



the hillsides



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Wildfires are the most immediate threat to the health and safety of Cortes Madera's residents, employees, and visitors in the hillside neighborhoods. A significant portion of the hillside neighborhoods are wooded and lie directly within the WUI. Evacuation routes are relatively limited and steep, posing significant challenges for resident evacuation of emergency responder mobility and access. Cortes Madera is on the National Fire Plan list (managed by CalFire) of communities at high risk of damage from wildfire.¹¹⁷ Many of the homes in

these neighborhoods were built prior to present code requirements; therefore, many structures do not meet minimal standards for fire protection and safety.

Based on the Community Wildfire Protection Plan update (to be released in 2021), the Town is working to redefine its fire hazard severity zone designations based on the most up-to-date and locally-specific information available. This data indicates that 49% percent of the Town is located in the WUI.

Hillside Adaptation in Practice

No single investment will eliminate the risk of wildfire for Cortes Maderans and ongoing strategic investment in policies, programs, and infrastructure over the next ten years is going to be needed to adapt. The following four pillars serve as the guideposts for improving wildfire preparedness in Cortes Madera: 1) Evacuation; 2) Wildfire Mitigation (vegetation management, hazardous fuel reduction, and defensible space, code related infrastructure improvements); 3) Protection (fire suppression using fire fighters, fire engines, fire fighting, water systems, etc.); and, 4) Education.

* Value calculation assumes \$1.3 million average/structure and includes all areas within the Town from Zillow.





FEATURED ACTIONS: EVACUATE

Enhance wayfinding (i.e. new signs for roads and paths, maps, and stair lighting) in hillside neighborhoods to support effective evacuation.

Project

Lead: Corte Madera Public Works

Chapman Hill and Granada Hill neighborhoods both lack adequate paths, signs, and lighting necessary for residents to evacuate from a wildfire by walking or biking as a last resort. Christmas Tree Hill contains several pedestrian paths and stairways that provide connections for people who are able to walk up and down the hill; however, the connections with stairways are not ADA-compliant, and some paths with steep slopes also present accessibility challenges. Wayfinding signs should include consistent, well-lit, and easy to read evacuation instructions and maps.

Enhance hillside transportation network capacity and connections where possible.

Project

Lead: Corte Madera Public Works

To enable safe and quick movement of people, the network of streets and off-street paths must be robust and, provide multiple downhill, overhill, and multimodal access and egress. Every resident should have the ability to get away from threats and authorities and emergency personnel should have access to respond to emergencies. It is critical that key evacuation choke points are addressed in the Town, Marin County, and the North Bay region, including those in Christmas Tree Hill, Chapman Hill, Granada Hill, and Sausalito Avenue (aka Hidden Valley).¹²⁰ To see specific choke points in the Town, reference pages 104-109.

As wildfires grow hotter, bigger, less predictable, and more severe, communities are grappling with challenges of ensuring the health and safety of their residents. Evacuation planning is a crucial step in this process, and requires regional collaboration, continuous investment, and the integration of best practices from communities who have experienced catastrophic wildfires across the state. For Corte Madera, that risk is real and ever increasing.

The three hillside neighborhoods - Christmas Tree Hill, Granada Hill, and Chapman Hill - all present unique challenges in regards to evacuation. Many homes are particularly vulnerable to wildfire due to hazardous fuel conditions and limited access to major streets and evacuation routes. Hillside streets typically are wind-

ing and, in many cases, are quite narrow with as little as 12 feet of paved width before accounting for vegetation, parking, and other encroachments. In some cases, the hillside transportation network is supplemented by paths and stairways; however, existing pedestrian paths are limited, and not all paths are ADA-compliant.

In addition, there are broader regional evacuation concerns that pose additional challenges for hillside residents. Not only are there key choke points for evacuation,¹¹⁸ public transit systems are not effectively integrated into evacuation preparedness protocols and chains of command.¹¹⁹ These challenges are particularly acute for residents who live considerable distances from main evacuation routes.

On November 8, 2018, the Camp Fire - which became one of the deadliest fires in California history - burned the majority of homes in the Town of Paradise, killing 85 people. As a part of their official Recovery Plan (2019), the Town of Paradise indicated the need to address key choke points, enhance roadway widths, and ensure that all local roads can serve as either a primary or secondary ingress or egress route. In addition, the Town indicated a need to setback trees and eliminate utility poles that can burn and block egress on private and public roads.¹²¹ To the extent possible, Corte Madera should begin this work to ensure it can evacuate residents safely from hillside neighborhoods in the case of a similar disaster.

Enhance traffic congestion controls and parking enforcement along evacuation routes.

Policy and Program

Lead: Central Marin Fire Department and Town Law Enforcement

In order to improve access and egress in the hillside neighborhoods, policies and enforcement need to accompany strategic investments in the hillside transportation infrastructure. For example, law enforcement could expand ticketing of cars that are parked illegally on specified streets. Additional no-parking zones could be created and painted on hillside streets to ensure compliance.

Develop policies that further restrict development in the WUI.

