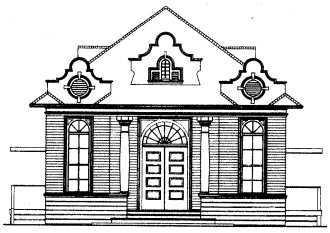

TOWN OF PORTOLA VALLEY

Regular Meeting of the
Emergency Preparedness Committee
Tuesday, May 17, 2022 - 4:00 PM
Via Zoom

SPECIAL MEETING AGENDA

Remote Meeting Covid-19 Advisory: On September 16, the Governor signed AB 361, amending the Ralph M. Brown Act (Brown Act) to allow legislative bodies to continue to meet virtually during the present public health emergency. AB 361 is an urgency bill which goes into effect on October 1, 2021. The bill extends the teleconference procedures authorized in Executive Order N-29-20, which expired on September 30, 2021, during the current COVID-19 pandemic and allows future teleconference procedures under limited circumstances defined in the bill. Portola Valley Town Council and commission and committee public meetings are being conducted electronically to prevent imminent risks to the health or safety of attendees. The meeting is not available for in-person attendance. Members of the public may attend the meeting by video or phone linked in this agenda.

To access the meeting by computer, click on the link below:

https://us06web.zoom.us/j/89296398199?pwd=RkRaUXg3U1Y1cGRNM05pcU01N1Frdz09

To access the meeting by phone, dial:
1-699-900-6833
1-877-853-5247 (toll-free)

*Mute/Unmute – press *6*
*Raise Hand – press *9*

Webinar ID: 892 9639 8199

Password: 701611

1. Call to order

2. Roll Call

3. Oral Communications
   - Note that issues brought up under oral communications that are not on the agenda will be limited to 2 minutes

4. Committee input on Safety Element wildfire hazards and evacuation routes memos

5. Adjourn

Town of
Portola Valley

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Memorandum

DATE	May 17, 2022		
TO	Emergency Preparedness Committee	FROM	Laura Russell, Planning & Building Director Curtis Banks, Project Director Carla Violet, Project Manager Urban Planning Partners Aaron Pfannenstiel, Atlas Planning Solutions Zeke Lunder, Deer Creek Resources

RE: Portola Valley Safety Element Wildfire Hazards Background and Best Practices Memo

INTRODUCTION/PURPOSE

Portola Valley is in the process of updating its Safety Element (2010) in coordination with the 6th cycle 2023-2031 Housing Element update. Recent State law changes now require municipalities to update their Safety Element in conjunction with their Housing Element update, which occurs on an eight-year cycle.

The Safety Element addresses protection of its people from unreasonable risks associated with disasters, including earthquakes, floods, fires, landslides, and other hazards identified by the local community. The Safety Element must identify hazards and hazard abatement provisions to guide local decisions related to zoning, subdivisions, and entitlement permitting, and should also integrate hazard and risk reduction strategies.

To facilitate review of the draft Safety Element, the Urban Planning Partners consultant team is preparing a series of four memos focused on different topic areas of the Safety Element including 1) Geologic, Seismic, and Flooding Hazards, 2) Climate Change Adaptation and Resilience, 3) Wildfire Hazards, and 4) Analysis of Developments with One-way of Ingress and Egress (Senate Bill (SB) 99 Analysis). After initial review by Town Committees and the public, each of these memos will be incorporated into the relevant portions of the Safety Element document. The following town committees will review the applicable memos:

- Geologic, Seismic, and Flooding Hazards Memo – Geologic Safety Committee
- Climate Change Adaptation and Resilience Memo – Sustainability Committee

- Wildfire Hazards Memo and SB 99 Assessment Memo – Emergency Preparedness Committee[1]

Following this series of meetings, the full draft Safety Element will be presented in June for review and comment. If desired by the committee(s), these comments may be presented to the Planning Commission along with the draft Safety Element. Following Planning Commission approval, the draft Safety Element will be transmitted to the State Board of Forestry and Fire Protection for review. Following any further revisions, the Town Council will review and approve the final Safety Element at a public meeting.

The Safety Element is being updated before Cal Fire has released its updated fire hazard map and before the completion of the Woodside Fire Protection District's concurrent Fire Hazard and Risk Assessment (both discussed below) to ensure that the Housing Element is informed by the most up-to-date hazard data. Once the additional maps and reports are finalized, the Safety Element will be updated if necessary.

EMERGENCY PREPAREDNESS COMMITTEE INPUT

This focus of this memorandum is wildfire hazards. This memo includes historical data and existing conditions/background information and existing policies from the 2010 Safety Element that are still relevant. This memo also includes best practices for the Committee's consideration that could be developed into new draft policies and programs (shown in ***blue, italicized font***). Town staff and the consultant team is seeking early input from the Emergency Preparedness Committee on topics related to wildfire hazards, emergency access, and evacuation. This input will be used to inform further edits that will be integrated into the draft Safety Element. A Resources Guide for Wildfire Programs and Policies prepared by the Association of Bay Area Governments (ABAG) is also attached for reference (Appendix A).

