

Appendix A: Risk Assessment Data



This Community Wildfire Protection Plan (CWPP) was developed by the Springs Fire Safe Council with guidance and support from Fire Safe Sonoma, the County of Sonoma, and the California Department of Forestry and Fire Protection. This CWPP supplements the Sonoma County Community Wildfire Protection Plan.

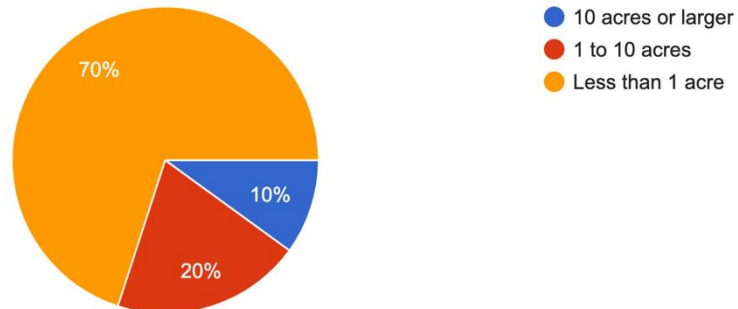
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COMMUNITY SURVEY RESULTS

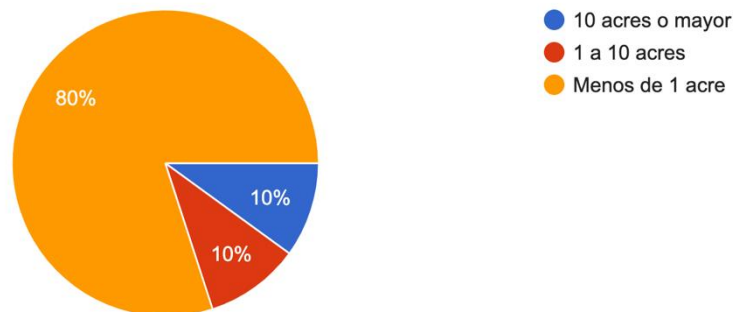
What is your lot size?

30 responses



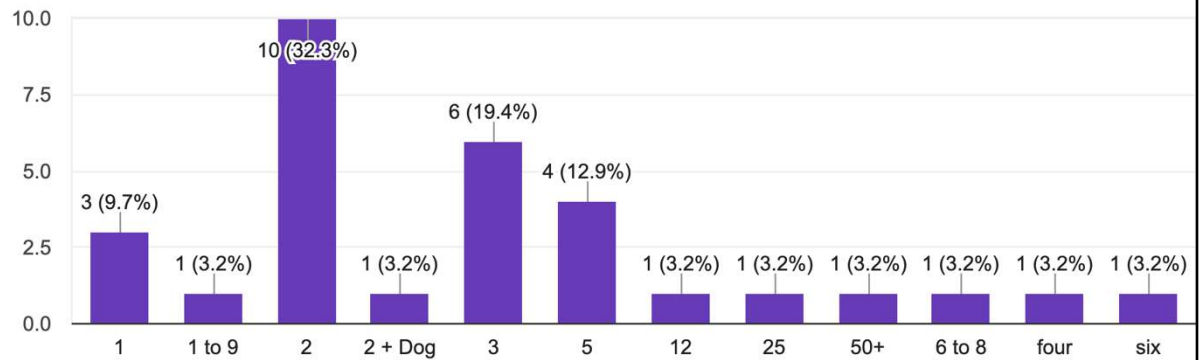
¿Cuál es el tamaño de su lote?

10 responses



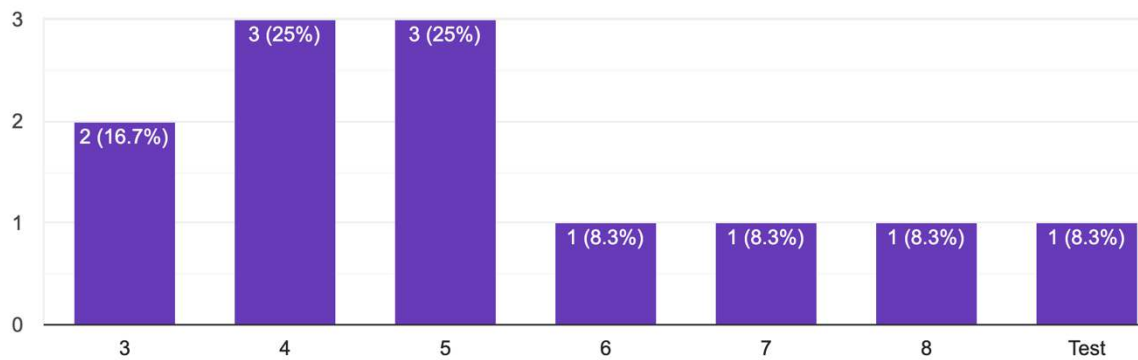
During an evacuation, how many people will need to leave your property?