Policy

Lead: TBD

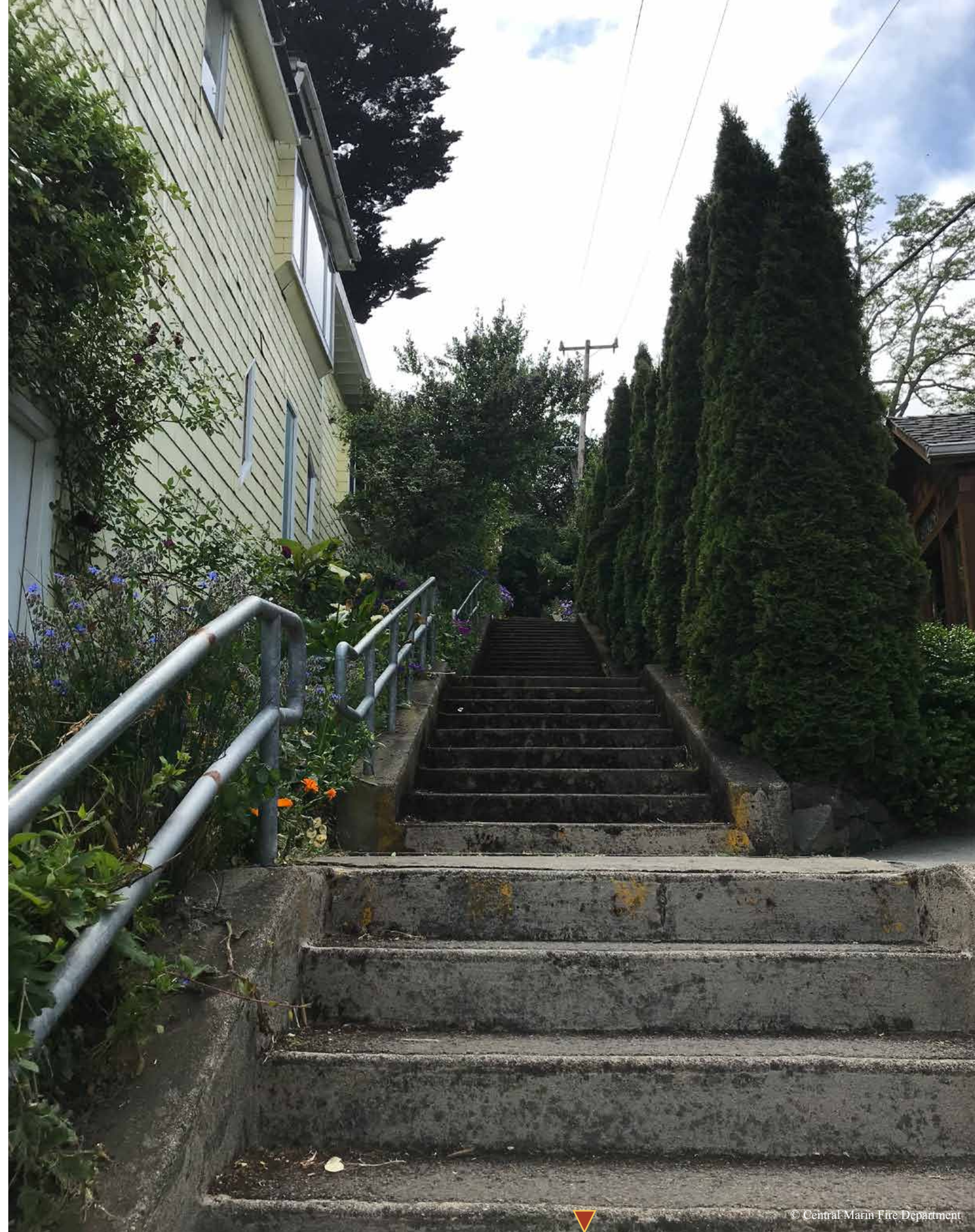
The first step in reducing wildfire risk is to limit development directly in harm’s way. Currently, there is a very little opportunity to continue to develop land in the hillside neighborhoods, but reducing the expansion of Accessory Dwelling Units (ADU’s) in the WUI will help reduce the number of people in highly vulnerable areas and help make evacuation more efficient. It may also be possible to develop policies for responsible expansion of ADUs.

Identify opportunities to support Neighborhood Response Groups (NRGs) to increase community and neighborhood cohesion so communities can do more to help themselves during and after fires.

Program

Lead: TBD

NRGs are essential community support networks that already dedicate a significant amount of time and energy to supporting wildfire preparedness in the Town. The Town could enhance collaboration with the NRGs to make sure they have the tools, knowledge, and resources to support each other during an emergency. This includes providing evacuation training and drills using large-scale, unpredictable, and challenging scenarios and hosting “build an emergency kit” day and other events where community members can come together, learn about resilience, and build an emergency preparedness kit, and more.¹²²



