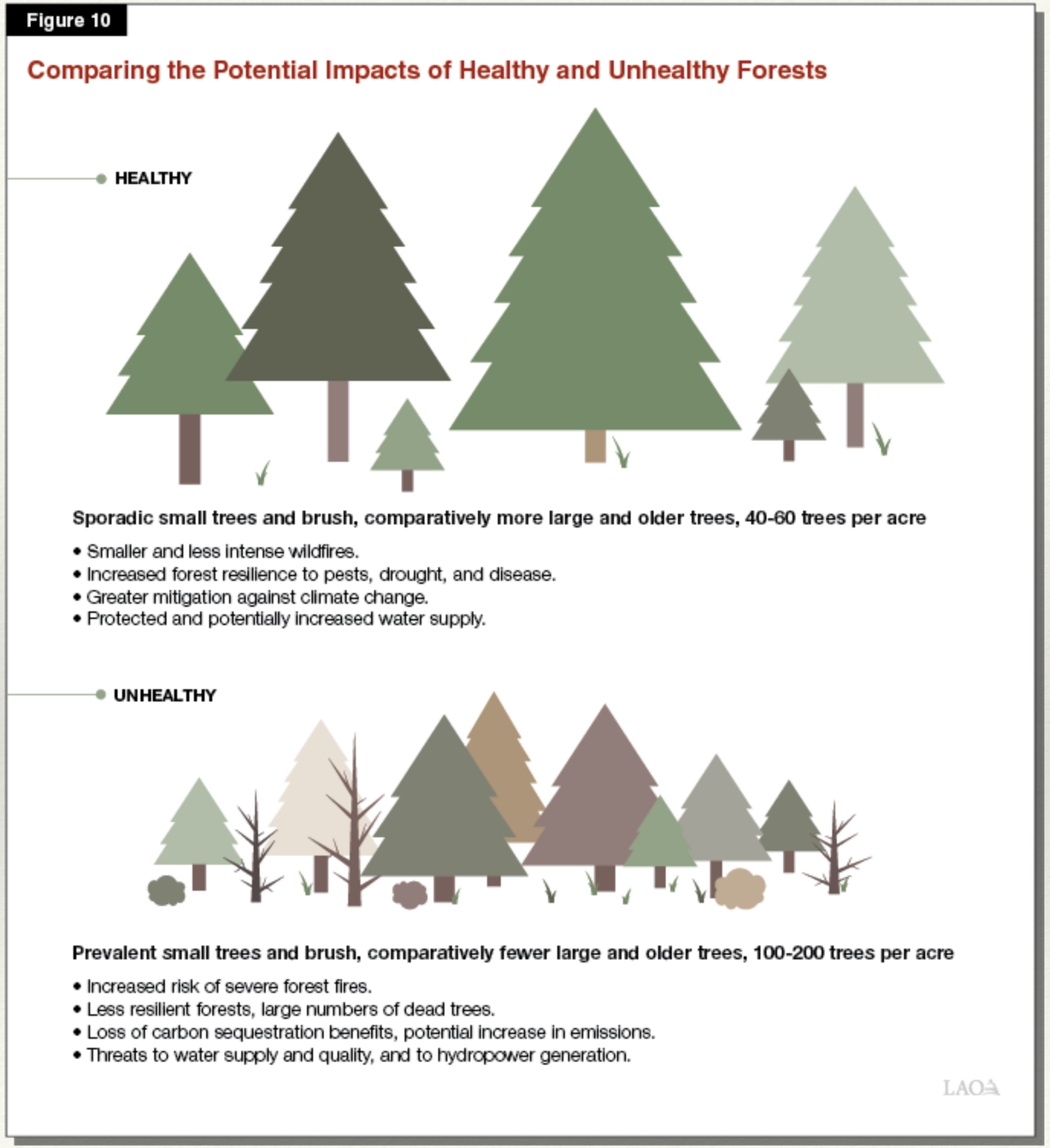


[1] Analysis by USDA Forest Service, Brigham Young University, Eglin Air Force Base, and the Bureau of Land Management