31 responses



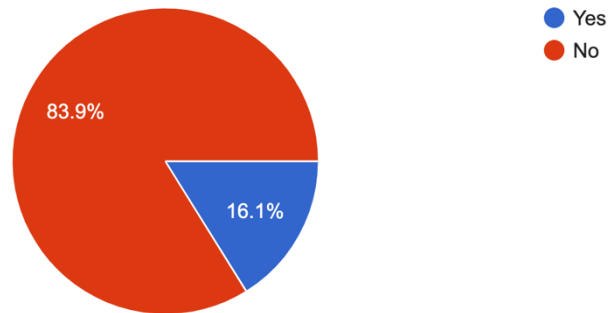
Durante una evacuación, ¿cuántas personas necesitarían ser evacuados?

12 responses



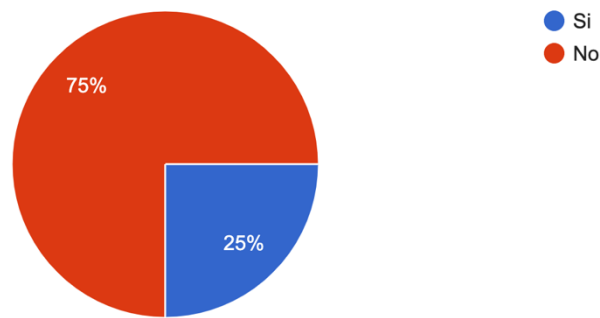
Are there disabled or elderly people on your property who will need assistance during a community emergency (including those registered with PG&E as Medical Baseline Customers)?

31 responses



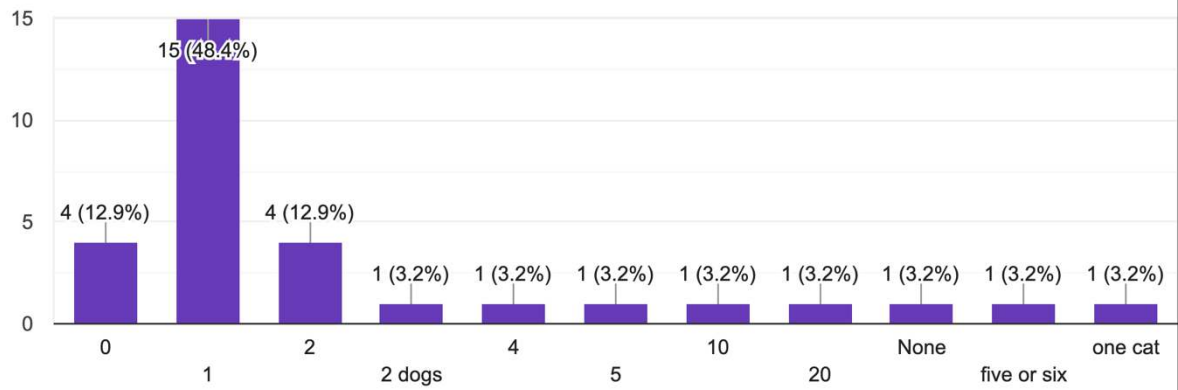
¿Hay gente incapacitada o de la tercera edad en su propiedad que necesite asistencia durante una emergencia comunitaria (incluyendo personas que ...án registradas con el programa médico de PG&E)?

12 responses



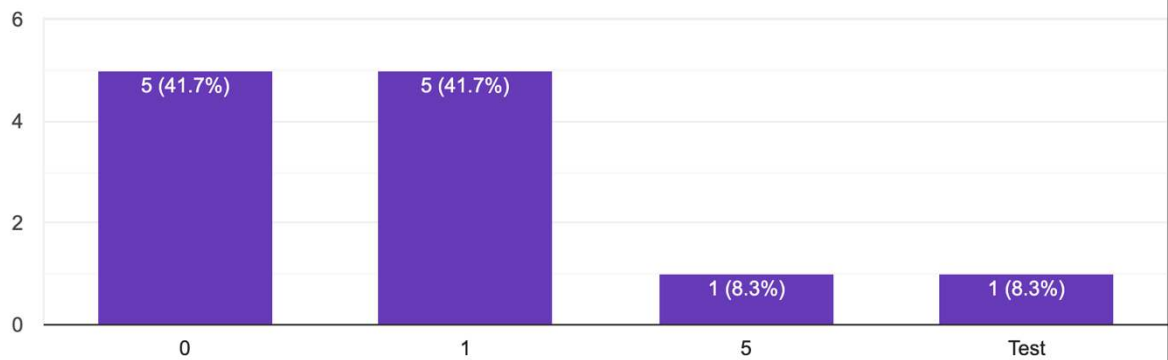
During an evacuation, how many pets (less than 100 pounds) will need to leave your property?

31 responses



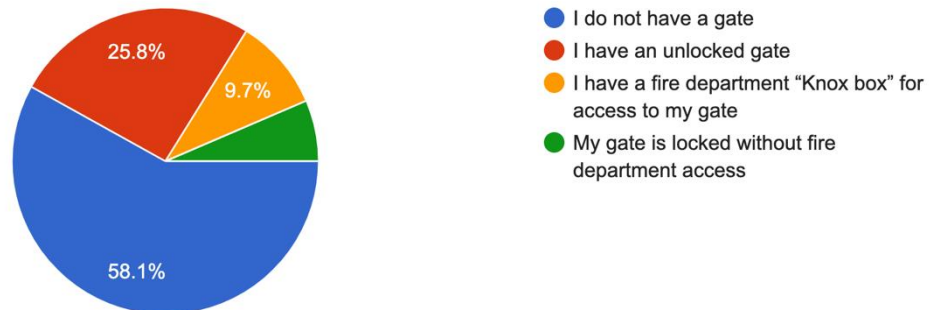
Durante una evacuación, ¿cuántas mascotas (menos de 100 libras) necesitarían ser evacuados?