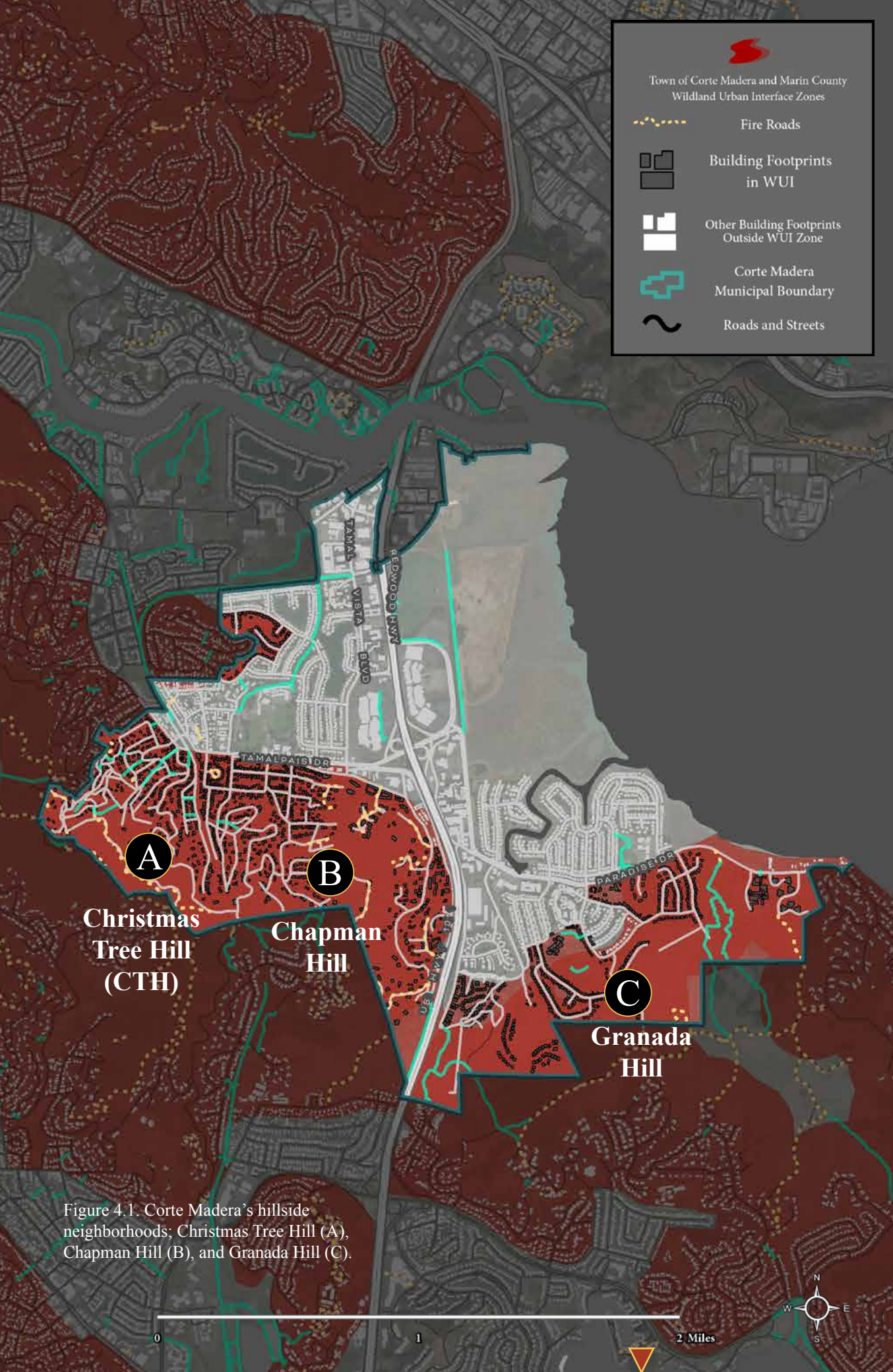


Figure 4.1. Cortes Madera's hillside neighborhoods; Christmas Tree Hill (A), Chapman Hill (B), and Granada Hill (C).

INVESTING IN INFRASTRUCTURE

The three hillside neighborhoods - Christmas Tree Hill (A), Chapman Hill (B), and Granada Hill (C) in Figure 32 - all present unique emergency response challenges, especially access and egress to and from homes near the top of the hills and away from main roadways. Within each neighborhood, streets are typically winding and, in many cases, quite narrow. There are streets with as little as 12 feet of paved width that are further narrowed by vegetation, parking, and other encroachments. Frequently, there are only one to two roads and paths connecting the neighborhoods to major roadways. There are fire roads that lead up and over the hills to neighboring jurisdictions; however, these dirt roads are steep and require improvements to accommodate private vehicles safely during an emergency. In some cases, the hillside road network is supplemented by steps, lanes, or paths; however, the existing pedestrian paths are limited and few, if any, are ADA-compliant. Bicycle facilities are very limited and public transit agencies and systems are not effectively integrated into evacuation preparedness protocols, chains of command, and regional planning efforts. Investing in transportation infrastructure changes (i.e. road widening, additional pullouts, road resurfacing) and policy changes will be important to ensure residents can evacuate safely in the case of a major wildfire.

The project team analyzed the three hillside transportation networks examining roadway widths and street connectivity. The team then evaluated adaptation alternatives based on six key metrics: 1) mode(s) of access/egress, 2) number of primary two-way roads 3) households with vehicular access/egress, 4) downhill access/egress, (the to town), 5) uphill access/egress points over hills and 6) infrastructure cost.

A. Christmas Tree Hill

The roadways on Christmas Tree Hill are the most constrained of the three hillsides, with most streets less than 20 feet wide. The most constrained segments (those less than 15 feet wide), include much of Summit Drive, upper sections of Redwood Avenue, the section of Ardmore Avenue that connects to Marina Vista Avenue, Sunrise Lane, Portola Way, and California Lane. These narrow streets limit connectivity and roadway capacity. The neighborhood does contain several pedestrian paths and stairways that provide connections for people who are able to walk up- and downhill;

however, these connections are not ADA-compliant and paths with steep slopes also present additional challenges to resident accessibility.

B. Chapman Hill

The roadways on Chapman Hill range in width: some streets are more than 20 feet wide while others are 15 and 20 feet wide, and a few are less than 15 feet. The majority of the streets that are more than 20 feet wide are located at the bottom of Chapman Hill. Buena Vista Avenue, Sausalito Street, the lower section of Chapman Drive, and the upper section of Montecito Drive also have widths greater than 20ft. The most common range of street width is 15 - 20 feet. These streets offer substantial clearance for emergency vehicles; however, they may not be as reliable due to potential obstacles that hinder seamless two-way operations. Chapman Hill Streets that are less than 15 feet wide include Prospect Lane, Templeton Court, and Alta Way, which create chokepoints for people traveling between upper Chapman Drive and Sausalito Street. Besides hilltop paths that connect to nearby fire roads, stairways, and neighboring Mill Valley streets, few pedestrian connections exist.

C. Granada Hill

Of the three hillsides, Granada Hill roadways provide the widest connections, with a majority of streets that are more than 20 feet wide. The hill's most narrow street is a connection to Granada Park and is the only street less than 15 feet wide. Unlike what can be found in Christmas Tree and Chapman Hills, all buildings along this narrow roadway have access to alternate street connections such as Prince Royal Drive. There is also far less vegetation of concern on Granada Hill in comparison to other neighborhoods, yet their wildfire risk remains high; many roadways are steep and some only offer one way in and out of an area.

The following actions are recommended starting points for investments that would improve the ability of hillside residents to evacuate before and during emergencies. These investments must be reinforced by policy-based actions, such as removing on-street parking on critical street segments, as well as infrastructure investments, such as strategically adding new connections. For more information on those policy recommendations, see pages 101-102.

