

Martinez, CA:

A Case Study in Fire Safety Measures and Practices

In a Very High Fire Hazard Severity Zone

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Abstract

Purpose: The purpose of this project was two-fold: to determine the knowledge base of residents regarding fire safety and examine the emergency preparedness of the city.

Relevance: Forest management practices have led to a fire-prone wildland environment with increasing encroachment on urban areas, a wildland-urban interface (WUI), without regard for fire-safe practices. To be fire-safe it is imperative to know current practices of residents in WUI areas and the preparedness of the city to respond to an emergency.

Methods: A survey was conducted of residents in the WUI area of Martinez, CA. Two mailings were sent to 140 local Community Emergency Response Team (CERT) members and 78 residents during a two-week period in May 2021; 63 responses were obtained – a 28.6% response rate. Additionally, interviews were conducted with local fire authorities, and city emergency and preparedness plans were examined.

Findings: Survey data indicated that 78% of respondents were concerned or very concerned about a major fire occurring within five years. Greatest concern was loss of life (66.7%); then loss of animals (42.9%) and property damage (25%). Concern for damage to neighbor's was 81%, and 62% concern for damage to land. Nearly 75% of respondents were unaware of their homeowner's insurance coverage for wildfire. City emergency plans have not been updated since 2009, evacuation drills have not been conducted, and building practices have not been updated to comply with current regulations and standards for fire-hardening structures.

Conclusions: The residents in the Martinez WUI are aware of their precarious environmental situation in present climate circumstances, and have taken varying steps toward mitigation of possible harm from a wildfire. On the other hand, the City is woefully behind in preparedness and responsiveness to newer regulations, leaving itself vulnerable on many fronts.

Overview

Introduction

Martinez California is a well-established community nestled against wildland areas classified as a Very High Fire Hazard Severity Zone (VHFHSZ) by the California State Fire Marshall. This paper looks at Martinez as a case study in wildfire safety and city preparedness.

Sections in this report

Methodology - how research was conducted.

Results and Findings - from the research.

Discussion – pulling together the two purposes.

Lessons Learned - take away messages from this research project.

Summary

References & Appendices

Purpose statement

The purpose of this project was two-fold: to determine the knowledge base of residents regarding fire safety and examine the emergency preparedness of the City of Martinez, CA. The wildfire preparedness and safety measures taken by some residents are compared or contrasted with existing practices that may support or confound their efforts.

Emergency Management Challenges

Over the last century, forest management practices have led to an under-managed and increasingly fire-challenged wildland environment (Forest Service, 2018.) Adding complexity, residential developments have been built, over many years, without much attention to fire-safe building standards and regulations that a wildland-urban interface (WUI) might require (Renner, et al., 2006). Currently, enforcement of fire-safe building practices have not been mandated nor

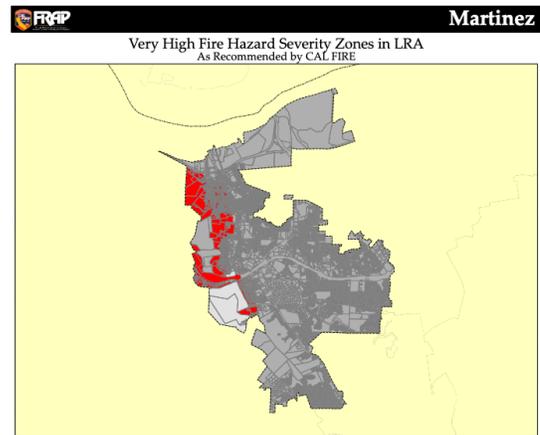
consistently enforced. Interconnected factors, e.g., social, political, economic, cultural, and technical obstacles (Renner, et al., 2006; U.S. Forest Service, 2018) have led to a dangerous tinderbox effect. Many WUI neighborhoods across the state, including Martinez, are poised to go up in flames, taking homes, businesses, and possibly lives in catastrophic wildfires.

Martinez is a community nestled into forested and grassland hillsides. It's written history goes back into the early 1800s (Martinez Historical Society, 2021). This is a community of about



38,000 residents (U.S. Census Bureau, 2020) and encompasses a 12.6 square mile area in the east San Francisco Bay Area¹. The city is bordered on the west by East Bay Regional Park open space, on the south by National Park Service open space and surrounding the city boundaries are East Bay Regional Park lands and open space. Additionally, to the north is the shoreline of Carquinez Strait, a waterway that runs into San Pablo Bay; to the south city of Pleasant Hill; to the east the Martinez Refinery Company and County unincorporated regions and wildlife areas.

Like many California cities, Martinez is nestled in a VHFHZ to the west and south (Office of the California State Fire Marshal, 2021; Appendix A) creating a wildland urban interface (WUI). FEMA (2021) defines a WUI as “the line, area or zone where structures and other human development meet or intermingle with undeveloped wildland or



¹ Map source: OpenStreetMap, Relation: Martinez (1121289). <https://www.openstreetmap.org/relation/1121289#map=11/37.9147/-122.0485>

vegetative fuels." In Martinez, this interface is known locally as the Alhambra Ridge, named after one of the main streets that runs through town and borders the WUI.

Several well-established residential neighborhoods are located along Alhambra Ridge. Many of the homes in these neighborhoods are densely spaced and fuel-laden, and are served by a single narrow, steep street and narrow driveways. Residents park vehicles on both sides of the narrow streets, making ingress/egress challenging at times. If an evacuation were needed, streets would quickly become clogged and impassable as the residential density collides with narrow streets and parked cars.

Martinez is not isolated from fire incidents. In 2004, Highway Fire (Appendix B) along Highway 4 was notable for burning over the Alhambra Ridge and downhill toward the city, endangering Alhambra High School and the County Regional Medical Center, as well as having destroyed personal homes and out-buildings. In the three years between 4/14/2018 and 4/14/2021, Cal Fire recorded nearly 1,300 fires across the City, including 345 building fires and over 300 grass, brush or vegetation fires.²

A final challenge for the city is the cost and enforcement of defensible space and preventative measures. Ferguson (2017) noted that "the Forest Service spends about 500 times more on putting out fires in the WUI than it does on preventing them in the first place" (p. 154). FEMA estimates that every dollar spent constructing buildings to strict codes saves \$11 in disaster repair and recovery costs.³ Direct benefits of preventative measures, however, can be hard to measure. If the prevention is successful, e.g., no WUI fires, how does one determine the costs, or the

² Contra Costa County Fire Protection District (CCCFPD). (Personal communication, 19 April 2021). Report by Incident Type by Zip Code, 4/14/18 to 4/14/21. See Appendix E for full list.

³ FEMA's study, *Building Codes Save: A Nationwide Study*, focused mostly on floods, earthquakes and hurricane winds, natural disasters that strike most of the U.S. However, the recovery from fire, also a natural disaster, is in the same camp.

number of wildfires that did not happen? Determining costs of preventative measures can also be a challenge if documentation is inconsistent or incomplete. Using “efforts” or “activities” as part of a larger aggregate dataset will be problematic as they are measured in different units (Butry & Prestemon, 2019). These challenges do not absolve the city of its legal responsibilities.

The survey in this report was designed to touch on some of the most common concerns.

Rationale for this project

Martinez has an active Community Emergency Response Team (CERT)⁴ community that this author is a member of. In 2017, CERT actively took steps to address the WUI fire danger. The CERT group’s neighborhood weed abatement walks have continued since 2017. CERT members registered the Alhambra Ridge area as a Firewise USA community (NFPA, 2021) in 2019. The National Fire Protection Association promotes the Firewise USA program as encouraging “local solutions for safety by involving homeowners in taking individual responsibility for preparing their homes from the risk of wildfire” (National Fire Protection Association (NFPA), 2021b). As part of this local activity, the community engages in yearly property weed abatement, clearing low brush and limbing up trees to create and increase defensible space in neighborhoods. Defensible space, however, is mixed across properties. The survey showed that not all people know how to do the abatement, can’t afford the costs, or have other reasons for their inaction.

Methodology

This project examined how fire-safe practices such as defensible space around homes and emergency planning by the City and residents contribute to reducing the risk of a WUI wildfire.

A survey was conducted of residents in the WUI area of Martinez, CA. Two mailings were sent to 140 CERT members and 78 citizens residing in the Firewise area during a two-week

⁴ Martinez Area CERT holds trainings, events, and activities throughout the year. <https://martinezcert.org>

period in May 2021; 63 responses were obtained – a final 28.6% response rate⁵. Additionally, interviews were conducted with the Contra Costa County Fire Prevention District, the Diablo Fire Safe Council and others for context. City emergency and preparedness plans were examined. The survey and results are in Appendix C and D, respectively.