12 responses



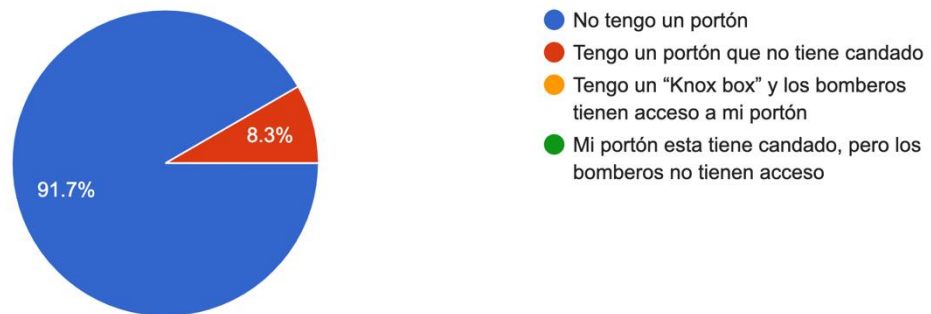
Regarding gates, which applies to your property (check one)?

31 responses



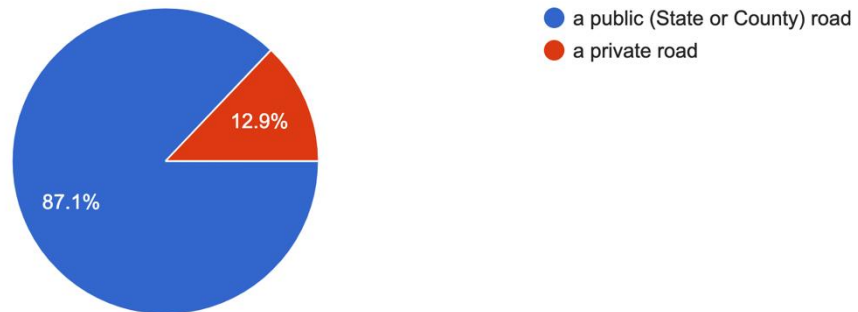
Referente a portones, ¿cuáles de estos aplica a su propiedad?

12 responses



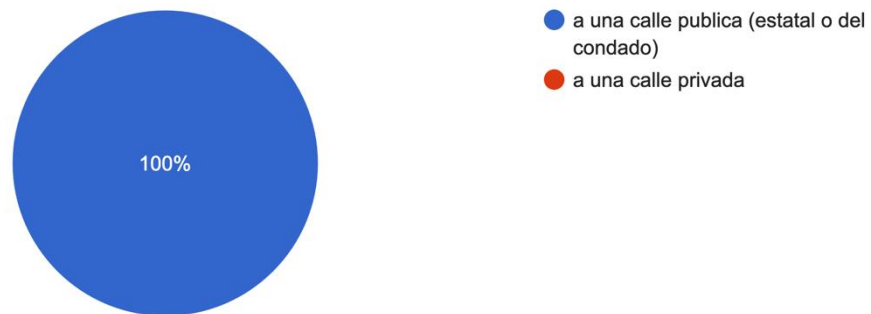
My driveway connects to (check one):

31 responses



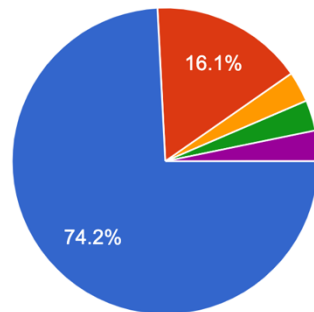
Mi entrada se conecta

12 responses



The road I live on...

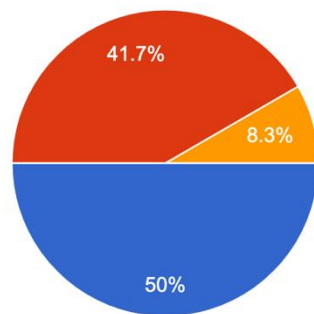
31 responses



- has two or more ways out in case of an emergency
- is a dead-end road longer than 500 feet (if less than 500 feet and you can provide an estimated length please se...
- Two ways but one is gated and the other you access by driving up further into the hills on a forested dirt road.
- Only one way out
- cul-de-sac approx 500 feet?

La calle por donde vivo...