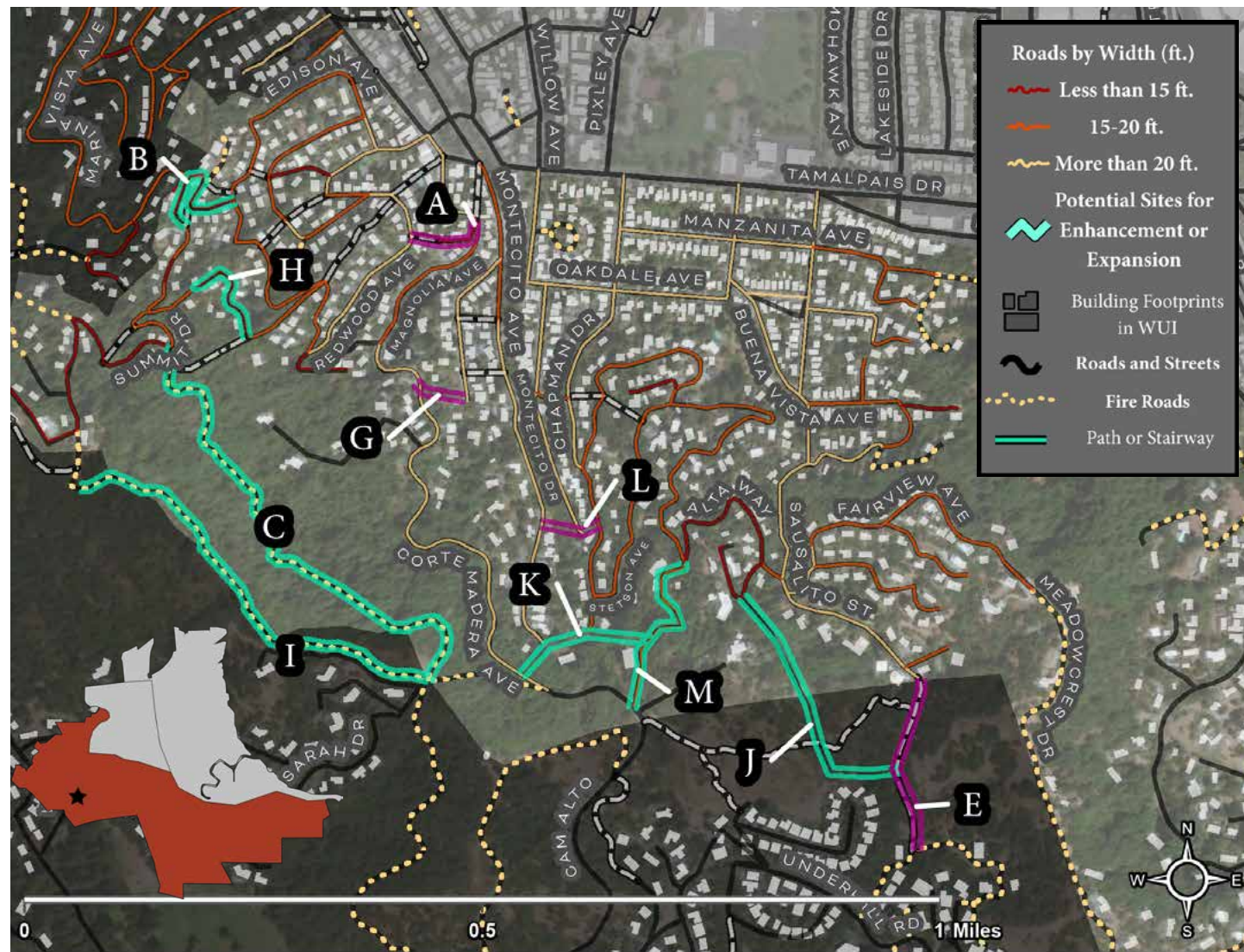


Figure 4.2. Proposed infrastructure improvements on Christmas Tree Hill and Chapman Hill.



Figure 4.3. Proposed infrastructure improvements on Granada Hill.

POTENTIAL PRIORITY ACTIONS

(A) - Enhance California Lane to connect Redwood Avenue with Corte Madera Avenue.

Neighborhood: Christmas Tree Hill
Lead: Public Works
Cost: ~\$2,000,000 (\$400,000 for design effort)

This potential connection could be used during emergency evacuations only or for everyday use and would provide 69 households with access to an additional primary vehicular access/egress route. Currently, California Lane exists as a passable street, but it is not currently publicly-owned. Enhancing this connection would require expanding the existing driveway and converting the existing stairway into a street that meets reasonable engineering standards and is at least 15 feet wide. It would likely also require regrading, some widening, and possibly retaining walls. There may be an opportunity to construct additional structural improvements on the roadway (i.e. sidewalks, drainage, etc.), which would elevate the cost of this project.

(B) - Widen and improve Summit Drive.

Neighborhood: Christmas Tree Hill
Lead: Public Works
Cost: ~\$1,000,000

Summit Drive is one of the most constrained roadways in the entire Town. Proposed improvements include street widening, resurfacing, and constructing a pullout, which will enhance this roadway and improve vehicular access/egress to 49 households.

(Multiple) - Improve the Town-maintained hill paths and stairs on Christmas Tree Hill.

Neighborhood: Christmas Tree Hill
Lead: Public Works
Cost: ~\$250,000 (~\$100,000 for design and ~\$150,000 for construction)

Beyond structural improvements, enhancements could include Potential addition of signage (including clear evacuation information, maps, and QR codes), and the installation of stair lighting and other wayfinding improvements.

(C) - Connect, resurface and improve Lower Summit fire road.

Neighborhood: Christmas Tree Hill
Lead: Public Works
Cost: ~\$2,000,000

Enhancing the connection from Lower Summit fire road to the roadway network on Christmas Tree Hill would provide additional vehicular connections to 41 households during an emergency evacuation event. This connection will require regrading to support private vehicles, as well as other safety measures and acquisition of land use rights.

(D) - Establish a connection between El Camino Drive and Madera Del Presidio Drive.

Neighborhood: Granada Hill
Lead: Public Works
Cost: ~\$150,000

Currently, a small fire lane with a paved walking trail exists between these two streets. Additional improvements to this fire lane would improve emergency access for first responders, serve as a potential egress route for residents during emergency evacuations, and provide additional recreational benefits and dedicated space for biking and walking.

(E) - Connect Sausalito Street to Mill Valley.

Neighborhood: Christmas Tree Hill
Lead: Public Works
Cost: ~\$400,000

Enhancing the connection between Sausalito Drive and Mill Valley via Coach Roach fire road would expand uphill access for private and emergency vehicles. This connection would provide almost 80 households with access to a new primary vehicle uphill route. It would require regrading and resurfacing to support private vehicles.

(Multiple) - Strategic Pullouts on Christmas Tree Hill.