Undeveloped Land Regulations

Figure 10

Comparing the Potential Impacts of Healthy and Unhealthy Forests



Source:
California Legislative Analysis Office

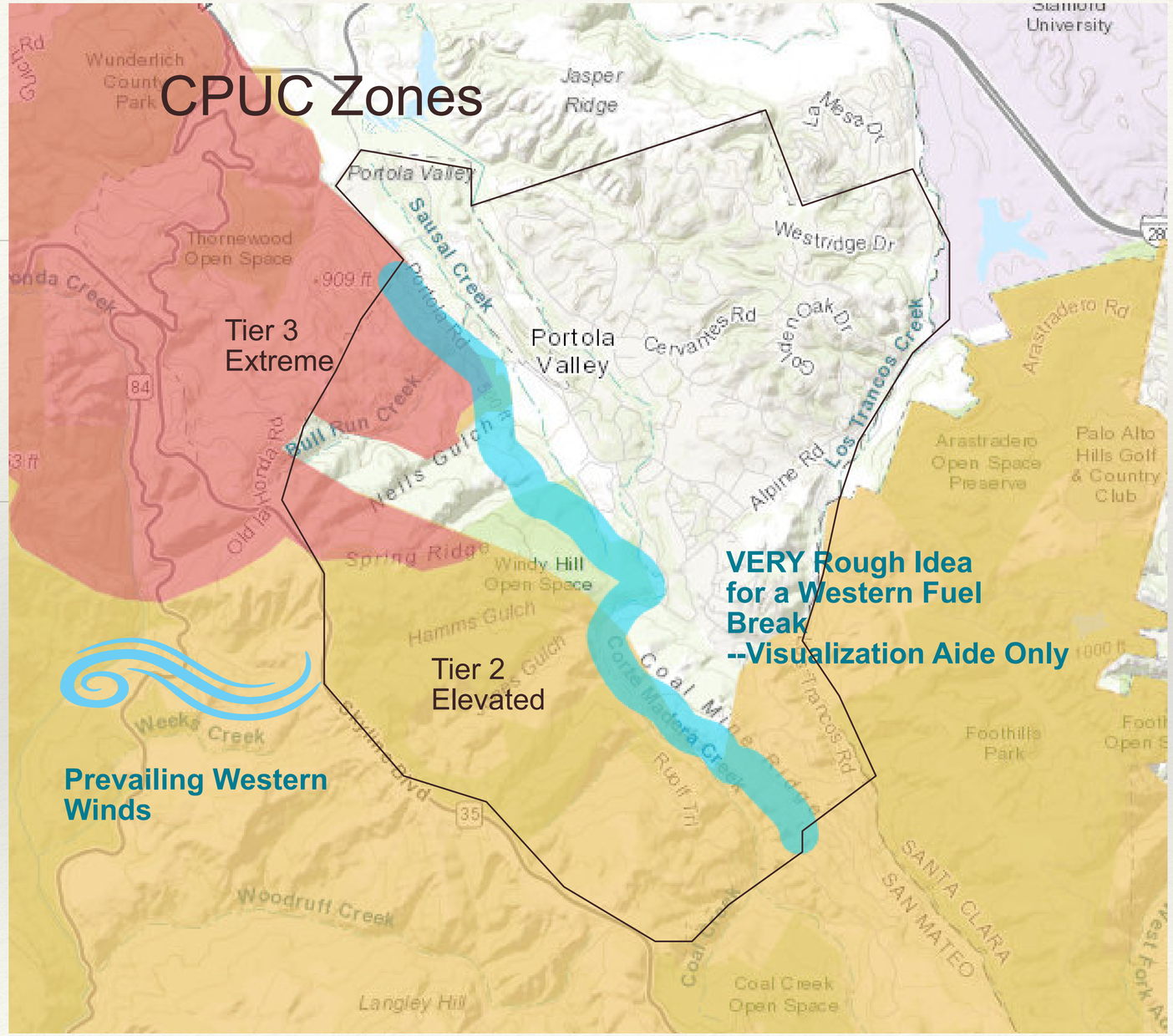
Unhealthy Forests Contribute to Climate Change!

Forest Density

- Native Americans managed the land in California with regular burning and allowing lightning fires to burn
- In the last 100 years, California has allowed parks and open space to grow unfettered
- During the 20th century, we struggled to suppress all fires
- We now have forests with 50% decline in large trees[1]
- They are primed and ready to burn
- Climate change just exacerbates this problem

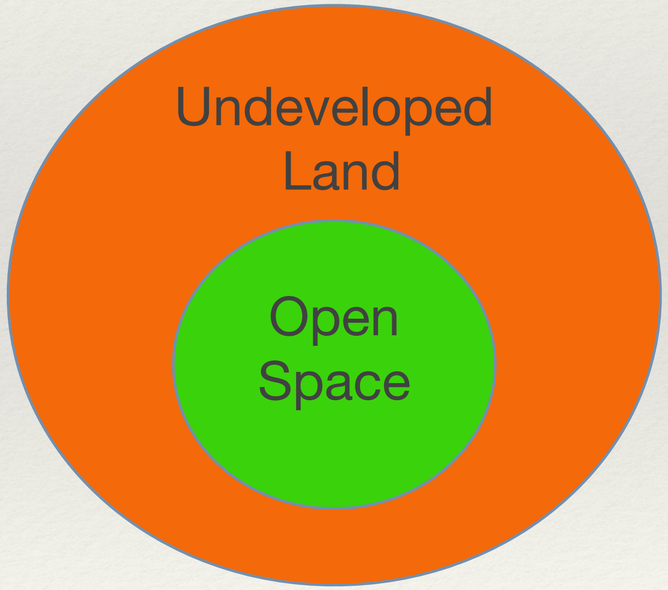
1. Patrick J. McIntyre, James H. Thorne, Christopher R. Dolanc, Alan L. Flint, Lorraine E. Flint, Maggi Kelly, and David D. Ackerly PNAS February 3, 2015 112