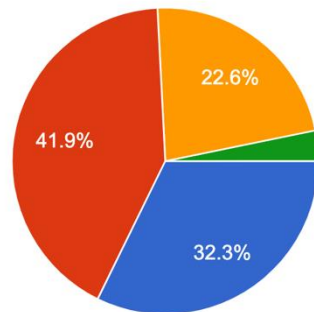
12 responses



- Tiene dos o más salidas en caso de emergencia
- Mi calle solo tiene una salida no más larga que 500 pies (si es menos de 500 pies y puede proveer un estimado, seleccione "otro" y ponga su estimado)
- Otro

If a motorhome and fire engine were traveling on my road in opposite directions (pick one):

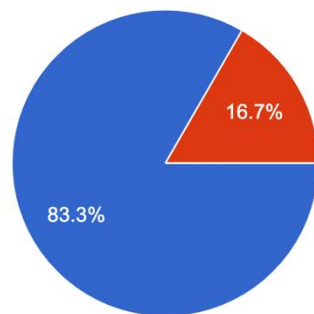
31 responses



- the motorhome and fire engine can easily pass
- the motorhome and fire engine will have difficulty passing
- the motorhome and fire engine could not pass
- the motor home and fire engine could not pass

Si una casa rodante y un camión de bomberos se encuentran en mi calle en dirección contraria

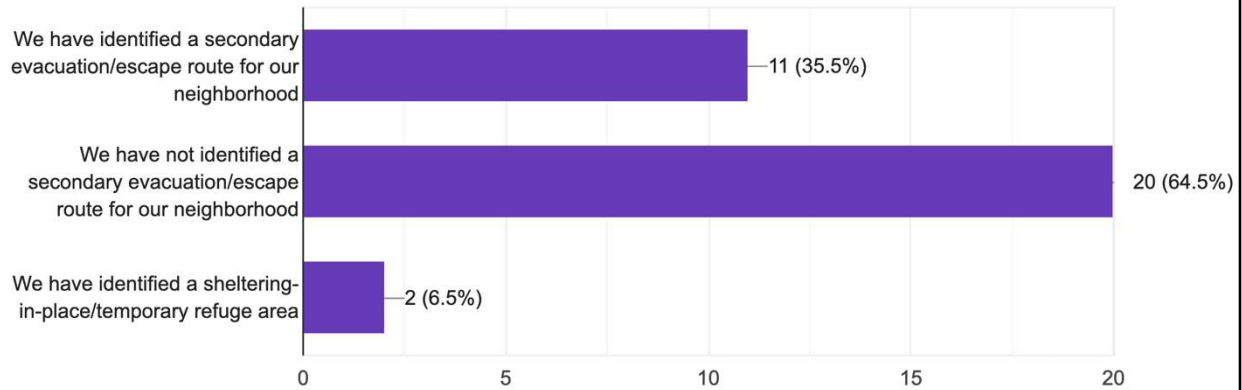
12 responses



- La casa rodante y el camión de bomberos pueden pasarse fácilmente
- La casa rodante y el camión de bomberos tendrían dificultad pasándose
- La casa rodante y el camión de bomberos no podrían pasarse

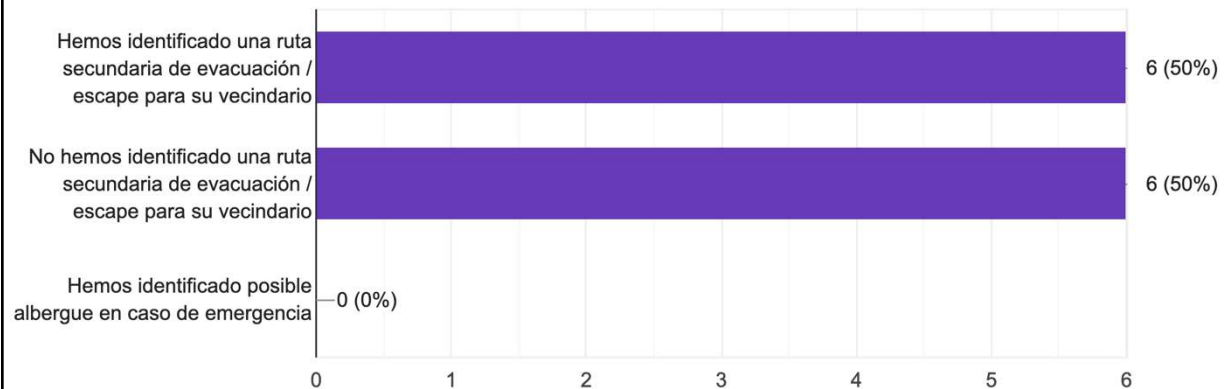
With regard to the neighbors who share your road, please select one or more of the following that best describes your conditions.

31 responses



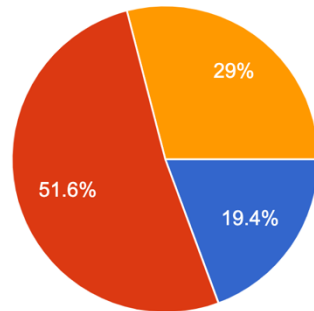
Referente a los vecinos con los que comparte la calle, favor de seleccionar una o más de las siguientes opciones que mejor describe sus condiciones

12 responses



With regard to the VEGETATION along your road, please select the best description from the choices below.