Challenges in this process included the number of surveys requested vs responses: would enough people respond to make the results significant? Two duplicate responses were researched and treated as multiple people with similar attitudes at the same address. Also, making appointments and reaching people to be interviewed took several emails or calls (especially during COVID-19 restrictions).

Results and Findings from the Survey

The hypothesis (given that CERT has worked on defensible space, weed abatement and preparedness actions for several years) was that Martinez residents would be aware of the need for fire safety practices and implement such practices, especially defensible space, on their property. It was also hypothesized that the City of Martinez would have current emergency plans including possible evacuation routes available to the public.

What was learned?

Residents of Martinez are worried. The survey revealed that 78% of respondents were concerned or very concerned about a fire occurring during the next five years, with their biggest concerns being loss of life (66.7%) and loss of property (65.1%), plus concern for loss of animals (42.9%). Surprisingly, 81% feared damage to neighbors' property, while 62% had a concern for

⁵ Full survey results are found in Appendix D. Survey responses: 140 (CERT) + 78 (neighborhood) - 5 (duplicate addresses) = 213 people. 63 responses (- 2 duplicate answers) = 28.6% response rate.

damage to their own land and 75% were concerned about damage to their structures. These figures may be understated by homeowners (McCaffrey, et al., 2011).

In broad agreement with the social science literature, most responding homeowners recognize their personal responsibility for wildfire preparedness in the larger fire-prone ecosystem. All respondents have taken some action to mitigate their risk. This concern is reasonable, given the uneven distribution of fuels and abatement practices. Direct losses associated with wildfires include death or injury, psychological impacts, loss of structures, damage to infrastructure, and environment damage. Nearly 75% of respondents indicated that they did not have or did not know if their homeowner's insurance covered losses due to wildfire. Most people do not carry enough insurance to replace their homes⁶. This raises the likelihood that many residents might lose all. A wildfire's indirect losses often follow the response and include economic decline of the community and decreased property taxes to the City, impact on the housing market, loss of utilities and transportation, interruption of Government services in the City and County, and health or environmental impacts (Thomas et al., 2017), including post-fire debris flows onto the City's narrow streets. (Chester & Li, 2020).

Results and Findings on City Preparedness

Laws, Regulations and Ordinances

Martinez is well-established with limited areas for new development. The City Council has not yet adopted the State's fire safety regulations, so cannot enforce them. In contrast to modern fire safety wisdom, Martinez Code of Ordinances for rural residential districts (City of Martinez, 2021) transfer its neighborhoods' safety to possible future public hearings by exempting property

⁶ From an email with Ranger Dorn, Retired Firefighter, Type 1 Incident Commander and Structure Protection Specialist. 12 June 2021.

owners from street and related improvements (§22.12.070), and granting variances for secondary housing in an already dense landscape (§22.12.085 (D)(1)).

Several State laws are relevant to the fire hazard situation in Martinez. California Code of Regulations, Title 14 (State of California, 2014), Div. 1.5, Chapter 7, Subchapter 3, Article 1, §1280 defines the Fire Hazard Severity Zones (State of California, 2020b). Specifically, subsection 1280.02, Very High Fire Hazard Severity Zones in the Local Responsibility Area (VHFHSZ/LRA), instructs local agencies to adopt these zones within their jurisdiction, and to transmit maps of adopted areas to the Board of Forestry and Fire Protection within 30 days (State of California, 2021). Martinez City Council has not adopted any areas within the City.

California Public Resources Code (PRC) Sections 4290 and 4291, passed into law in 1991, are also on point. PRC Section 4290 (State of California, 2019a, January 1) outlines field requirements in hazardous Fire Areas, such as road standards for fire equipment access, road signage, private water supplies for emergency fire use, and fuel breaks. Section 4291 (State of California, 2021b, January 1) mandates defensible space to new and existing structures. Section 4291(a)(1) specifies “defensible space of 100 feet from each side and front the front and rear of the structure,” or as consistent with property lines or greater requirements defined by state law, local ordinance, rule or regulation.

Also recently enacted, three codes are part of a State-mandated local program. Senate Bill 1241 (State of California, 2012) requires the city or county to “adopt a comprehensive, long-term general plan that includes... a safety element for the protection of the community from unreasonable risks associated with... wildland and urban fires.” Senate Bill 99 (State of California, 2019c) requires, “upon the next revision of the housing element on or after January 1, 2020, to review and update the safety element to include information identifying residential

developments in hazard areas that do not have at least 2 emergency evacuation routes.”

Assembly Bill 747, Chapter 681 (State of California, 2019b) requires adoption of a local hazard mitigation plan, on or before January 1, 2022, that includes “evacuation routes and their capacity, safety, and viability under a range of emergency scenarios.”

Many of the residential areas are susceptible to wildfire. Martinez developers often received variances that allowed for narrower property set-backs from the adjoining property than the 10 feet as specified in Martinez Code of Ordinances §22.12.100. If anything is in between the properties (e.g., fence, established vegetation, or trash cans), the limited space between homes encumbers the ability of firefighters to access to the hillsides. (Rodriguez, 2019). Many of these laws and codes have not been reviewed or adopted by the city, thus currently out of compliance with State and local requirements.

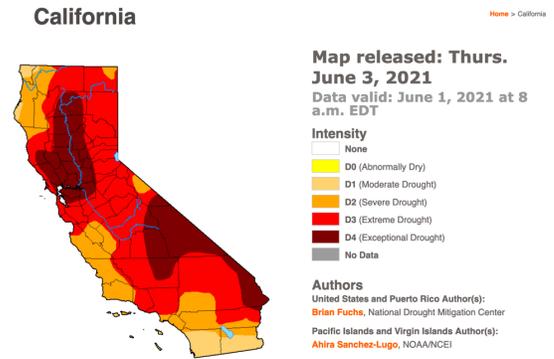
Discussion

Present Environmental Conditions Contributing to Fire-Related Concerns

This year, 2021, continues a dangerous period of high fire likelihood and exceptional drought.

High Fire Likelihood. Cal Fire reported that “The 2020 Fire Season will be counted among the most severe since the founding of our nation” (CAL FIRE, 2021a), having burned four million acres. The August Complex fire alone burned over one million acres. This year is already off to a hot start, with 2,481 fires and 12,083 acres burned through May 30, 2021, compared to 1,745 fires and 2,828 acres burned in the same period last year (CAL FIRE, 2021b).

Drought. The Earth’s global average surface temperature in 2020 tied with 2016 as the warmest year on record (NASA, 2021). California’s driest four-year period, on record dating back to 1895, was between October 2011 and September 2015.



A study from the National Oceanic and Atmospheric Administration (NOAA) stated this is the worst dry spell for the southern Central Valley and South Coast in nearly 450 years (NCEI - NOAA, 2017). The U.S. Drought Monitor shows California in severe (90%) to exceptional (100%) drought, with Martinez, in Contra Costa County, in exceptional drought classification⁷.

The severe drought caused stressed and dry vegetation, a fuel-contributing factor to wildfire. Drought also degraded critical elements in a healthy ecosystem, limiting its recovery. Combined with under-managed, fuel-rich wildlands, these circumstances paint a potentially dangerous picture for the years ahead.



VHFHSZ map with drought overlay. See Appendix A.

The Landscape

As noted earlier, the Alhambra Ridge in Martinez is a WUI with densely-packed homes, many have no defensible space, and narrow roads. Some have highly flammable vegetation within 1-5 feet of the house. Local landscape factors (vegetation, topography, slope of hills, density and distance between structures, etc.) have an important and confounding effect on safety and preparedness. (Wood, 2009; McNeal, 2011; Maranghides et al., 2015). Syphard et al. (2014)

⁷ California Map, U.S. Drought Monitor. Map courtesy of National Drought Mitigation Center (NDMC). <https://droughtmonitor.unl.edu/CurrentMap/StateDroughtMonitor.aspx?CA>

found that “the most effective treatment distance varied between 5 and 20 m (16–58 ft)” from the structure (p. H). The combined features are subject to ignition from radiant heat and embers. (U.S. Fire Administration, 2021; Mollow II, 2020).