Local Topography



Undeveloped Land Regulations

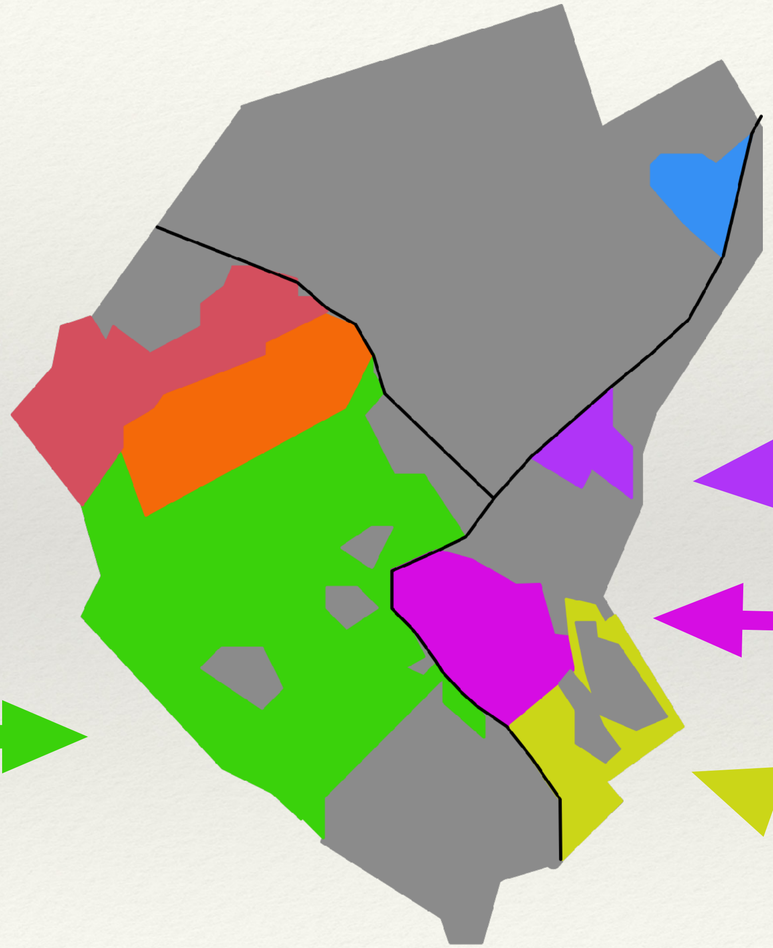
- Any undeveloped property in town larger than 50 acres is required to develop a vegetation management plan
- WFPD will approve the plan
- WFPD will do annual inspections



Mostly Undeveloped Land Definition

- Land with zero or few structures per acre
  approximately less than 1 structure per 10 acres
- Public or private land
- Open or closed to the public
- Parks and open space preserves
- Wildland, vacant land, previously used land
- Some agricultural lands: farms, wineries, quarries, rangelands etc..
- Rural sporting facilities: shooting ranges, group camps, equestrian centers etc..

Undeveloped Land > 50 Acres



El Mirador
356 acres

Stanford's
Wedge
75 acres

Neely Properties
229 acres

Mid Peninsula's
Hawthorns
78 acres

The Ranch's
Coal Mine Ridge
235 acres

Mid Peninsula's
Windy Hill
1335 acres

Blue Oaks
Coal Mine Ridge
227 acres

44% of all land in town

Vegetation Management Plan

- Map components
  - Locations of different kinds of vegetation from the almost completed San Mateo County vegetation map and free LANDFIRE database
  - Roads and firebreaks
- Initial and annual treatments of vegetation
- Removal of all Eucalyptus
- Fuelbreaks of 200-300’ near homes

Shaded Fuelbreak

Why are Fuel Breaks so Important?

"Increased firefighter access and production rates – Both aerial and ground-based firefighters have improved fireline construction rates in the lighter fuels associated with fuel breaks. Hand crew fireline construction rates can increase up to six times when working in grass dominated fuels rather than in chaparral. Dozers have similar increases in production rates and air tankers can reduce coverage levels in lighter fuels; allowing their retardant to be effectively spread over a greater distance during a single drop"

— Strategic Fuel Break Assessment on the Los Padres National Forest, US Forest Service

Fire is contained much faster

Existing and Potential Treatments
Windy Hill

Existing Treatments
- Defensible Space 30-foot
- Defensible Space 100-foot
- Fuelbreak 200-foot
- Non-Shaded Fuelbreak
- Shaded Fuelbreak
- Discline

Potential Fuels Treatments
- Fuelbreak 200-foot
- Fuelbreak 300-foot
- Non-Shaded Fuelbreak
- Shaded Fuelbreak
- Potential FRAs for Ecosystem Resilience
- Discline
- Wildland Type 1 Ingress/Egress

Critical Infrastructure
- Primary Evacuation Route
- Secondary Evacuation Route
- Structure Type 1 (Tender)
- Road or Trail
- Fire Station
- Water Tank