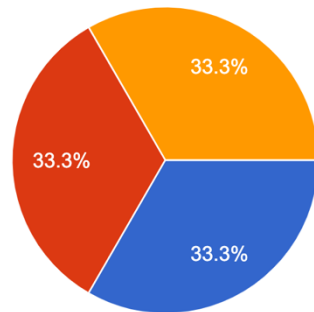
31 responses



- Grasses are mown to less than 4 inches, trees and brush are trimmed to provide 10' of horizontal clearance, and 15' of vertical clearance
- Roadside vegetation is mostly well maintained, but some areas need improvement
- Tall grass, brush and trees border and overhang the roadway

Referente a la VEGETACION por su calle, por favor seleccione la mejor descripción de las siguientes opciones

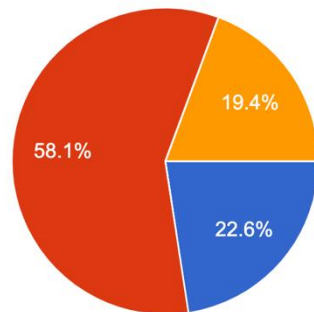
12 responses



- El césped esta menos de 4 pulgadas, los árboles y arbustos están podados y proveen 10 pies de distancia horizontal y 15 pies de distancia vertical.
- La vegetación de a borde de la calle está bajo mantenimiento, pero necesita mejoramiento
- Hay mucha hierba, arbustos y arboles al borde de la calle

Select what is true regarding SIGNAGE for your property and neighborhood:

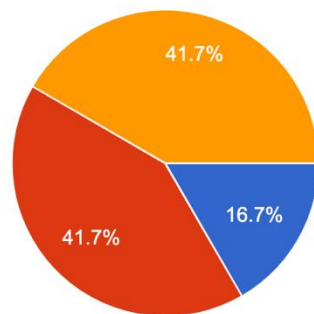
31 responses



- I have a county-approved 4" tall reflective address numbers on a contrasting background.
- There are street name signs at both ends of my street
- None of these apply to me

Selecciones lo que es cierto referente los SEÑALEROS en su propiedad y vecindario:

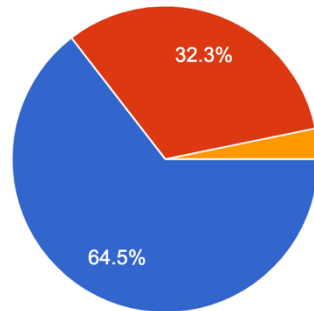
12 responses



- Tengo señaleros reflectantes de 4 pies de altura aprobados por el condado
- Hay señaleros con nombre de calle en ambas direcciones de mi calle
- No me aplica

Pick one of the following that best describes your home's DEFENSIBLE SPACE, meaning that within the stated distance from your home there is not significant fuel.

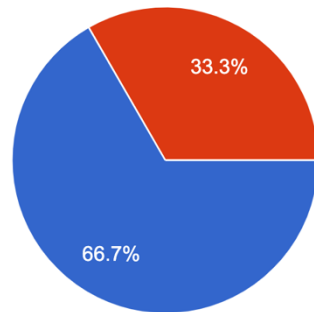
31 responses



- I have adequate defensible space within 5 feet of my home
- I have adequate defensible space within 30 feet of my home
- I have adequate defensible space within 100 feet or more of my home

Seleccione lo que mejor describa el ESPACIO DEFENDIBLE de su hogar, esto significa que hay suficiente distancia entre su hogar y material que pueda incendiarse

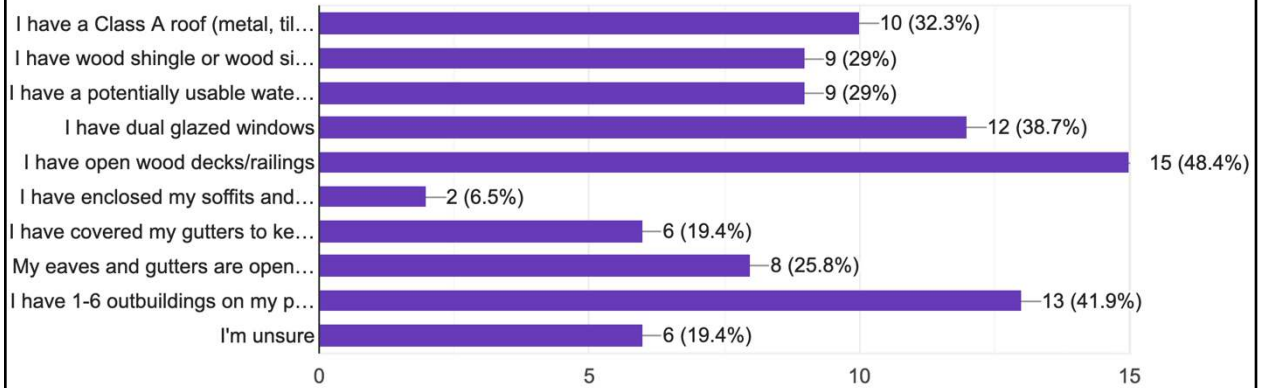
12 responses



- Tengo espacio defendible de 5 pies alrededor de mi casa
- Tengo espacio defendible de 30 pies alrededor de mi casa
- Tengo espacio defendible de 100 pies alrededor de mi casa