Martinez’s vulnerability is based on its exposure to the VHFHSZ and susceptibility to the impacts, followed by the ability to recover. This was illustrated by the 2017 Thomas and Paradise fires, in which older and disabled residents became a disproportionately high number of fatalities (Kolden, 2019). The Paradise Fire revealed that only 30% of people signed up for warnings and notifications, and only 30% received notifications (Maranghides et al., 2020).

Evacuation

A wildfire may require evacuation for the safety of residents. Some may evacuate as ordered. Others may choose to shelter in place or stay and defend their property, while others may be slow or may not have received notification. The latter groups are an additional concern of the respondents (Wood, 2009). Of note, 47.6% of survey respondents have a “Go Bag” ready for themselves and 36.7% have one ready for their pets, but of greater concern are the 52% of people who reported they would need to gather everything, thus slowing down their evacuation.

Educating homeowners

Educating homeowners on preparedness and wildfire mitigation issues is an important part of Martinez CERT’s work. This includes sharing an understanding that a forest is healthier when thinned out, how flammable different types of vegetation in the area are, and how embers can be carried on wind and can land on stacked firewood and flammable debris surrounding structures (Bailey, 2017). Recent fires are illustrative: in the 2009 Jesusita Fire a lack of defensible space and evacuation routes (Kolden & Henson, 2019) contributed to the fire’s devastating effects,

whereas the 2012 Waldo Fire demonstrated that defensive actions were effective (but may not account for embers) (Maranghides, et al., 2015).

Many residents have learned about defensible space and the importance of being prepared with a plan and “Go Bag” through local CERT training. The public learns in different ways that depend on their own base knowledge, how new information is presented, the source and credibility of presenters, and relevance (Absher, et al., 2009). Findings consistently show that interactive information is better received than single source. (McCaffrey & Olsen, 2012). For fire safety, messages work well when benefits are stressed and cost-sharing programs are available. (Taylor & Restaino, 2019) However, it’s worth noting that addressing immediate actions is more effective than when voters are faced with preparedness spending in the voting booth, where the picture is more complicated. (Healy & Malhotra, 2009) The CERT community is actively researching additional education and cost-sharing measures.

Fire-adapted communities

“With proper community-wide preparation, human populations and infrastructure can withstand the devastating effects of a wildland fire, reducing loss of life and property. This goal depends on strong and collaborative partnerships between agencies and the public at the State, Federal, and local levels, with each accepting responsibility for their part.”

(U.S. Fire Administration, 2012)

Martinez has a “community spark plug” (Titus & Hinderman, 2006), a resident in the community who has taken on a leadership role in neighborhood weed abatement, fire safety, and general preparedness. Having a community spark plug is not the same as having a broad and cohesive community voice. There are many reasons for this, as shown by survey respondents (e.g., lack of knowledge or ability, cost, the amount of work, lack of space, disagreement with

recommendations). Current wildfire policies (Toman, et al., 2013), as well as much of emergency management, emphasize a collaborative, whole community approach. Natural disasters, including wildfires, are problems that no one can solve individually.

Community-wide preparation should be place-based, created with vulnerability reduction strategies and mitigation outcomes (Gill & Stephens, 2009). Preparation and discussions should include residents *in situ*, as well as varied community partners (Kolden & Henson, 2019). The City's Emergency Operations Plan (City of Martinez, last updated in 2009) isn't much help. Of survey respondents, 77.8% reported having a plan of action or escape plan if fire approaches their house; this is a start. Whether a whole neighborhood or the whole city can act together to successfully evacuate their neighborhood or manage their combined fuel load is yet to be seen.

Lessons Learned

It wasn't very long ago that this author discovered the field of emergency management and the fascinating complexity of the many relevant laws and ordinances, practices, beliefs, and intents. This case study is a hometown discovery and an illustration of how many facets one issue can have.

Leadership is reflected in two ways: community-based and from the city government. Martinez is fortunate to have CERT members who act as community "spark plugs" who engage the community and encourage discussion in the neighborhoods and at public gatherings. Residents are concerned enough to take mitigation actions, but larger change can only move at city government speed.

City management involves a blend of history, present circumstances, and beliefs and attitudes of City Council members and the City Manager. Martinez has a good anchor in its history, but the laissez-faire approach to emergency preparedness will test the city's ability to address large

hazards,⁸ so the path forward has considerable uncertainty. The weather and natural hazards such as wildfire do not respect governmental priorities or timelines. If and when a wildfire moves through the community, much of the established vegetation—and homes—will likely be removed. This would be a uniquely opportune time for local officials to enact zoning and code changes.⁹ Time will tell if they realize this.

This paper raises several points of view, each relevant to a different mode of looking at the fire-related circumstances in Martinez, CA. Similar case studies, social science, and conflicts in legal analysis each open future paths to understanding the challenges of the fire safety of established WUI communities in the future.

Summary

A survey was sent to 218 residents. Respondents answered with concerns and circumstances that indicate some, if limited, readiness for a wildfire. In contrast, the City appears unprepared to take responsibility for its current regulatory assignments or by developing prevention or protection measures as evidenced by its outdated Emergency Operations Plan. The laissez-faire state that the City has taken toward public safety for several decades is, in the present environment, a disaster waiting to happen.

Acknowledgements

Appreciation goes to Marta Van Loan, the Martinez Firewise Community “spark plug” who works tirelessly to keep the community safe. My thanks to Ben Reikes, a Martinez CERT member and Moraga-Orinda fireman who reminded us that each community may view and

⁸ The COVID-19 pandemic that shut down most civic activities over the past year is apparently still keeping many of the Martinez city staff from answering phones or emails, despite the lift of prohibitions across the state.

⁹ From email with Ranger Dorn, Retired Firefighter, Type 1 Incident Commander and Structure Protection Specialist. 12 June 2021.

enforce safety differently. Captain Laing and team with the Contra Costa County Fire Protection District and Cheryl Miller of the Diablo Fire Safe Council provided very helpful procedural and regulatory perspectives that enriched my context. New appreciation for GIS goes to Lindsey Gordon for the overlay map. Finally, many thanks to the CERT and community members who added their thoughts and concerns to this big picture.

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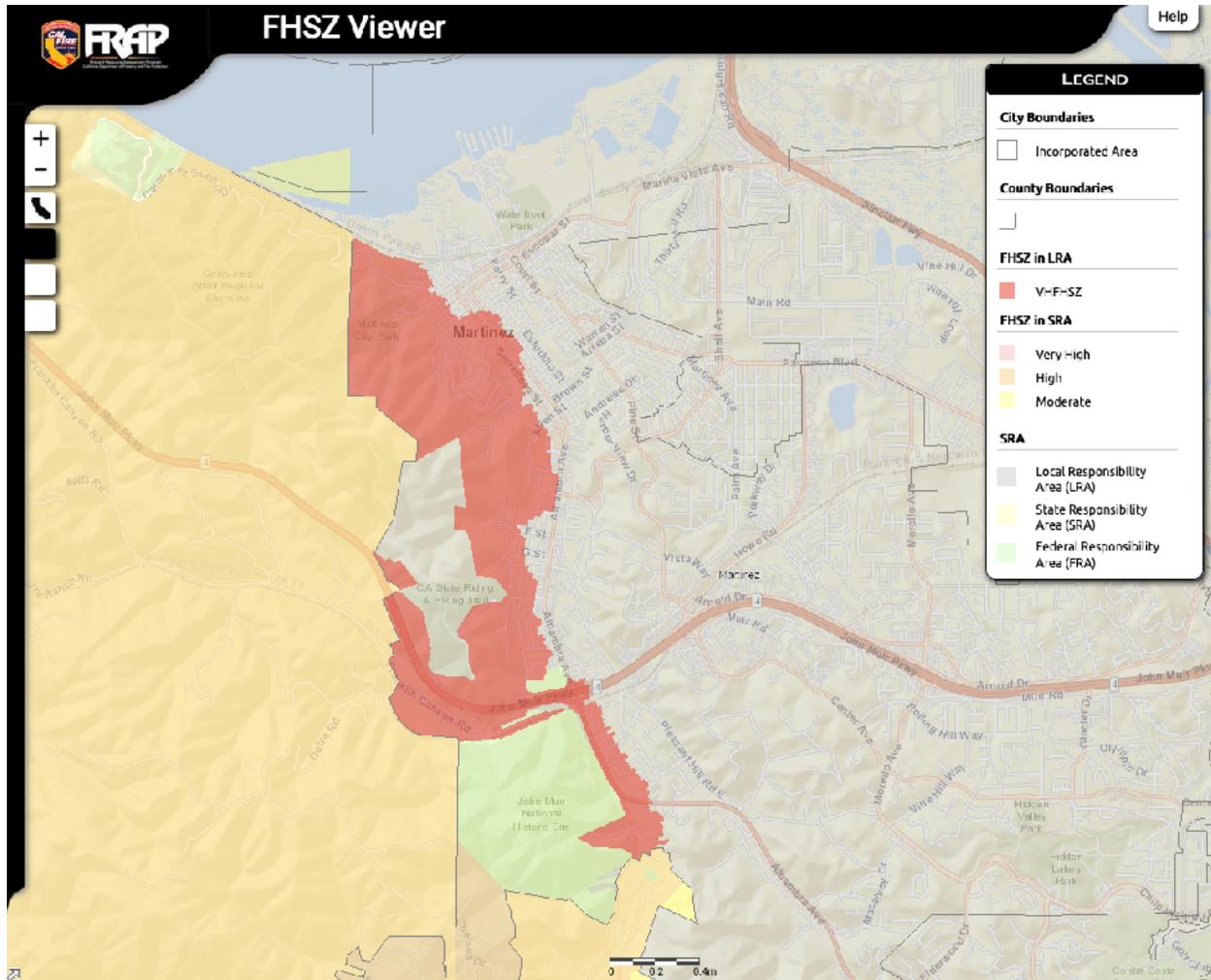
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Appendix A: Martinez in the VHFHSZ/LRA