Neighborhood: Christmas Tree Hill
Lead: Public Works
Cost: ~\$300,000 per pullout

There are several chokepoints on Christmas Tree Hill that would benefit from additional strategic pullouts. Right of way, topography, and road elevations present challenges for transportation projects on Christmas Tree Hill, therefore more planning and engineering work will need to be done to identify strategic locations that would improve access/egress for residents.

(G) - Improve the Grove Avenue connection.

Neighborhood: Chapman Hill
Lead: Public Works
Cost: ~\$2,000,000

A connection between Grove Avenue to Corte Madera Avenue would provide a new primary vehicular access/egress route to about 25 households during emergency evacuations. The Town would need to consider property acquisition and its associated costs to create an effective connection.

(H) - Widen Redwood Avenue where feasible on Christmas Tree Hill.

Neighborhood: Christmas Tree Hill
Lead: Public Works
Cost: ~\$1,500,000

This roadway enhancement would widen the road between Summit Drive and Morningside Drive. It provides vehicular access/egress for 35 households.



ADDITIONAL IMPORTANT ACTIONS

Though the remaining actions may have lower cost-to-benefit ratio relative to those in the higher priority tiers, these transportation network enhancements and expansions have value and should be considered. These include:

- Resurface Middle Summit Fire Road on Christmas Tree Hill (I)
- Resurface Alta Way Fire Road on Chapman Hill (J)
- Resurface Coach Road Fire Road on Chapman Hill (See Item E - Connect Sausalito to Mill Valley)
- Create a new limited access connection from Upper Chapman Drive to Corte Madera Avenue on Chapman Hill (K)
- Create a new limited access connection from Stevenson Avenue to Montecito Drive on Chapman Hill (L)
- Widen Upper Chapman Drive on Chapman Hill (M)
- Resurfacing Endeavor Fire Road on Granada Hill (N)
- Creating a new connection for the Phyllis Ellman Fire Road on Granada Hill (O)



MITIGATE

Fuel hazard reduction, vegetation management, defensible space, and home hardening in the WUI are essential to reducing wildfire risk across Corte Madera.

Fuel hazard reduction efforts (i.e. defensible space and vegetation management) require a significant amount of resources, staff, maintenance, inter- and intra-agency coordination, and policy enforcement. According to the Marin Wildfire Preparedness Grand Jury Report, “the [current] policies and procedures intended to manage and reduce vegetation [in the county] are inadequate.”¹²³ The report cites several challenges to effectively maintaining fuel hazard reduction measures in Corte Madera including vacant properties with overgrown vegetation and incomplete defensible space work, the lack of individual homeowner resources, knowledge, and engagement, and the lack of dedicated staff needed to enforce policies and ensure compliance.¹²⁴ FIRESafe Marin is one of the primary regional partners dedicated

to mitigating fire risk in the region and works in coordination with municipal and county governments, fire departments and homeowners.¹²⁵ On September 24, 2019, the County of Marin Board of Supervisors adopted a resolution formalizing the Marin Wildfire Prevention Authority (MWPA), a multi-jurisdictional joint powers authority (JPA) that dedicates \$21 million to: 1) wildfire detection and evacuation system improvements; 2) vegetation management and fire hazard reduction; 3) defensible space and home hardening evaluations; 4) public education and neighborhood wildfire preparedness; and, 5) local specific wildfire prevention efforts.¹²⁶ There are 17 agencies involved in the newly established JPA representing more than 98 percent of the land area and more than 96 percent of the residents of Marin County. The creation of the MWPA will funnel in a significant increase in investment to support the Town’s mitigation efforts.

The Rapidly Changing Wildfire Insurance Market

Across California, increasingly devastating wildfires are dramatically altering the insurability of homes. In 2018 alone, the California Department of Insurance recorded \$9 billion in lost property claims for homes lost to wildfire.¹²⁷ Additional sources indicate that in 14 months, “multiple wildfires and a mudslide killed more than 150 people, destroyed more than 30,000 homes and businesses, bankrupted California’s biggest utility and sparked more than \$30 billion in insurance claims, forcing at least one insurer to go under.”¹²⁸ Prior to 2017, standard homeowner insurance policies generally provided insurance coverage to homeowners living in the WUI. After incurring massive financial losses due to property claims, following the Camp, Tubbs, and Mendocino Complex fires, private insurers are reevaluating the market and their liabilities.

As climate change continues to exacerbate wildfire risk across the State, governments and residents are reeling from drop offs in coverage and are being required to reevaluate how they will identify coverage for their homes and businesses. In 2019 alone, “insurers dropped 235,274 policies in California, a 61% increase from 2018.”¹²⁹ In addition, premiums have continued to increase since 2015. In addition, lawmakers instituted a one year moratorium on insurance non-renewals in 2019 resulting in a temporary solution. Residents unable to recoup losses from other private insurers turn to the last-resort state insurer, FAIR California. Enrollments in the FAIR plan has increased by 225% since 2019. As the wildfire insurance market transforms across the state, lawmakers are giving this outdated mechanism increased attention over the last few years and continue to revise and address its shortcomings. The insurance landscape is changing quickly and will require continuous monitoring in order to make sure Town residents are covered in the case of a catastrophic wildfire. In some cases, completing expensive home hardening and wildfire risk reduction work did not guarantee that California residents living in fire-prone areas would qualify for wildfire insurance.



FEATURED ACTIONS: MITIGATE

In addition to wildfire mitigation projects and programs, increasing enforcement of existing policies can ensure homeowners are aware of and in compliance with WUI codes and regulations. Investments in homeowner programs are needed. These programs ensure homeowners have the tools, education, and resources necessary to conduct their own home hardening, defensible space, and vegetation management and reduce their individual wildfire risk.

Support the Marin Wildfire Prevention Authority (MWPA) to conduct individual home assessments for all homes located in the hillside.

Program

Lead: TBD

Corte Madera can play an important role in supporting the MWPA's efforts by reducing wildfire risk and improving consistent messaging for evacuation and fuel hazard reduction efforts in the hillside neighborhoods. Individual site assessments are an important part of understanding, defining, and improving compliance across the town. The MWPA recently hired a Wildfire Hazard Mitigation Specialist who will be responsible for completing county-wide home assessments, identifying homes that are not in compliance and encouraging local action.