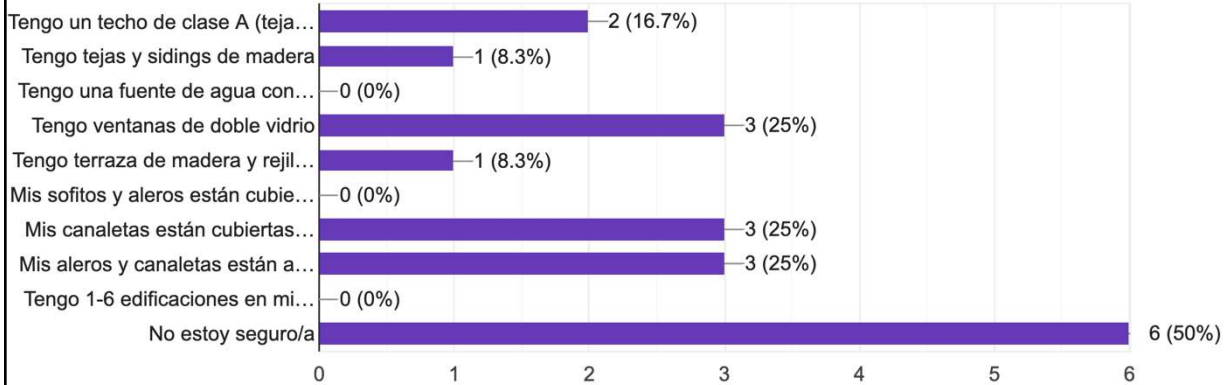
HOME HARDENING is an important part of fire preparation. With regard to your home, select those items that are true:

31 responses



ENDURECIMIENTO DE HOGAR es una parte importante de la preparación ante incendios. Referente a su casa, seleccione lo que aplique

12 responses



SPRINGS OVERALL PLAN AREA RISK ANALYSIS

IGNITION RISK AND HAZARD ASSESSMENT OVERVIEW FOR

FACTORS	RATING
IGNITION RISK ASSESSMENT	
CONTRIBUTING RISK FACTORS	
History of Lightning	Low
Camping Activities	High
High Level of visitors/activities	High
Understory receptive to ignition	High
Thick brush and trees	High
Unmaintained Powerline Corridors	No
High fuel loads	High
High Winds	High
History of fire ignitions	High
Vulnerable Population (Economic/Age)	High
Add other risk factor	Choose
Add other risk factor	Choose
Add other risk factor	Choose

Final Scores

Summary Rating¹

Summary Rating / Score

90

Hazard Category	Score
Low Hazard	< 41
Moderate Hazard	41-60
High Hazard	61-75
Very High Hazard	76+

¹ Summary rating for Ignition Risk Assessment is a judgment call determined by planning committee.

FACTORS	RATING	
HAZARD ASSESSMENT		
ACCESS		
Ingress/Egress		
Width of Primary Road	Adequate	1
Passibility	Inadequate	5
Secondary Road Terminus	Inadequate	5
Primary Slope	Adequate	1
Street Signs	Adequate	1
Address Signage	Inadequate	5
Roadside Vegetation	Inadequate	5
Narrow Secondary	Inadequate	5
Secondary Paved	Adequate	1
Secondary Road Slope	Moderate	3
Unrated Bridges	Adequate	1
Wooden Bridges	Adequate	0
Gates	Moderate	3
BUILT ENVIRONMENT		
2007 Standards	Inadequate	5
Roofing Materials	Inadequate	10
Siding Materials	Inadequate	3
Unenclosed Features	Inadequate	5
UTILITIES		
Utility Ignition Risk	Moderate	3
Lot Size	Inadequate	5
Defensible Space	Inadequate	5
FIRE PROTECTION		
Water Source	Adequate	1
Fire Protection	Adequate	1
FIRE BEHAVIOR		
Fire Hazard Safety Zone	High	5
Slope	Slight	4
Aspect	Very High	7
Fuels	High	3
Fire Behavior	High	7

Use this chart to consider which projects might be tackled, and how. Some Green colored risks could potentially be tackled by neighborhood groups for little or no cost. The risks in the yellow category may need considerable planning and perhaps funding, but are modifiable. The Orange risks are physical features or infrastructure that are not easily modified. Risks in this area will be better modified by education and planning.