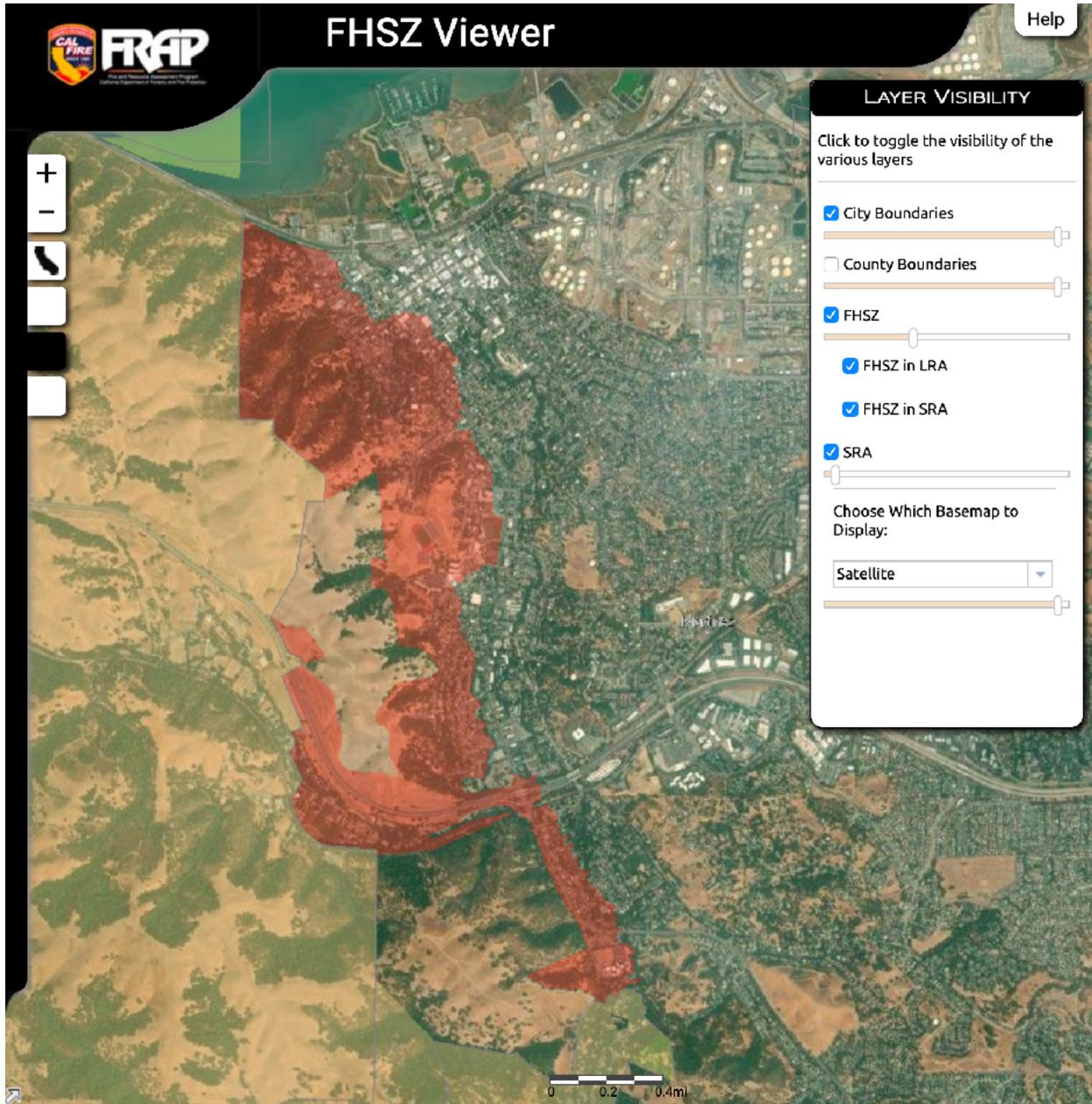
The red section below¹ is classified under Government Code 51175-89 as a Very High Fire Hazard Severity Zone (VHFHSZ) in the Local Responsibility Area (LRA). This area is referred locally as the Alhambra Ridge.



The following image² shows that the north and eastern sides of this VHFHSZ zone are largely residential.

¹ Source: <https://egis.fire.ca.gov/FHSZ/> (retrieved on 4/28/21).

² Ibid.