Support 100% of Corte Madera hillside neighborhoods becoming Firewise Recognized Communities.

Program

Lead: TBD

The Firewise Recognition Program is an innovative national program that supports local wildfire preparedness goals by recognizing communities for working together on vegetation management, defensible space, and home hardening measures. While the program motivates residents to comply with local WUI codes and supports regional efforts to reduce wildfire risk, these efforts can be time-consuming and expensive to implement. Marin county leads California in the number of recognized Firewise sites (with more than 30), and leads the nation in growth of this important program - a testament to the hard work of local communities.¹³¹ Certifying 100% of hillside neighborhoods by 2022, will better prepare Corte Madera for wildfires. The Town and County will need to find ways to better support neighborhoods in this process in order to achieve this goal. Additional details on how to achieve the Firewise Certification [here](#). The steps to achieving your Firewise USA certification can be found [here](#).

Coordinate with PG&E to underground hillside neighborhood electric power lines.

Project

Lead: Corte Madera Public Works

Recent catastrophic wildfires triggered by damaged or downed power lines have led utility companies like PG&E to take temporary measures to reduce fire risk. This includes implementing Public Safety Power Shutoffs (PSPS) - regional power shut offs for residents - during Red Flag Warning days (days with low humidity levels, sustained winds above 25 MPH, wind gusts above 45 MPH, and dry fuel conditions). In order to reduce power line-induced fire ignitions and to enhance the resilience of utility infrastructure over the long-term, some municipalities (like Paradise following the Camp Fire) are working with PG&E to put power lines underground. This process, known as "undergrounding," is an expensive but successful solution at reducing powerline ignitions, particularly in high vegetation and hilly areas like Corte Madera. More information about the process the Town can take to coordinate with PG&E to start this process can be found [here](#).

Streamline the process for enforcing the Town's WUI building codes and regulations with particular attention to rental properties and absentee homeowners.

Policy

Lead: TBD

Enforcing defensible space, vegetation management, and home hardening policies is difficult, time-consuming, and expensive. This is particularly true for the dozens of vacant and rental properties located in hillside neighborhoods. Often, these homes have overgrown vegetation and are out of compliance with the Town's WUI codes. The 20-25 defensible space inspectors coordinated through the Marin Wildfire Protection Authority, set the goal of inspecting all single family homes located in hillside communities in the Town by the end of 2021. As a part of this process, the Town and FireSafe Marin could work together to support corrective action in a timely and consistent manner for properties that are found to not be in compliance with WUI codes and regulations.¹³²

Boulder County has been recognized nationally for their innovation in reducing community wildfire risk. The Boulder County Community Wildfire Protection Plan identifies best practices for integrating wildfire hazard rating systems into regional planning efforts to encourage homeowner action on fuel hazard reduction.¹³⁰ Lessons from these efforts that could be applied in Corte Madera include:

- A great deal of money, time, and effort is needed to collect, analyze, and display all the key information included in most wildfire hazard rating systems.
- Rating systems need a simple and cost effective way to be updated.
- Results of scoring systems should be made available to neighbors.
- Peer pressure is an effective motivator for residents living in the WUI.
- Homeowners who take the recommended actions need to see a corresponding change in their score

The Central Marin Fire Department is using a similar approach to assess wildfire risk and tracking which homes are in compliance with the WUI codes and regulations. For more information, see the [Community Wildfire Protection Plan](#).



Support regional partners to scale up landscape level wildfire mitigation work, especially in and near lands surrounding the Town boundaries.

Program

Lead: TBD

Several regional partners are in the process of scaling up their fuel hazard reduction work across the County but need support to adequately meet the challenge. For example, Marin Municipal Water District owns ~21,500 acres of wildland but only clears around 30 acres per year. Marin County Open Space District owns ~16,000 of wildland but only manages around 10% of lands for wildfire a year.¹³³ Regional partners should collaborate closely with the County, FIRESafe Marin, municipalities, and the MWPA through various channels including CWPP meetings, annual work plans, and plan updates to implement landscape-scale wildfire mitigation. By considering opportunities to share resources, equipment, and crews with local and County entities, wildfire risk reduction could happen more efficiently and effectively.

Update the Town’s WUI codes and regulations to include the “0-5’ non-combustible zone” or “Zone Zero” rule.

Policy

Lead: TBD

Despite having some of the most aggressive WUI codes in the nation, there are additional regulations that can reduce wildfire risk for the Town. In alignment with the state’s fire codes, the “0-5’ non-combustible zone” or “Zone Zero” policy is intended to restrict all combustible materials within 5 feet of any residential or commercial structure (including storage, debris, building materials, stacked materials, vegetation). The MWPA will serve an important role updating codes and regulations, but the Town also needs to ensure that they have the staff, resources, and time to educate homeowners and ensure compliance.

Coordinate with real estate companies, the private sector, insurance companies, and the State to create a certificate that improves resale value and insurability for homes that have complied with WUI regulations, FireSafe practices, and codes.

Program

Lead: TBD

Currently, homeowners are cited if they are out of compliance with regards to the Town’s WUI codes and regulations but there is no incentive program to encourage or recognize these investments. The Town could create a certification program for individual homeowners who comply with Corte Madera WUI codes, rules, and regulations. This work can be coordinated with home assessments already taking place through the CalFire Collector App. A certification process could help reduce wildfire risk for the entire neighborhood, increase marketability for homes in the WUI that are for sale, or increase insurability for homes. In 2014, Boulder County created a public/private partnership to “help property owners prepare for future wildfires by conducting individual site assessments with a hazard mitigation specialist, providing a customized report identifying priority risk reduction actions, offering financial rewards to subsidize costs for mitigation contractors to complete the recommended work, providing wildfire advisory contacts, and conducting follow-up inspections.”¹³⁴

Policy Consideration: Quantifying the Town’s Wildfire Risk and Expanding the WUI

Corte Madera residents must currently abide by Town,¹³⁵ County,¹³⁶ and State¹³⁷ WUI codes, most of which are based on the International Code Council.¹³⁸ The Town’s codes, which can be referenced [here](#), are updated every 3 years and the most recent update was adopted in 2020. According to data from CalFIRE, Corte Madera is entirely located in a Local Responsibility Area (LRA) and has no “very high” fire severity zones (VHFHSZ). Therefore, the State has no responsibility for fire protection or mitigation work within the Town boundaries. However, in 2008 the Town of Corte Madera adopted [Ordinance No. 904](#) expanding the VHFHSZ, pursuant to Government Code Section 51182, designating several areas within the Town as a Wildland-Urban Interface Zone (WUI) based on local findings.¹³⁹ According to the most up-to-date and localized information available at the County level, wildfire hazard severity designations are more extreme than the designations currently defined by the state. The County is in the process of updating its Community Wildfire Protection Plan (CWPP) scheduled to be published in 2021 and the plan will reflect County data and modeling that more accurately reflects the fire hazard severity designations for the Town. This information will also need to be a central part of updates to the Marin County Comprehensive (or General) Plan and the Hazard Mitigation Plan.