Risks that can probably be modified	Mitigation Strategies Include:	
Access		
Gates	Evacuation Planning, install "Knox Keys"	Moderate
Roadside vegetation	Fuels Management, education, funding	Inadequate
Signage		
Street	Education, outreach, funding	Adequate
House	Education, outreach, funding	Inadequate
Home Hardening/Construction		
Roofing	Education, outreach, retrofit, funding	Inadequate
Siding	Education, outreach, retrofit, funding	Inadequate
Unenclosed Features	Education, outreach, retrofit, funding	Inadequate
Defensible Space		
Defensible Space	Education, outreach, funding, inspections	Inadequate
Risks that possibly can be modified	Mitigation Strategies Include:	
Access: Bridges		
Unrated Bridges	Evacuation Planning, modification	Adequate
Wood Bridges	Evacuation Planning, modification	Adequate
Water and Fuels		
Water Sources	Develop further sources.	Adequate
Fire Behavior (strategic fuel breaks)	Planning, funding, education, outreach	High
Fuels Density (fuels modification)	Planning, funding, education, outreach	High
Risks that cannot likely be modified	Mitigation Strategies Include:	
ACCESS		
Primary Roads out	Evacuation Planning	
Primary Road width	Evacuation Planning	Adequate
Primary Road Slope	Evacuation Planning	Adequate
Secondary width	Evacuation Planning	Inadequate
Secondary Terminus	Evacuation Planning	Inadequate
Secondary Slope	Evacuation Planning	Moderate
Secondary Surface	Evacuation Planning	Adequate
Utilities		
Underground	Education, outreach, report issues	Moderate
Fire Behavior		
Fire Hazard Severity Zones	Education, outreach, planning	High
Slope	Education, outreach, planning	Slight
Predominant Aspect	Education, outreach, planning	Very High

Appendix B: Priority Projects

GENERAL RECOMMENDATIONS

The partnership that exists between the listed organizations and citizens in this CWPP will help the community of the Springs to reduce hazardous vegetative fuels that could ignite residences and commercial facilities during a wildfire, reduce the risk of structural ignition, supply evacuation planning, and improve wildfire preparedness through education and outreach in all these areas.

The actions recommended below to reduce the risk from wildfire in the Plan Area are based on the findings from the risk analysis observations and results from the community survey. Each project is rated whether it is High (H), Medium (M), and Low (L) priority. Additionally, the proposed year is included on the left-hand column as well, (i.e., one year out, two years out, etc.).

Structural Hardening

Projects in this topical area should include structural hardening and retrofit resources for low-income and at-risk populations as well as funding incentives.

PROJECT	COLLABORATORS / FUNDING	PRIORITY	YEAR
Educate about home hardening assistance available for residents east of Highway 12.	SoCo Adapts	L	2
Home retrofit resources for low-income and at-risk populations	SVFD	H	1

Defensible Space/Fuels Reduction

Based on the information gathered, projects in this topical area should include roadside fuel reduction projects, community fuel breaks, information about power lines, and defensible space resources for low-income and at-risk populations as well as funding incentives. Areas that have been identified as immediate concerns are the need for shaded fuel breaks in the Mayacamas Mountains to the east of the Springs community as fires have come into the Springs Plan Area three times in the recent past.

PROJECT	COLLABORATORS/ FUNDING	PRIORITY	YEAR
Acquire funding for CEQA analysis for shaded fuel breaks	Permit Sonoma Hazardous Fuel Program, Kim Batchelder, FEMA funding	H	1
Complete CEQA Analysis	TBD	H	1
Acquire funding for shaded fuel breaks	Permit Sonoma Hazardous Fuel Program, Kim Batchelder, FEMA funding	H	2
Complete shaded fuel breaks	TBD	H	2
Work with Gary Johnson and neighborhood groups like MYN to identify locations for roadside fuel reduction.	Gary Johnson/SVFD, Map Your Neighborhood, Springs MAC, funding already exists	H	1
Educate residents on chipper program.	Gary Johnson/SVFD, Map Your Neighborhood, Springs MAC, funding already exists	H	1

Projects in this area should include acquiring funding for CEQA analysis of the impact of community fuel shaded breaks. Once the CEQA analysis has been completed, funding should be secured to create the shaded fuel breaks.

Education & Outreach

Projects in this topical area should include outreach and education projects focusing on wildfire preparedness and evacuations, what home improvements or modifications can be made to structures to reduce ignitability, and information about defensible space and resilient landscaping.

PROJECT	COLLABORATORS/ FUNDING	PRIORITY	YEAR
Defensible Space Education: Create image and discuss new laws about defensible space in high and very high fire danger areas	SVFD	L	2
Evacuation Education: Know when it's time to go, what is your zone?	SoCo Sheriff, Springs MAC, La Luz	H	1
Addresses: Explain why visible addresses are important, explain what clear addresses look like	SVFD, Springs MAC	H	2
Educate about insurance benefits to being part of a FireWise community	Local insurance brokers	M	1
Strengthen FSC / MYN Organization and Collaboration	Map Your Neighborhood	H	1

Find FireWise neighborhood captains to cover each area (El Verano, Feters, Boyes, Donald St, Agua Caliente)	Springs MAC, Map Your Neighborhood, Springs Rotary, local HOA's	H	1
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Appendix D: Sonoma County Wildfire Risk Index (WRI)

WHAT IS THE WILDFIRE RISK INDEX?

The Sonoma County Wildfire Risk Index was developed in cooperation with input from subject-matter experts, Sonoma County staff, Fire Safe Sonoma, the Sonoma County CWPP Steering Committee, and the project team (Tukman Geospatial and Digital Mapping Solutions).