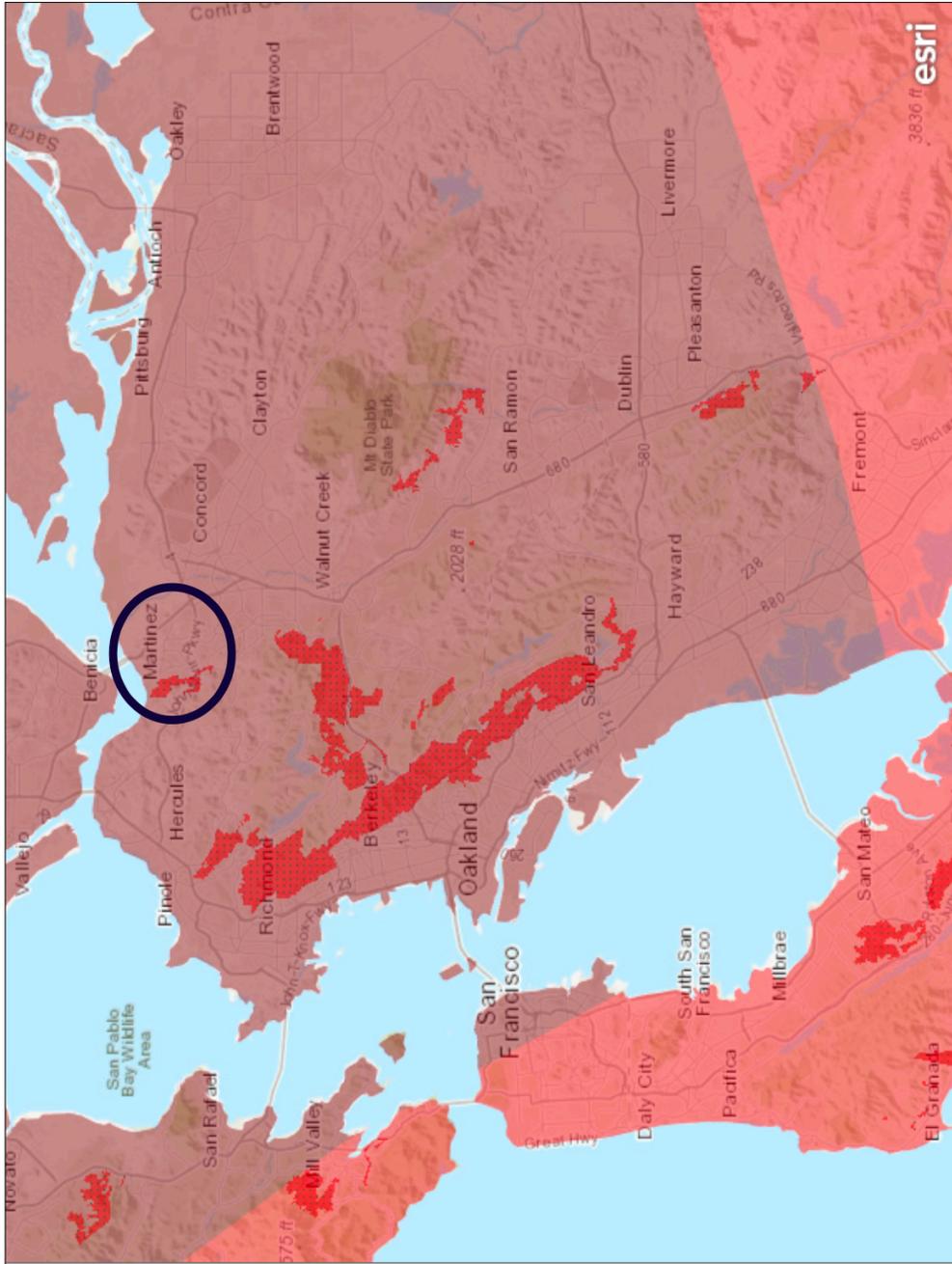


A closer look at the residential area within the VHFHSZ fire zone follows:

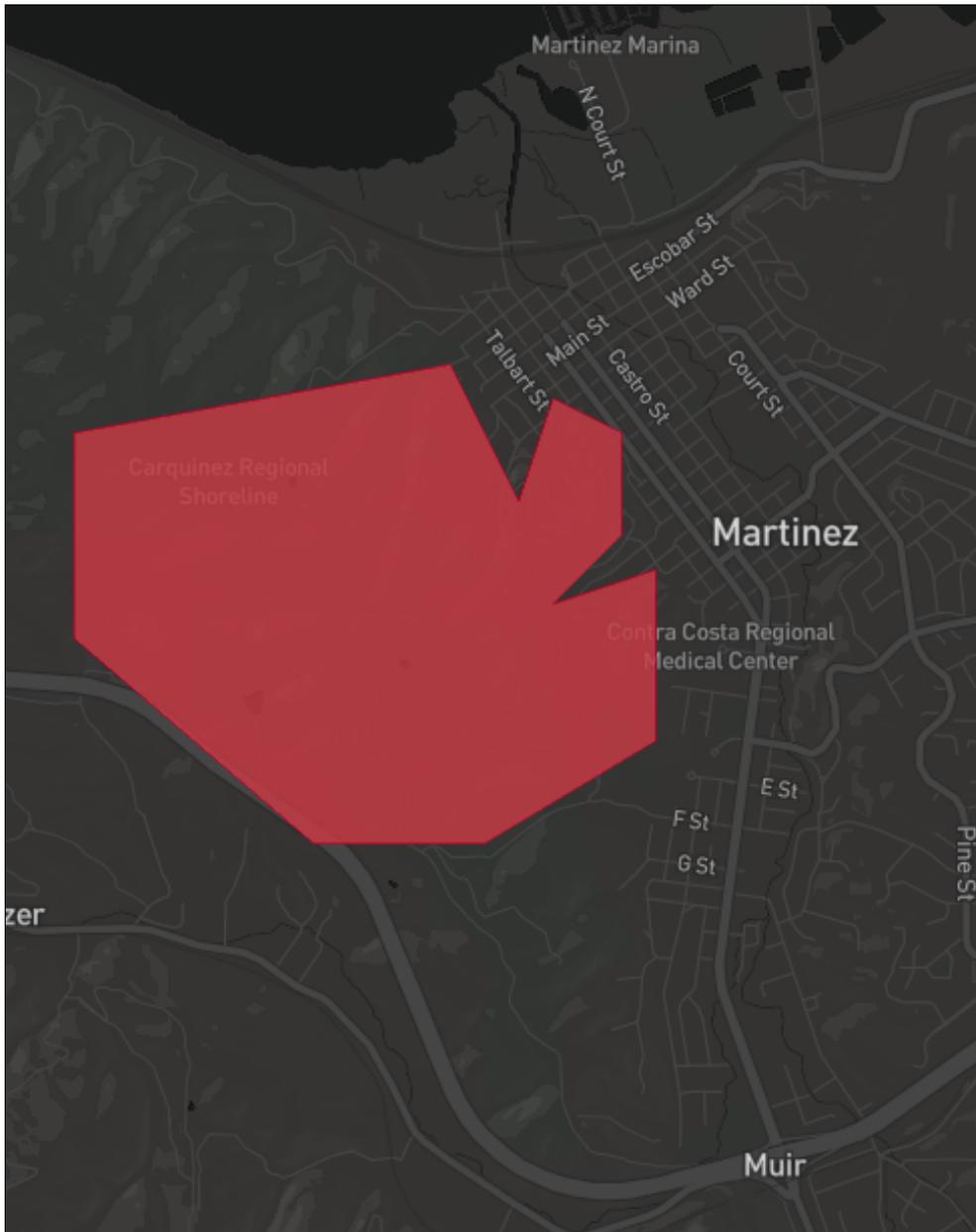


The following map³ shows the Fire Hazard Severity Zones in Local Responsibility Areas (LRA) with a drought overlay, showing the drought and fire dangers compounded.

³ Overlay map generated by Lindsey Gordon, GIS Analyst with the County of Nevada, CA, 8 June 2021.



Appendix B: Highway Fire, 2004



Note: This “Highway” fire is separate and distinct from “The Highway” fire, also from 2004.

The Highway fire occurred in southern California.⁴

⁴ Map source: CapRadio. A History of California Wildfires. <https://projects.capradio.org/california-fire-history/#12.45/38.00005/-122.12284>

Appendix C: Survey



Firewise Martinez Survey

This survey is to help us determine the concerns and safety actions taken by our residents.

[Next](#) Page 1 of 5

Your Home

This section helps us determine where our residents are answering from.

What's your home address, or the nearest intersection to your home?

Your answer

How concerned are you that a wildfire will affect your home?

	Very Unconcerned	Unconcerned	Neither	Concerned	Very Concerned	Non land-owner
Fire in the area during the next 5 years	<input type="radio"/>					
Fire causing damage to my land	<input type="radio"/>					
Fire causing damage to structures on my property	<input type="radio"/>					
Fire causing damage to neighbors' properties	<input type="radio"/>					

What's your greatest fear about fire impacting your home?

- Loss of life
- Loss of property
- Loss of animals
- Other: _____

Do you currently have wildfire coverage as part of your homeowner's insurance?

- Yes
- No
- Don't know
- I did last year but my fire insurance was cancelled
- I don't currently have homeowner's insurance

Do you believe that your home is adequately protected?

- Yes
- No
- Other: _____

Back

Next

Your Defensible Space

What's the area around your house like?

Have you taken any of the following actions on your property in the last 5 years?



	Yes	No	Not Applicable
0-5': Installed non-combustible materials (e.g., rocks, composite decking, metal roof)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
0-5': Moved flammable material away	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
0-5': Cleared debris from under decks, in gutters	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
0-5': Trimmed branches that extended over your roof	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
0-5': Covered vents with wire mesh/screen	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
0-5': Removed trees/shrubs	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5-30': Removed trees/shrubs to increase spacing	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5-30': Pruned tree branches up to 6' or 10'	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5-30': Reduced ground vegetation (grass, shrubs, branches)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
30-100': Removed trees to increase spacing or thinned trees	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
30-100': Pruned branches up to 10'	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
30-100': Mowed or disked ground vegetation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

If you have NOT installed non-combustible materials around your home, what's in your way?

- Disagreement with recommendation
- Ecological impact
- Cost
- Lack of physical ability
- Natural vegetation
- Lack of knowledge
- Amount of work
- Lack of decision authority
- Terrain
- Lack of time
- Would require a remodel
- Lack of space
- Lack of adequate supply
- Aesthetic impact
- Property layout
- Lack of proper equipment
- Laziness
- Procrastination
- Neighbor issues
- Other:

If you have wood piles or other flammable debris leaning against or within 5' of your house, what is the obstacle(s) to moving or removing them?

- Disagreement with recommendation
- Ecological impact
- Cost
- Lack of physical ability
- Natural vegetation
- Lack of knowledge
- Amount of work
- Lack of decision authority
- Terrain
- Lack of time
- Would require a remodel
- Lack of space
- Lack of adequate supply
- Aesthetic impact
- Property layout
- Lack of proper equipment
- Laziness
- Procrastination
- Neighbor issues
- Other: _____

If you have NOT trimmed trees or shrubs, what is the obstacle(s) in your way?