Target Hazards
- Assisted Living Facility
- School/Day Care

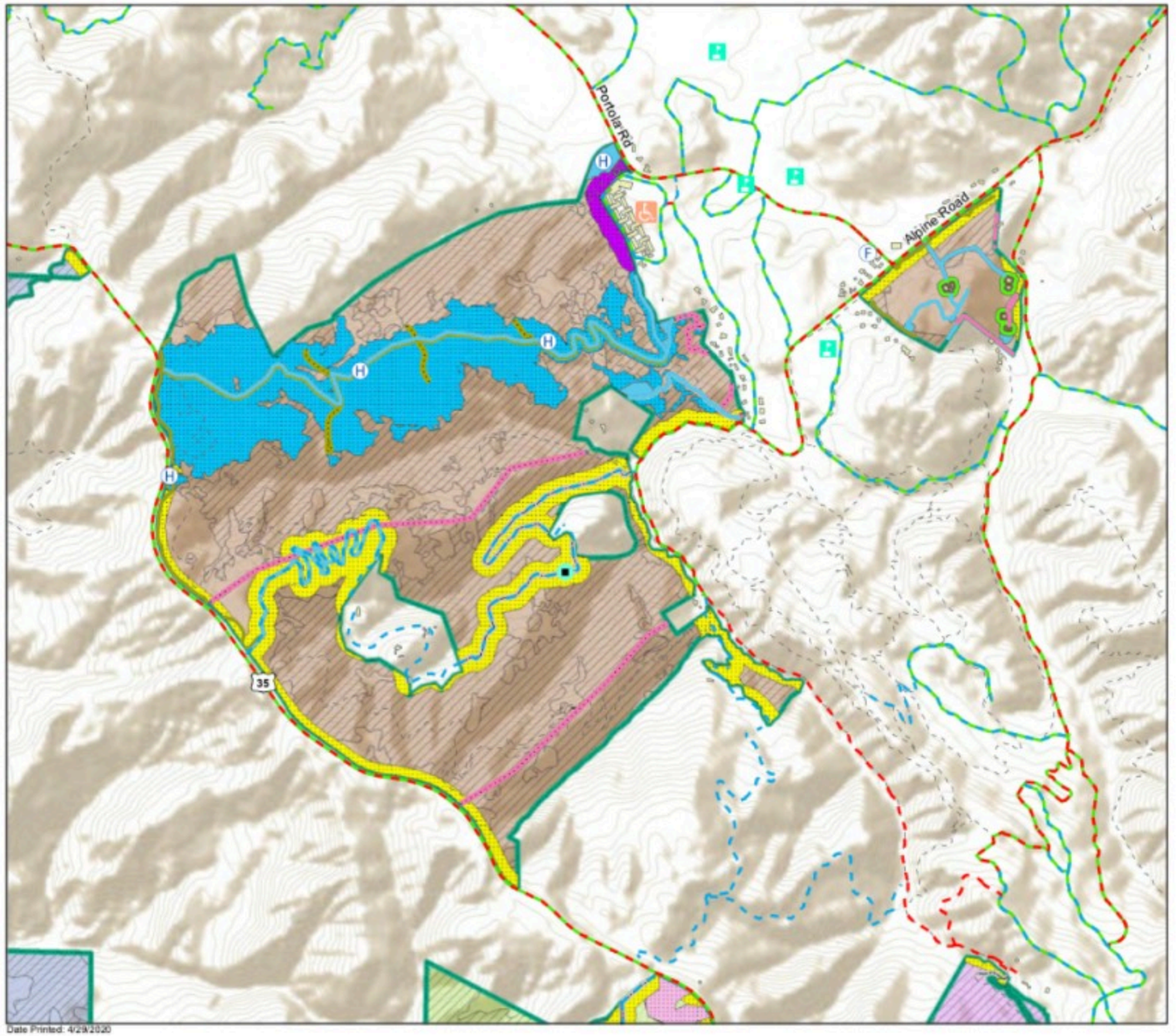
Fire Management Logistics
- Helispot

OSP & Managed Properties
- Boundary
- Coal Creek
- La Honda Creek
- Russian Ridge
- Windy Hill

DRAFT

* See Table of Contents page for additional symbology.
** Fuel break widths are maximums. Fuelbreaks may be constructed at any width up to the maximum width.

0 0.25 0.5 Miles



Not Approved by WFPD

Mid Pen Responsibility

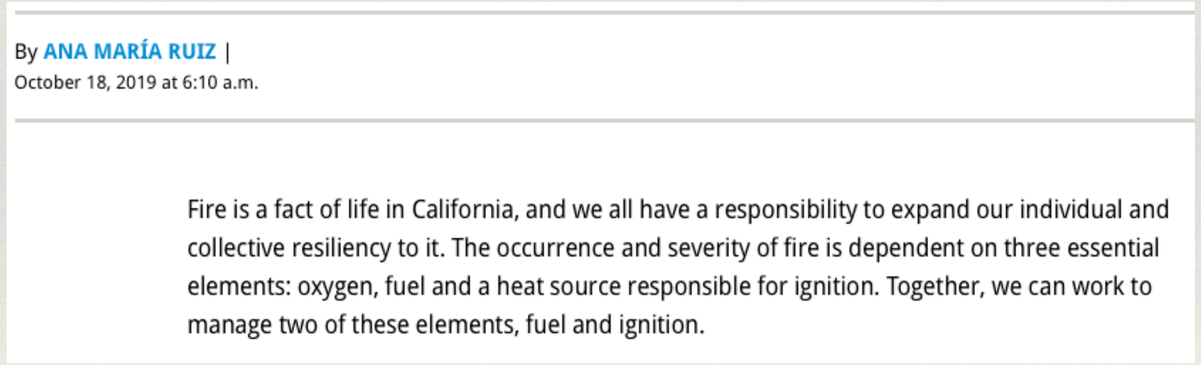
BALLOT LANGUAGE, AS APPROVED BY THE VOTERS

To improve access to hiking and biking opportunities, protect and preserve redwood forests, natural open spaces, the scenic beauty of our region and coastline, critical wildlife habitat, restore creeks to protect water quality, and reduce forest fire risk; shall Midpeninsula Regional Open Space District be authorized to issue up to $300 million in bonds, at a tax rate not to exceed $3.18 per $100,000 of assessed value of property owned, with expenditures verified by an independent citizen oversight committee.