Expanding the WUI zone and increasing the wildfire hazard severity ratings based on new data will better represent the Town’s actual wildfire risk, increase the number of residents required to abide by Town WUI codes, and increase the Town’s competitiveness for funding necessary to support the Town’s adaptation and resilience efforts.

Specifically, extending the boundaries of areas subject to wildfire regulations in the Town will expand the number of residents required to complete vegetation management, defensible space, and home hardening work on their properties. These designations will help decision-makers better understand, assess, and develop adaptation approaches to addressing the potential impacts of wildfire for hillside neighborhoods and require additional tools, resources, and staff to enforce compliance with the codes. In coordination with the County and Town efforts to quantify wildfire risk for the Town, a thorough review is also needed on CalFire’s approach to mapping and designating wildfire hazard severity risk zones for Corte Madera.



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PROTECT

Fire protection is essential to ensuring the safety of Corte Maderans. First responders in the Town and County are dedicated and reliable specialists with a long history of supporting the region during emergencies. Yet, the impacts of climate change presents new and unexpected challenges for fire protection across the region. Wildfires are getting hotter, bigger, more severe, and less predictable. Adapting to these changes requires continuous monitoring, regional collaboration, and science-informed decision-making that incorporates best practices across the state. Limited funding, lack of staff and capacity, and antiquated policies at the state level are not commensurate with the increasingly extreme risk of wildfire. Often, local governments must rely on local knowledge and regional support to ensure that communities can adapt in this rapidly changing landscape and protect its residents. As evidenced by catastrophic wildfires across California, residents can't

rely solely on first responders to ensure that they are safe.

In addition, regional pressures continue to change the landscape for first responders across the region. As the population continues to grow in the region, the Town will need to continue to invest in its fire protection funding. The Central Marin Fire Department requires continuous monitoring and investment to make sure that it can meet fire protection demands. It will be important to scale up fire protection efforts in a way that both understands and addresses increased climate-driven wildfire risk due as well as regional development demands.

Town and County governments can no longer rely on business as usual. Regional, innovative, and long-term commitments are essential.



FEATURED ACTIONS: PROTECT

Monitor and maintain appropriate staffing levels commensurate with the current and projected emergency response environment due to climate change.

Project

Lead: TBD

As the region continues to grow, more strain is put on our local resources to make sure that our communities and first responders have the staff, capacity, and tools to keep our communities safe. In addition, as wildfires continue to grow in size, severity, and duration, planning needs to reflect the increasingly extreme environment firefighters are being tasked with managing.

Invest in new equipment and technologies that support fire suppression.

Project

Lead: TBD

As wildfires continue to grow in size, severity, and duration across the state, Town and regional planning must continue to invest in the technology and equipment that keep our firefighters, first responders, and community safe.

Build wildfire resilience stations in the WUI that have the tools necessary for first responders or trained members of the NRG's to contribute to fire suppression efforts when needed.

Project

Lead: TBD

Communities like Oakland Hills have started providing their neighborhood response groups with the resources, tools, and knowledge to fight fires if first responders are delayed, blocked, or unavailable. This includes placing fire resistant sheds throughout the neighborhoods with the tools (hoses and tools) to access fire hydrants.

Deploy more fire detection cameras in priority areas.

Project

Lead: TBD

Six fire detection cameras already monitor fire starts in the region. There are also larger camera networks that help identify wildfires when they start. For example, the Alert Wildfire Network, which is a consortium of three universities - The University of Nevada Reno (UNR), University of California San Diego (UCSD), and the University of Oregon (UO) - provides access to their network of fire and tools to improve fire ignitions, scale up fire resources and response, and monitor fire behavior. Additional information can be found [here](#).



EDUCATE

Actively engaging with and educating Corte Madera residents living in the hillside neighborhoods is essential to the health and safety of all Corte Maderans. Living in the Wildland Urban Interface is a great responsibility. It requires the knowledge, capacity, and resources in order to ensure that your home, the homes of those around you, and the lives of first responders are safe during an emergency.

Supporting the Town's regional partners to enhance wildfire preparedness education for Corte Maderan residents is essential. Ensuring that hillside residents have access to, engage with, and integrate best practices for wildfire preparedness, defensible space, home

hardening, and vegetation management are a central component in reducing wildfire risk for the Town. It is equally important that all Corte Maderans understand where to get reliable, clear, and locally-specific information related to wildfires, evacuation protocols, and other procedures.

The following education-focused actions are intended to clarify Corte Madera's role in supporting regional wildfire preparedness education efforts that provide residents the tools, education, and resources necessary to understand the roles and responsibilities of living in the WUI.



FEATURED ACTIONS: EDUCATE

Coordinate with FIRESafe Marin to integrate climate change and wildfire projections into all current educational materials and programs.

Project

Lead: Central Marin Fire Department

The current Marin County Community Wildfire Protection Plan (CWPP), published in 2017, only minimally addressed climate change and its impact wildfires in the region. Updated every five years, the Central Marin Fire Department is expected to adopt a revised CWPP in 2021. Defining the role that climate change plays in exacerbating wildfire risk is key to understanding what is at stake and implementing actions that support the adaptation and resilience efforts.

Support regional partners (i.e. FIRESafe Marin, MWPA, etc.) in the efforts to effectively educate residents about defensible space, vegetation management, and home hardening efforts.