- Disagreement with recommendation
- Ecological impact
- Cost
- Lack of physical ability
- Natural vegetation
- Lack of knowledge
- Amount of work
- Lack of decision authority
- Terrain
- Lack of time
- Would require a remodel
- Lack of space
- Lack of adequate supply
- Aesthetic impact
- Property layout
- Lack of proper equipment
- Laziness
- Procrastination
- Neighbor issues
- Other: _____

Back

Next

What To Do, When

This section informs us about the state of emergency planning in our neighborhoods.

Do you have a plan of action or escape plan if fire approaches your home?

- Yes
- No
- Want help with this

Do you have a "Go Bag" with necessities (medicines, chargers, first aid kit, etc.) ready in case of evacuation?

- Yes, bag ready
- Sort of, I have a list
- No
- I'd need to gather everything
- I don't plan to evacuate
- Want help with this

Do you have pets, and a "Go Bag" for your pets (travel container, vaccination records, food, water, etc.)?

- Yes
- No
- I'd need to gather everything
- Want help with this

Back

Next

Page 4 of 5

Thanks very much!

We will keep your answers to ourselves, and appreciate your time with us.

Are you interested in learning more? If yes, leave an email address and we'll be in touch.

Your answer: _____

[Back](#)

[Submit](#)

Page 5 of 5

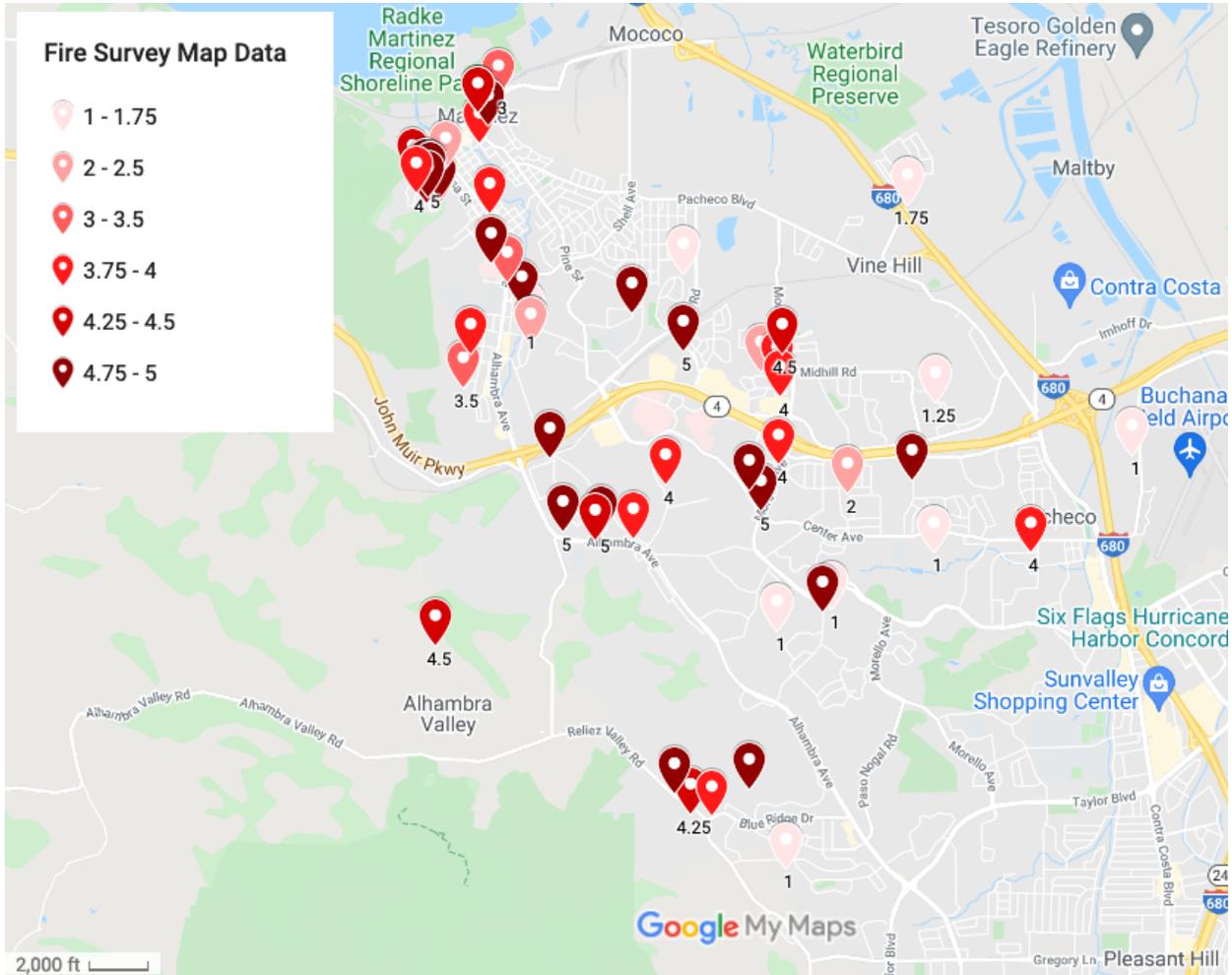
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Google Forms

Appendix D: Survey Results

Survey Respondent Locations



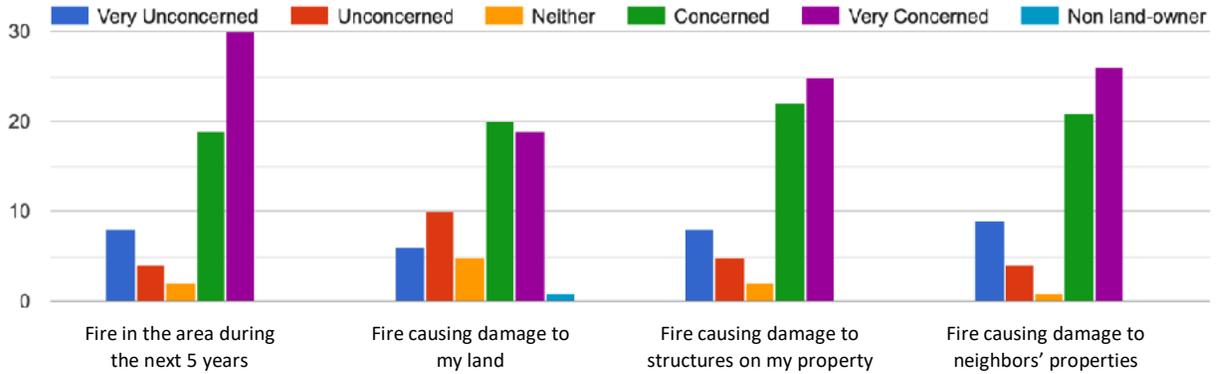
The key above refers to an average score of the responses to four questions under the first survey section, asking how concerned people are that a wildfire will affect them. Those indicating "Very Concerned" were assigned a numeric score of 5, while those indicating "Very Unconcerned" were assigned a score of 1. The average of answers to the four questions resulted in the score used above. The darker colors indicate greater concern across those questions.

Of the 63 respondents, 61 were unique and 58 provided an address for the map above.

Survey Responses

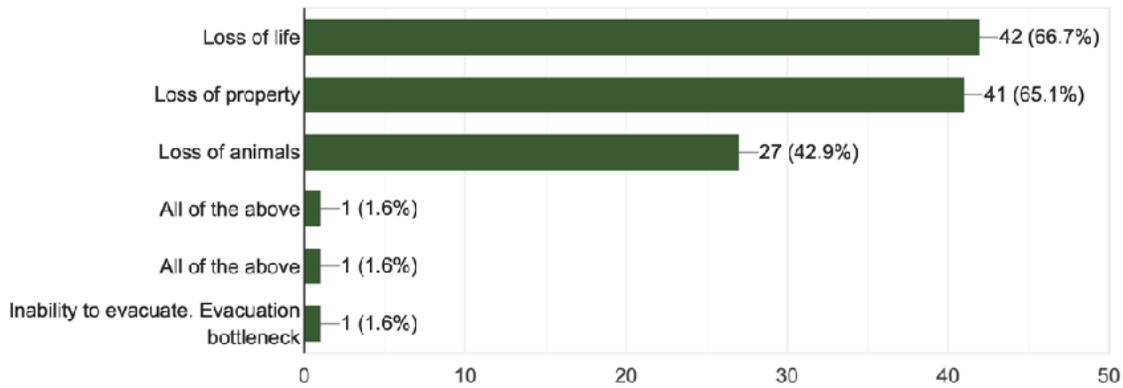
Your Home

How concerned are you that a wildfire will affect your home?