Only 3 out of 25 current projects even mention fire

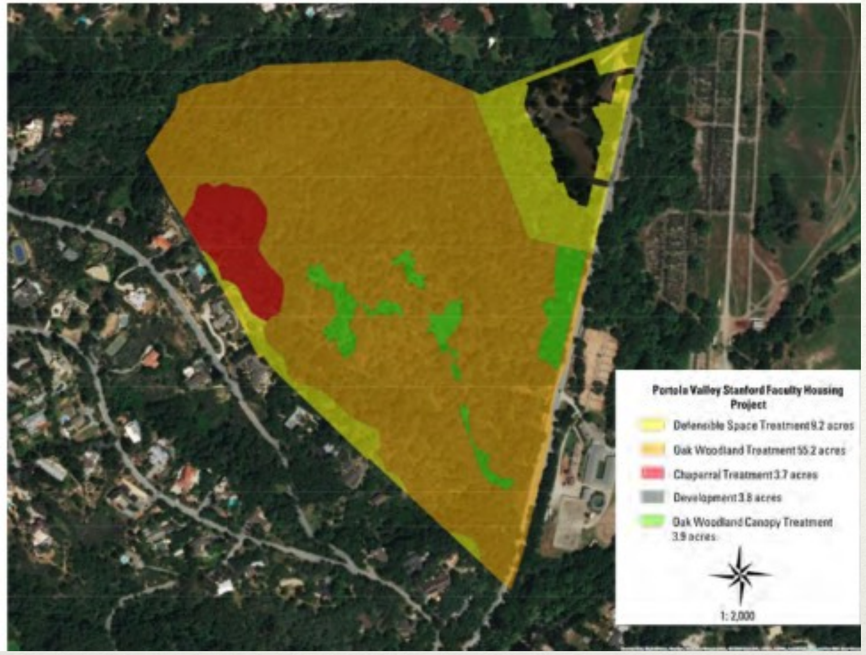
Joshua Hugg, Governmental Affairs,
Mid Peninsula Regional Open Space District via Twitter

Ana María Ruiz, General Manager
Mid Peninsula Regional Open Space District via San Jose Mercury News



Yoriko Kishimoto, Board of Directors,
Mid Peninsula Open Space District via Facebook

Figure 4 **Vegetation Treatment Areas by Cover Type**

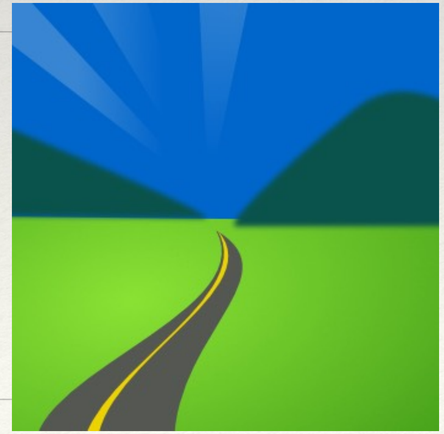


Oak Woodland - Cover	1. Reduce fuel volumes and maintain fuel volumes consistent with low severity fire 2. Reduce volume of flammable fuels and cultivate plants on the landscape that are generally native and fire-resistant 3. Establish and maintain fuel discontinuity 4. Reduce the possibility of fire traveling through tree crown; maintain that separation 5. Maintain healthy, dominant, natural, fire-resistant vegetation cover that is consistent with historical densities in an intact fire regime 6. Maintain active dusky-footed woodrat (*Neotoma fuscipes*) nest sites	**Initial Treatment:** Manual cutting and removal with some mastication and steep slope mastication with manual support **On-Going Maintenance:** Grazing with manual support
Oak Woodland - Canopy	1. Maintain fuel volumes consistent with low severity fire 2. Maintain fuel discontinuity 3. Reduce the possibility of fire traveling through tree crown; maintain that separation 4. Maintain healthy, dominant, natural, fire-resistant vegetation cover that is consistent with historical densities in an intact fire regime 5. Maintain active dusky-footed woodrat (*Neotoma fuscipes*) nest sites	**Initial Treatment:** Manual cutting and removal with some mastication and steep slope mastication with manual support **On-Going Maintenance:** Grazing with manual support
Chaparral Cover	1. Maintain fuel volumes consistent with low severity fire 2. Maintain fuel discontinuity 3. Reduce the possibility of fire traveling through tree crown; maintain that separation 4. Maintain healthy, dominant, natural, fire-resistant vegetation cover that is consistent with historical densities in an intact fire regime 5. Maintain active dusky-footed woodrat (*Neotoma fuscipes*) nest sites	**Initial Treatment:** Manual cutting and removal **On-Going Maintenance:** Grazing with manual cutting