Project

Lead: TBD

In order to ensure an efficient, effective, and consistent approach to wildfire risk reduction for the Town, strong regulations must be balanced by consistent, clear, and reliable education and outreach with Town residents. This includes consistent messaging using workshops, webinars, forums, door-to-door site visits, educational materials, and more. According to the Marin County Civil Grand Jury Report, the most effective method of educating residents about wildfire preparedness was in neighborhoods on the ground from person to person by education specialists (not firefighters).¹⁴⁰

Coordinate with FIRESafe Marin to enhance community outreach and education programs about the impacts of wildfires and smoke on physical and mental health.

Program

Lead: TBD

Wildfires not only directly impact our physical health and safety, they also impact our mental health. In addition, the impacts of smoke can be long-lasting, particularly for frontline community members. Supporting regional education partners like FIRESafe Marin is an important step in ensuring that Corte Madera residents understand and prepare for the impacts of smoke and wildfires on their physical and mental health.

Taking the Long View on Community Resilience - Pre-Disaster Recovery Planning

As the State of California experiences another year marked by record wildfires, the Town of Corte Madera has an important opportunity to learn from the experiences of other communities. Investing in existing and new resilience programs, policies, and projects that support evacuation and reduce wildfire risk over the next ten years will significantly enhance the Town's ability to respond to, and protect its residents from wildfire.

The Town should create the framework NOW that will help it rebuild better if a wildfire were to occur in Corte Madera.

Adaptation planning requires that we look at all possible scenarios when considering the impacts of disasters on our communities. As fires continue to break records in size, frequency, and severity across the State, it would be short-sighted to overlook the real, immediate, and severe threat to the health and safety of Corte Maderans. Following any disaster (like a catastrophic wildfire), residents are eager to rebuild and restart their lives and it is no time to be deciding where, when, and how to rebuild. Community preparedness and pre-disaster recovery planning decisions should be made in advance and consider community and landscape needs.

In addition, decision-makers should consider short, intermediate, and long-term implications for disaster recovery. The Federal Emergency Management Agency (FEMA), provides several resources that support multiple scales of rebuilding (the National Response Framework and the National Disaster Recovery Framework).¹⁴¹ Determining how best to support the long-term well-being of the community, how to limit rebuilding in places that are at risk, how to balance property rights with community safety, and how to make the best and most efficient use of tax dollars are all things that should be done before a disaster. In addition to utilizing federal programs and resources, we also have an opportunity to learn from the best practices and lessons emerging from around the State as municipalities rebuild from devastating events that have changed their communities forever.

The Framework for Resilience

- **Fund, develop, and adopt a pre-disaster recovery plan.** Some communities, like Douglas County, Colorado, are investing in pre-disaster recovery plans. In 2015, the county adopted its first plan, designed to “establish the county’s comprehensive framework for managing recovery efforts following a major disaster.”¹⁴² Not only does this set the framework and foundation for tough decisions before a disaster occurs, it strengthens community partnerships, and maximizes the opportunity to enhance local resilience and risk reduction efforts into all aspects of the community’s planning.
- **Implement a buy-back program that buys land in particularly dangerous areas prone**

to wildfire to prevent residents from rebuilding there. Decision-makers in Santa Rosa are considering innovative approaches to rebuilding. Certain geographic areas are considered so dangerous and prone to recurring catastrophic wildfire that some decision-makers are weighing the actual cost of purchasing that land with the long-term cost of defending the homes. Not only are leaders calling for programs that compensate property owners to not rebuild, they are also encouraging economic pressures that disincentivize them from building in these dangerous areas in the first place.

- **Consider a “three strike” rule that only allows residents to use recovery funds to rebuild their homes two times before being bought out.** In some places, like Santa Rosa, California, decision-makers have considered policies and codes that limit the number of times a resident can rebuild using tax dollars or recovery funds after a wildfire before they are no longer competitive for that funding.
- **Rebuild utility infrastructure that is safer, more sustainable, and more resilient.** Many communities across California are coordinating with regional utilities to underground all utility lines to reduce wildfire ignitions. Undergrounding utilities can be extremely expensive, especially in areas that are already built. But undergrounding utility or telecommunications infrastructure while rebuilding can limit the risk of those lines being damaged or causing wildfires during extreme weather events and enhance the resilience of the Town. The Town of Paradise created a formalized agreement with PG&E to directly underground all utility lines in order to reduce wildfire risk for the community.
- **Limit the size of homes and restrict the development of ADU’s in the WUI.** By limiting the size of homes being rebuilt in the WUI (as well as the development of ADU’s), decision-makers can limit the number of people living in the WUI. This relieves pressure on limited transportation networks and on first-responders responsible for ensuring the safety of residents during a wildfire.
- **Require residents to rebuild in accordance with Town WUI codes.** Paradise, CA developed fire resistant design standards that exceeded State, County, and Town WUI requirements. They also formalized a plan to ensure the Town can enforce defensible space codes. Examples of fire resistant design standards include: requiring gutters to be non-combustible (gutters clog with dry vegetation and fuel fires); banning the use of flammable building materials (i.e. retaining walls made from railroad ties); requiring homes to be built with sprinklers, have at least double-paned windows; and have fire-resistant siding; and, requiring homeowners to clear 100’ of defensible space around homes including a “0-5’ non-combustible zone” rule (including no mulch, flammable plants, non-pressure treated decks and wooden fences). In the case of the “0-5’ non-combustible rule,” this enables the Town to “stipulate how the local government might enforce the requirement, which the state code does not do. It also allows Paradise to add nuance to the code.”¹⁴³
- **Ensure every neighborhood has multiple access and egress routes that meet best practice standards for evacuation.** To rebuild, Paradise established a policy that requires two means of access/egress for long dead-end streets and established standards for a safe length/number of homes per street. In addition, they are identifying and building additional road segments that are missing in the transportation network in order to improve road circulation and evacuation options. This also includes limiting long dead-end streets/driveways for individual homes.
- **Require fuel break transitions for homes or neighborhoods.** Not only can landscape-scale fuel breaks between the forest and neighborhoods be extremely important for firefighters as they seek to protect a home, but additional defensible space and safety measures can also improve their safety and willingness to fight a fire in a neighborhood at risk of burning.