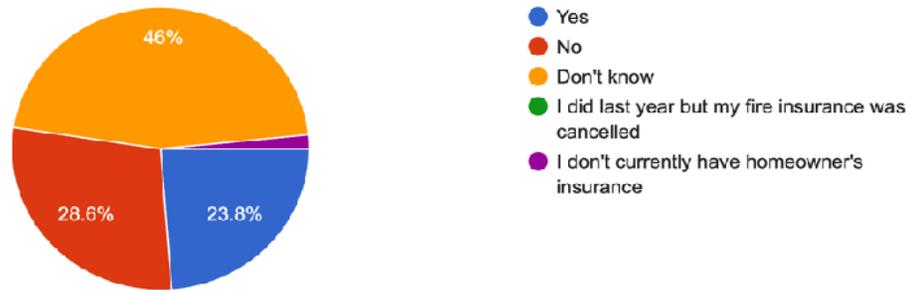
What's your greatest fear about fire impacting your home?

63 responses



Do you currently have wildfire coverage as part of your homeowner's insurance?

63 responses



Do you believe that your home is adequately protected?

63 responses

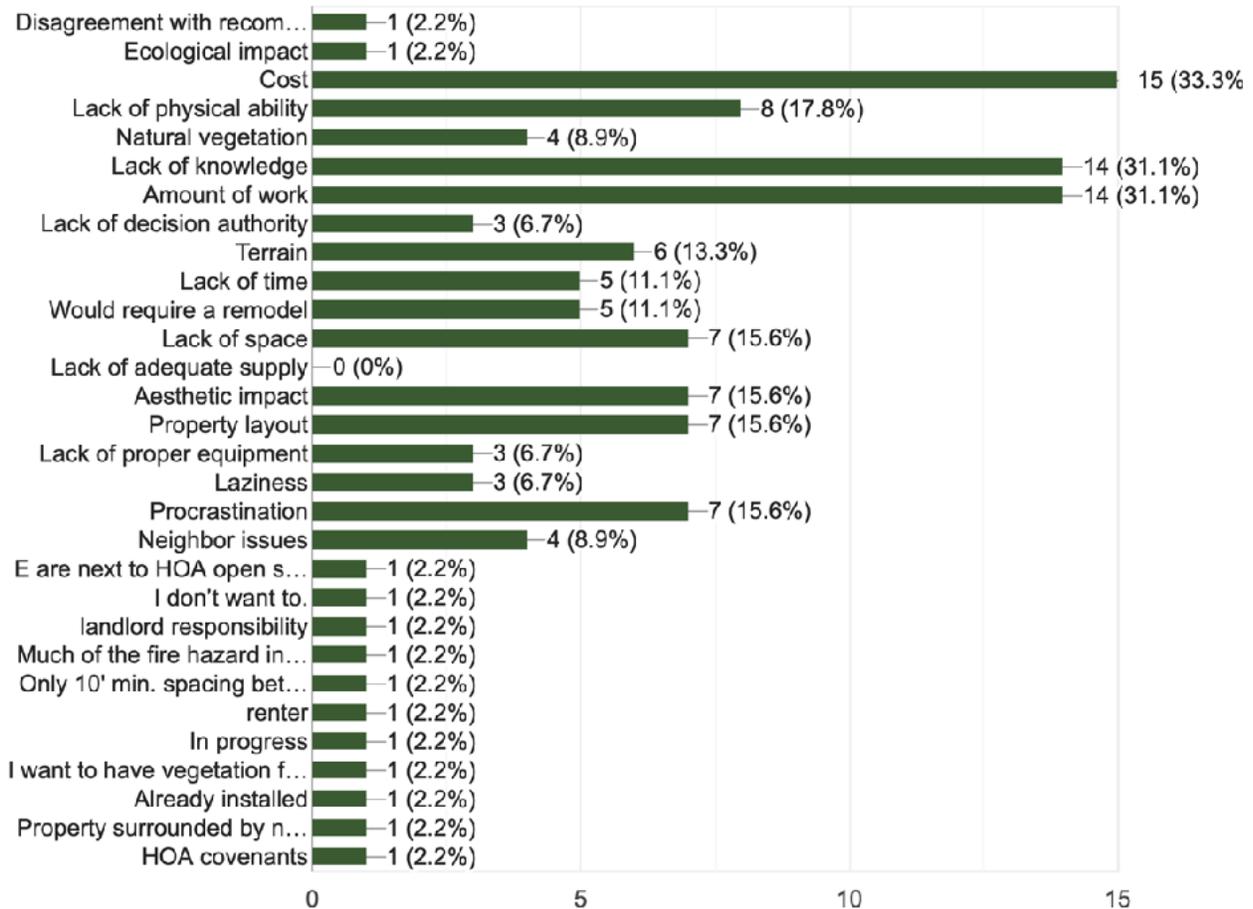


List of responses to "Other" in this question (adequately protected):

- I can't be adequately protected as long as my neighbors and the vacant lots are not adequately protected
- I don't know
- Not sure
- I hope so, but who knows.
- My home has had dry vegetation cut back and cleared, but my neighbors have not cleared theirs. We are near Kaiser, which has a large open field of dried grass which is a major fire risk. If that goes up it will put our home at risk.
- One acre parcels with many trees and open space for grass fires
- What is meant by adequately protected?
- What do you mean by that? Do I have enough protection? Is the fire department able to protect my neighborhood if a wildfire happens? Do my neighbors follow safe practices? Question needs more detail.

If you have NOT installed non-combustible materials around your home, what's in your way?

45 responses



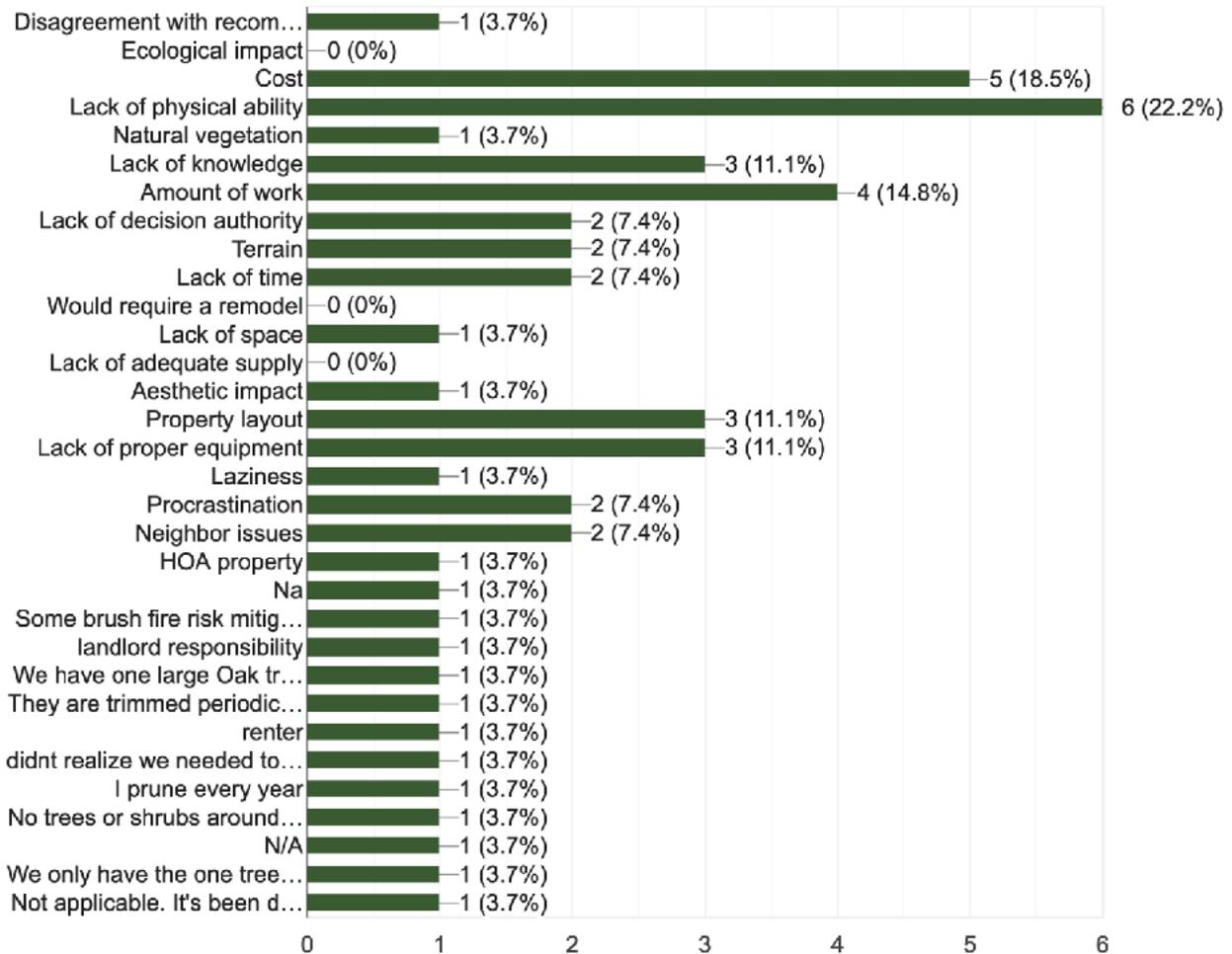
List of responses to "Other" from this question (non-combustible materials):