Overhanging Pine in Right of Way

Shaded Fuel Break on Upper Alpine

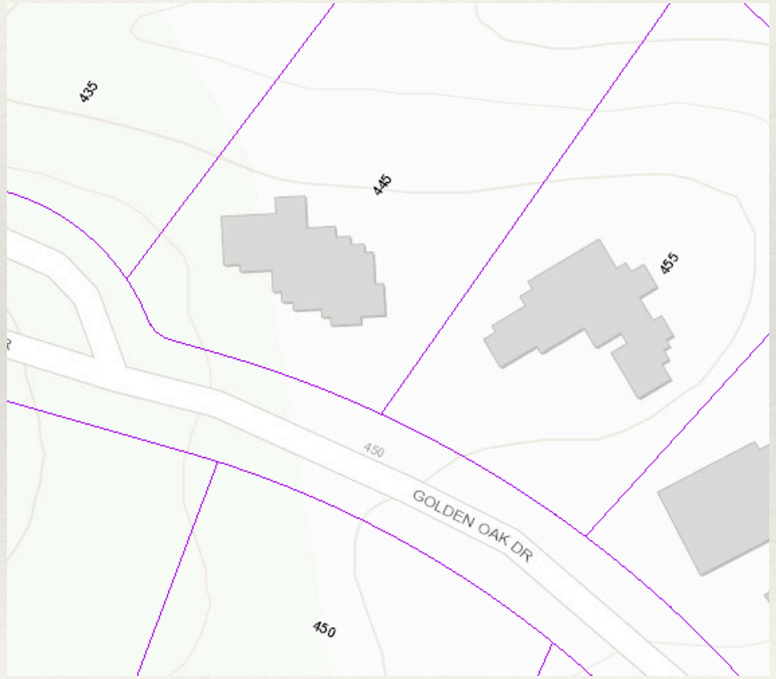
Right of Way Cleanup



Public Right of Way

- In most of the town, the public right away is 10’ on either side of the paved street
- The town owns this land
- You cannot plant on this land without town permission
- The town is required to maintain the right of way
- Records can be obtained online from the San Mateo County property Maps
- https://www.smcacre.org/assessor-maps-0
- Contact the town for further detail

Property Maps Portal
San Mateo County



Right of Way Tree Inventory

- Limbs or trees that can fall on power lines
- Dead trees in right of way
- Pine, acacia or eucalyptus that could block an evacuation

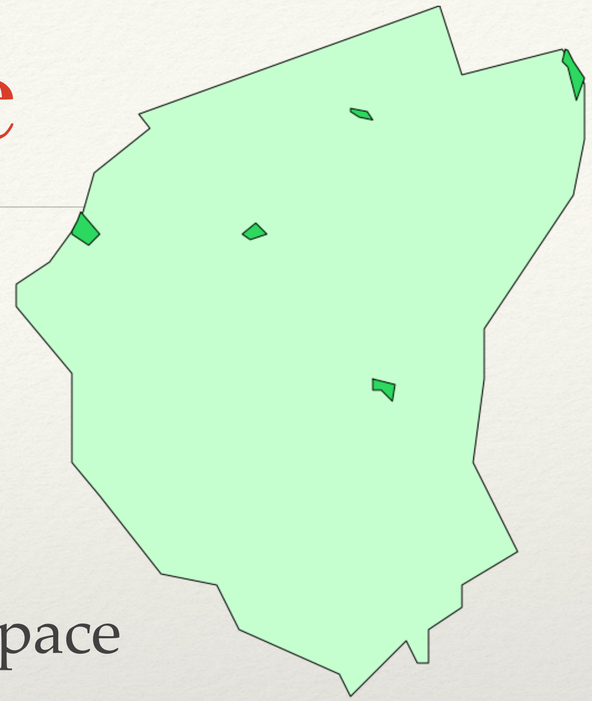
Street	Address	Tree Type	Qty	Size	Priority		
Westridge							
Sample	851	Pine	2	Med	2		small - under 36”
Sample	823	Pine	2	Med	2		medium - 36- 75”
Sample	815	Pine	1	Med	2		large > 75”
Sample	445	Euc	3	Med	1		Priority
Woodside Highlands							1 - wrapped up in power lines,
							leaning toward power line,
PV Ranch							or dead or dying tree
Sequoias							2 - pine, acacia and eucalyptus
Brookside							close to roadway that if ignited
							would block roadway
Blue Oaks							All Eucalyptus
							3 - A tree that when grown will
Alpine Hills							interfere with power lines
	Total trees		**8**				
	Priority 1 trees		**3**				
	Priority 2 trees		**5**				
	Priority 3 trees		**0**				

Town Cleanup Cost

	Count	Cost Estimate	Total	
Underbrush	33 miles	5000	165000	cost per mile of road
Trees				
Small - 36” or less	22	1500	33000	$1,000 - 2,000
Medium - 36” to 72”	31	3500	108500	$3,000 - 4,000
Large - greater than 72”	18	7500	135000	$5,000 - 10,000
Underbrush Cleanup in Town Open Space		17000	17000	
Total Initial Cost			458500	

Annual Right of Way Maintenance			?
Annual Open Space Maintenance			?