Wildfire Risk Index (WRI) is a model that predicts relative wildfire risk. Higher index values represent a higher relative risk of wildfire. For the Wildfire Risk Analysis, the county's landmass was divided into 100-acre hexagons. Conditions will vary significantly across the area of each polygon—it is entirely possible that areas of relatively low risk could exist within a polygon whose overall risk is high. For parcel level analysis, "ground truthing" to verify data and conditions will be necessary. The value of the WRI is to identify overall trends, which then can be used to suggest the need for and nature of measures that can be taken to reduce risk.

The WRI should be viewed as a high-level analysis and is not appropriate for parcel-level detail.

HOW THE WRI IS CALCULATED

Many different factors contribute to wildfires. The Risk Index inputs were curated from the best available data sources for Sonoma County.

Wildfire Hazard Index

The Wildfire Hazard Index (WHI) (as opposed to this risk index) took into consideration predicted flame length, transmission line location, suppression difficulty, and fire weather potential. In 2020, as part of Sonoma County's Multi-jurisdictional Hazard Mitigation planning, a Wildfire Hazard Index was developed to quantify the relative wildfire hazard within Sonoma County.

A deeper discussion on the inputs and how it was developed can be found here: <https://sonoma-county-cwpp-hub-site-sonomacounty.hub.arcgis.com/apps/sonoma-county-wildfire-hazard-index/explore>

Ember Load Index

Developed by Pyrologix, the ember load index is based on surface and canopy fuel characteristics, climate, and topography, and incorporates downwind ember travel. The index also incorporates burn probability.

The model can only estimate embers created by trees and brush—wildland fuels. To date, a good model of embers produced by burning structures is not available. In urban areas, the embers

produced by burning buildings will have the potential to influence fire spread, yet this value is not represented in this model.

The Ember Load Index can help identify priority areas where hardening buildings may be needed to resist ignition, yet recent fire behavior indicates that it is important for all Sonoma County residents to consider undertaking structure hardening, regardless of the ember load risk. More information regarding the Ember Load Index can be found here:

<http://pyrologix.com/reports/Contemporary-Wildfire-Hazard-Across-California.pdf>

Structure Density

The structure density is a count of all structures found within each 100-acre hexagon. The counts were then classed into five quantiles and assigned a number from 1 through 5. Hexagons with no structures were assigned 0 (zero).

Road Network Rank

These values are based on road density, number of roads into and out of a community, and speed limits. The road network rank was developed by Kevin Lacefield of Sonoma County's ISD for a preliminary evacuation analysis (completed in 2019). New evacuation analyses are under development for the County. As they are developed, new data may be integrated into the CWPP Risk Index. Note that the road network rank does not impact an individual property's or project's compliance with Sonoma County Fire Safe Standards (Chapter 13, Section V) or Board of Forestry Fire Safe Regulations, because the road network rank provides a high-level analysis of the aforementioned data inputs, whereas the local standards and state regulations govern site-specific perimeters and access.

DATA INPUTS

The following are inputs used to inform the Sonoma County Wildfire Risk Index:

Wildfire Hazard Index

The Sonoma County Wildfire Hazard Index (WHI) is a compilation of predicted flame length, potential fire weather, and other factors. The average WHI in each 100-acre hexagon in Sonoma County are classed here into five categories: 1 is low hazard, 2 is moderate hazard, 3 is high hazard, 4 is very high hazard, and 5 is extreme hazard.

Wildfire Hazard Index within 1 Mile Buffer:

The average WHI within 1 mile of each 100-acre hexagon is classed the same way the WHI data is classed and is designed to estimate how hazardous surrounding areas are.

Ember Load Index:

Developed by Pyrologix for the entire state, this layer was included to help quantify where embers from wildland fuels (see above) would accumulate. The lower the value, less accumulated embers and a lower burn probability are expected. The higher the value, more accumulated embers and a

higher burn probability are expected. This layer is classed into five categories: 1 (brown) is low, 2 (orangish) is moderate, 3 (yellow/orange) is high, 4 (teal) is very high, and 5 (dark teal) is extreme.

Ember Load Index within 1 Mile:

Similar to the 1-mile buffer used for the WHI, the average Ember Load Index within 1 mile of any 100-acre hexagon in Sonoma County was calculated. Again, the idea is to help characterize the surrounding areas of any 100-acre hexagon in the county.

Structure Density (count):

These classes represent the following number of structures found within the 100-acre hexagon: A ranking of 0 represents no structures are present; a ranking of 2 represents 1–3 structures; a ranking of 3 represents 4–10 structures; a ranking of 4 represents 11–37 structures; and a ranking of 5 represents over 38 structures are present in the given area.

Structure Density within 1 Mile:

Like the WHI and the Ember Load Index, the number of structures within a 1-mile radius of each 100-acre hexagon was also averaged. This was done to quantify the structure density surrounding any given location within the county. The average structure counts are classed in a similar way.

Road Network Rank

Lastly, a Road Network Rank developed by Sonoma County's GIS department is included wherein street network data was analyzed to quantify the street accessibility within the county. Accessibility is thus measured on a scale of one to five, with one being the most accessible and five being the least accessible.

CALCULATING WILDFIRE RISK

Relative wildfire risk was calculated by simply adding up all nine inputs. Each was classed from 1–5 for a total range of 1–35. No hexagons got a 1 ranking (lowest is 5) and none got a 45 ranking (highest is 32).