- Already installed
- HOA covenants
- landlord responsibility
- Lack of decision authority, E are next to HOA open space and HOA won't cut it down and fire district will not require them to cut it.
- I want to have vegetation for the health of the environment and making everything be either rocks (not good for CO2 exchange) or grass (takes too much water) is not good environmentally. The layout show is for a large lot - most lots are not this large.
- Much of the fire hazard in our neighborhood is neighbor's trees
- I don't want to.
- In progress
- renter

- Only 10' min. spacing between homes. zero lot lines.
- Property surrounded by non combustibile materials already

If you have NOT trimmed trees or shrubs, what is the obstacle(s) in your way?

27 responses



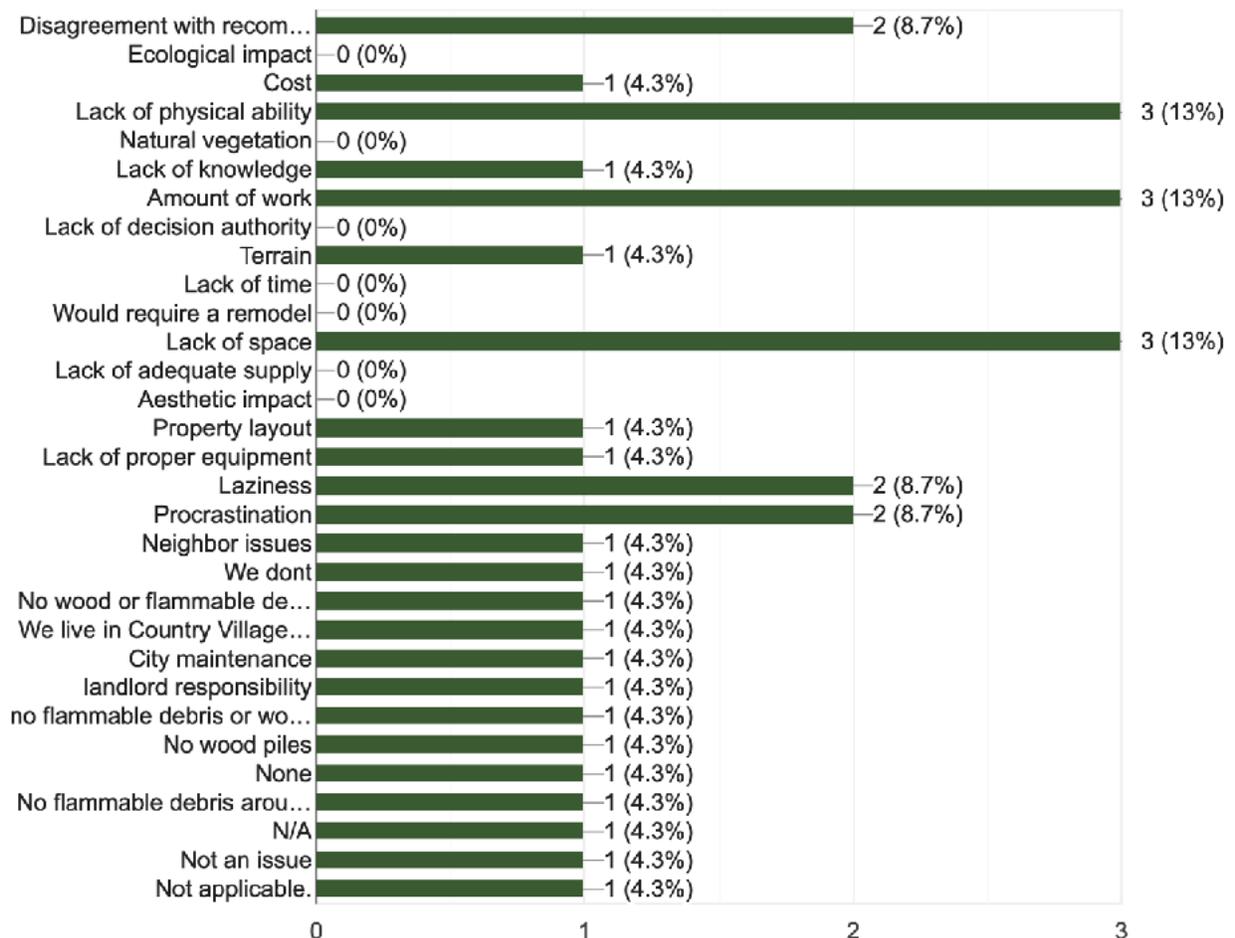
List of responses to "Other" from this question (trees and shrubs):

- didnt realize we needed to trim them up 6ft off the ground, sort of will ruin apple trees
- I prune every year
- HOA property
- Not Applicable (N/A, Na, renter, landlord responsibility)

- Not applicable. It's been done.
- No trees or shrubs around property that meet this criterion
- Some brush fire risk mitigation performed but more needed
- They are trimmed periodically
- We have one large Oak tree that we had trimmed 2 years ago, and most of its large branches were cut and trimmed. The remaining branches, while large, is all the tree has left so cutting them off would be detrimental to the trees health.
- We only have the one tree and it gets Soo hot in summer we need the shade

If you have wood piles or other flammable debris leaning against or within 5' of your house, what is the obstacle(s) to moving or removing them?

23 responses



List of responses to "Other" from this question (flammable debris):

- City maintenance
- No wood piles
- landlord responsibility
- no flammable debris or wood piles
- Not Applicable (N/A, Not an issue, Not applicable. We dont. None.)
- No flammable debris around fence line
- No wood or flammable debris stored around house
- We live in Country Village HOA, 200 units, lots of combustibile trees and dry hillsides

Appendix E: Martinez Fires, Last Three Years as of 041421



Incident Type by Zip Code

Date Range: From 4/14/2018 To 4/14/2021

Zip Code - MAR

Fire, other	179
Building fire	345
Fire in structure, other than in a building.	44
Cooking fire involving the contents of a cooking vessel	77
Chimney or flue fire originating in and confined to a chi	25
Fuel burner/boiler, delayed ignition or malfunction, whe	8
Trash or rubbish fire in a structure, with no flame damag	22
Fire in mobile property used as a fixed structure, other.	3
Fire in a motor home, camper, or recreational vehicle w	13
Fire in a portable building, when used at a fixed location	2
Mobile property (vehicle) fire, other.	4
Passenger vehicle fire.	86
Road freight or transport vehicle fire.	12
Water vehicle fire.	11
Camper or recreational vehicle (RV) fire, not self-prope	5
Natural vegetation fire, other.	23
Forest, woods, or wildland fire.	5
Brush or brush-and-grass mixture fire.	176
Grass fire.	97
Outside rubbish fire, other.	57
Outside rubbish, trash, or waste fire	18
Dumpster or other outside trash	32
Special outside fire, other	13
Outside storage fire on residential or commercial	5
Outside equipment fire	22
Cultivated vegetation, crop fire, other	5
Cultivated orchard or vineyard fire	6
Cultivated trees or nursery stock fire	3

1,298

Provided by Steve Hill, PIO, Contra Costa County Fire Protection District, on 19 April 2021.