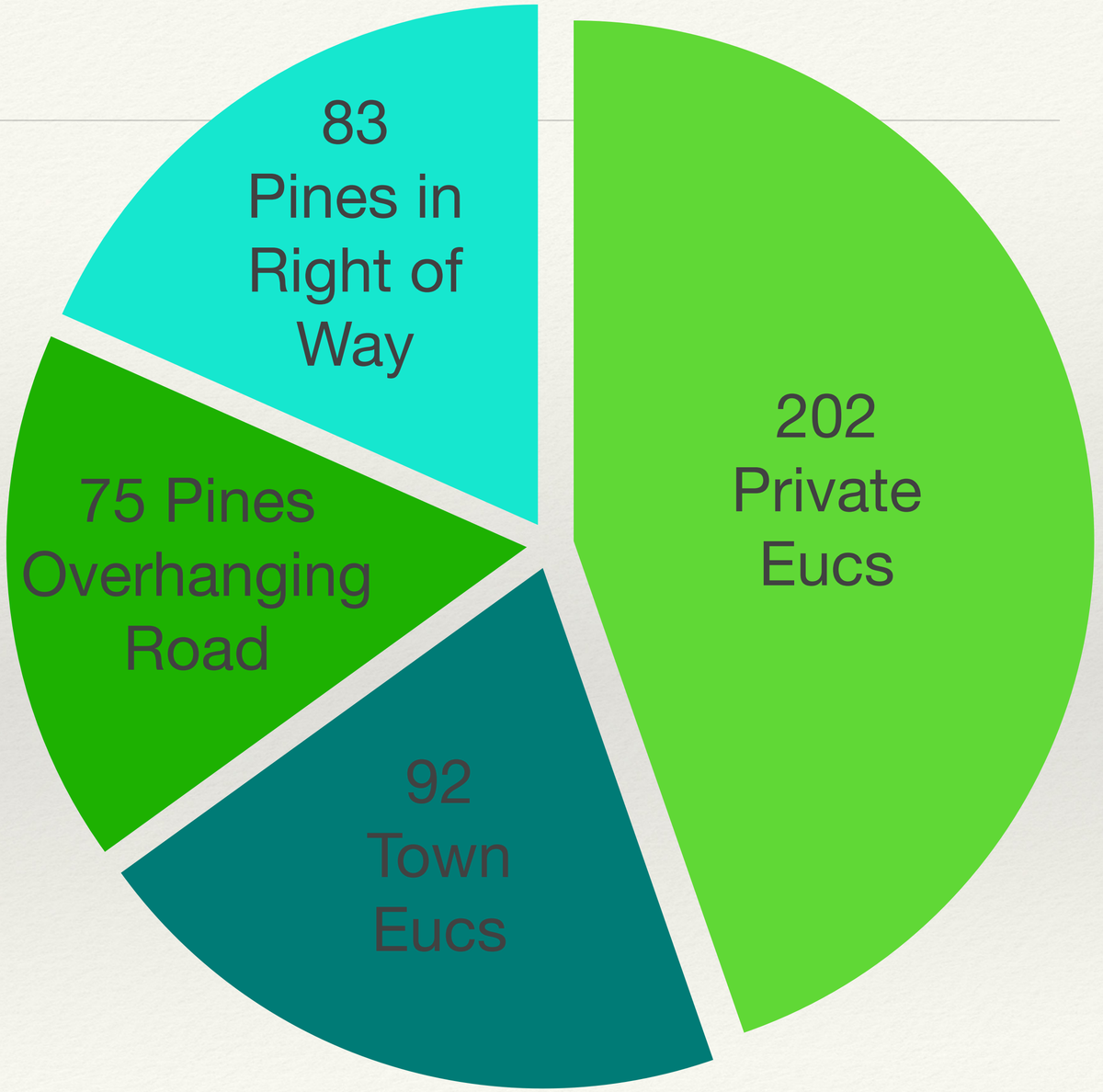
Town Owned Open Space



- The town owns small parcels distributed throughout town
- Land acquisitions are funded through a utility tax
- Private donations have been solicited ‘for acquisition’
- The Town Attorney indicated that PV can legally access Open Space Funds for Maintenance
- The Open Space Committee is not comfortable using the existing funds for maintenance as per 2017 Open Space Guidelines
- The Open Space Committee, the Wildfire Committee and WFPD will be jointly reviewing and estimating any one time cleanup costs

Tree Survey Results

- Only 2 small dead trees, 1 dying tree and 1 leaning tree
- 1 Redwood with branches over power lines 828 Portola
- Eucalyptus are distributed throughout town with 2/3 on private lands
- Pines (Monterey and Italian Stone) are very common along the roadways.
- < 10 large Juniper hedges on right of way
- No large amount of Acacia melanoxylon (Black Acacia) except in isolated areas but does need some analysis
- Cypress (Italian) throughout town but typically used for privacy hedges

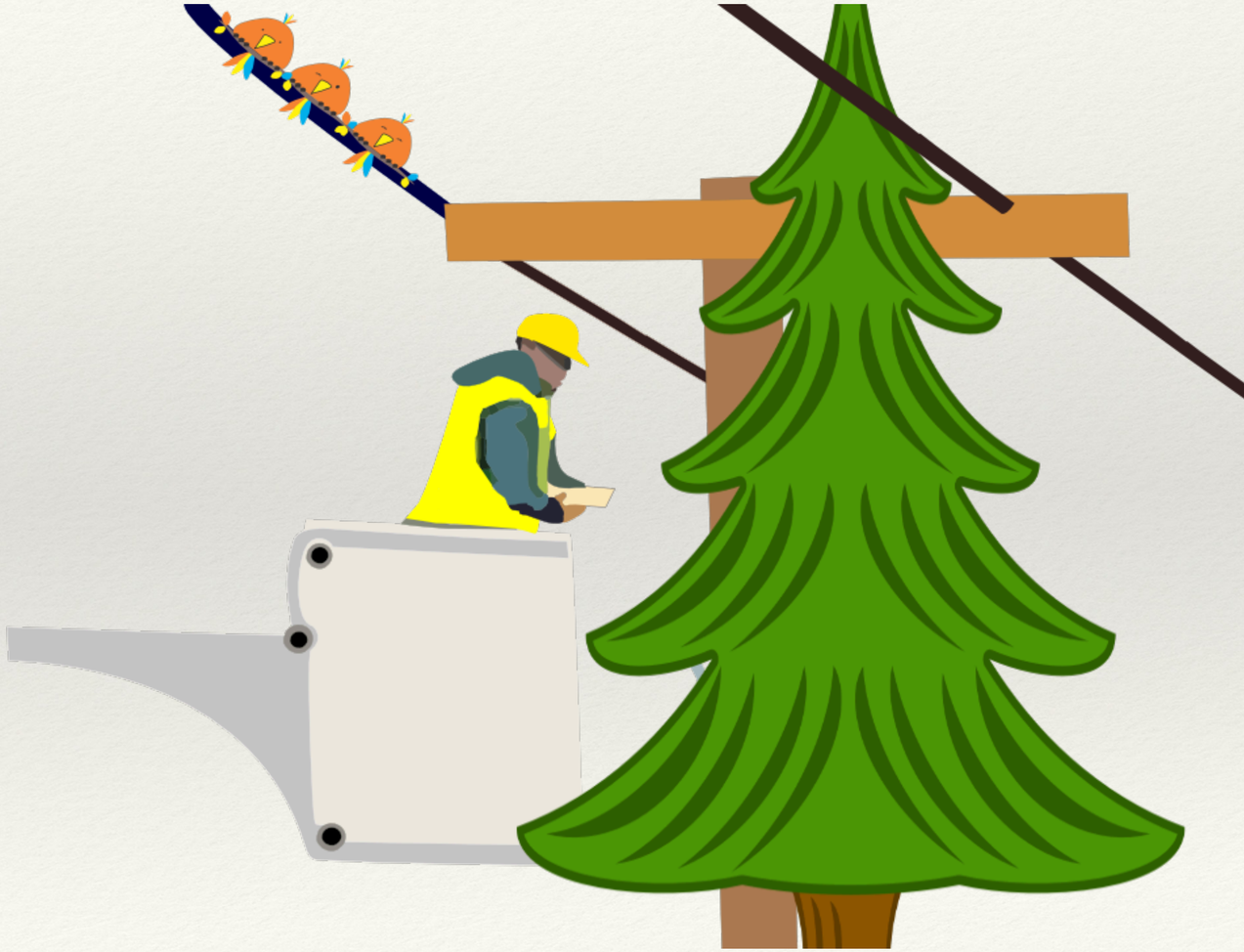


Financing Town Cleanup

- Clean up of town owned open space using Open Space fund
- Woodside Portola Valley Fire Protection Foundation non-profit
- We will set up a special “Portola Valley Cleanup” campaign
- 70% or more of all money raised will be used on town owned property
  - Prioritize Eucalyptus first, then overhanging pines, then pines in right of way
  - Removal of brush in right of way
- Up to 20% can be used for low income grants
- **10% matching for all eucalyptus removal**
- WFPD prioritizes how money is spent on case by case basis

PG&E Assistance

- For trees interfering with the power lines, PG&E has agreed to help with the work!
- Bill Chiang, Senior Public Affairs Representative at Pacific Gas And Electric, “We will put the tree on the ground for you”
- The town will be responsible for the disposal of the wood.



Portola Valley Cleanup Campaign

Goal - $1,000,000 Fund Raising

Each Phase
$250K

Awaiting Howard estimate

$710K FULL cost estimate private Eucalyptus

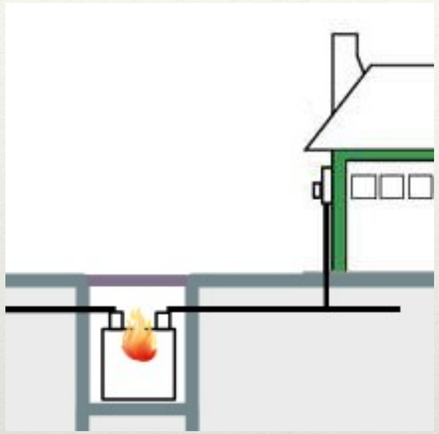
$233K cost estimate (including PG&E assistance)

$220K cost estimate

Low Income Grant

- Low income grants will be made for qualifying residents who make less than $50,000 per year
- Three years of prior tax returns will be required
- 10 year Portola Valley residency requirement
- Applicable ONLY for
  - Removal of Eucalyptus tree
  - Initial clearing of steep slope
  - Replacement of wood shake roof

Post CZU Wildfire Recommendations



WFPD Underground Transformer Ordinance

WFPD Ban the Flammable Five

Market the Flammable Five

WFPD Slope Ordinance

WFPD Undeveloped Land Ordinance

Town Owned Roadway & Property Cleanup

WFPD Foundation Hazard Cleanup