CONCURRENT LOCAL WILDFIRE STUDIES

WOODSIDE FIRE PROTECTION DISTRICT FIRE HAZARD AND RISK ASSESSMENT

The Woodside Fire Protection District (WFPD) is currently preparing a Fire Hazard and Risk Assessment. The Fire Marshal has expressed the following objectives in priority order for their work:

1. Protect the population within and immediately surrounding the District
2. Protect District personnel and others responding to incidents within or surrounding the District
3. Protect essential infrastructure, resources, and property within the District
4. Educate the District's population and its leaders

[1] Due to recent vacancies, the Wildfire Preparedness Committee (WPC) is not able to meet as an official committee. If the vacancies are filled in time, the Wildfire Hazards memo will also be reviewed by the WPC.

WFPD anticipates collecting the best available data on terrain; aspect and fuels; ground proofing and validating that data; then integrating the various inputs (terrain, fuels, population, evacuation routes, infrastructure, etc. and depicting that data on one or more maps that can be used to facilitate public safety and inform the development of policies. Once completed, the Safety Element will be evaluated and amended if necessary to include this information.

EVACUATION ROUTES ANALYSIS

A separate evacuation analysis is underway concurrently with the Safety Element Update to satisfy Assembly Bill (AB) 747 and Senate Bill (SB) 99 requirements. AB 747 requires local jurisdictions that have not adopted a local hazard mitigation plan on or after January 1, 2022, to identify evacuation routes and their capacity, safety, and viability under a range of emergency scenarios in the Safety Element. SB 99 requires the identification of subdivisions with a single ingress/egress within the jurisdiction. The results of the SB 99 assessment are within a separate memo and will be presented at the May 17, 2022 meeting (as noted above). The AB 747 analysis will be presented to the Emergency Preparedness Committee at a separate meeting.

WILDFIRE HAZARDS

Given its combination of complex terrain, Mediterranean climate, and ample natural ignition sources from productive natural plant communities, portions of California are very fire prone. High hazard wildfire conditions arise from a combination of high temperatures, low moisture content in the air and fuel, accumulation of vegetation, topography, and high winds. Throughout California, communities are increasingly concerned about wildfire safety as increased development in the areas adjacent to wildlands and subsequent fire suppression practices have affected the natural cycle of the ecosystem which have evolved with frequent wildfires.

Portola Valley is characterized by steep canyons and gullies, with dense vegetation, including thick brush and trees, interspersed throughout its residential neighborhoods. The town is bounded to the south, east, and west by open space land uses: Windy Hill Open Space Preserve, Pearson-Arastradero Preserve, and Thornwood Open Space Preserve, respectively. The broken nature of the topography creates difficult-to-access areas where vegetation management is difficult to accomplish; in addition, east-west oriented canyons create funnels for strong autumn winds, which tend to blow from the east or west and amplify wildfire hazards.[2]

The climate in San Mateo County is Mediterranean and characterized by warm, dry temperatures accompanied by wind. The topography, fuel conditions, and climate combine to make Portola Valley and surrounding areas at risk for wildfire. Historic weather data suggests that the greatest wildfire threat may be driven by eastern winds, which are typically drier and less common; therefore, areas where the topography aligns with the dominant fire-season winds (east-west oriented canyons) face a higher likelihood of extreme wildfire behavior.[3]

[2] Deer Creek Resources, 2022. Portola Valley Wildfire Memo.
[3] Deer Creek Resources, 2022. Portola Valley Wildfire Memo.

HISTORICAL WILDFIRES

According to the 2021 Multijurisdictional Local Hazard Mitigation Plan (LHMP) and the California Department of Forestry and Fire Protection (Cal Fire), San Mateo County has a high probability of experiencing a wildfire in any given year. However, since the 1950's, only two wildfires have caused sufficient damage, triggering a State or federal disaster declaration: in 1956 near Montara, and in 2020 across the Santa Cruz County border (the CZU Lightning Complex). According to Cal Fire, two wildfires have occurred within the Portola Valley area (see Table 1 below).

Table 1: Portola Valley Historic Wildfires

Year	Name	Location	Acres Burned
2017	SKEGGS	South of Teague Hill Open Space	36
1962	LEIB	North of Bull Run Creek and west of Farm Road	1,328

Cal Fire, 2021. Fire Perimeters through 2021 [GIS]. Retrieved from https://frap.fire.ca.gov/mapping/gis-data/.

CLIMATE CHANGE CONCERNS

Increased temperatures, and decreased precipitation rates, also affect how dry the soil composition and vegetative debris can be in a given area. According to Cal Adapt, the Keetch-Byram Drought Index (KBDI), provides an estimate of average number of days that dry materials may pose an increased risk to wildfire. KBDI is a cumulative value that increases on dry and warm days and decreases during rainy periods. In California, KBDI is anticipated to increase from the end of the wet season (spring) into the dry season (summer & fall). On average Portola Valley has an observed 30-year average of 22 days a year where the KDBI is over 600, which indicates severe drought, extreme wildfire risk, and increased wildfire occurrence. By midcentury, it is projected that 55-63 days may exceed this threshold, and by the end of the century 65 – 95 days.[4] This is an important factor to consider as it can exacerbate wildfire hazard potential in an area already susceptible to fire.

Based on the anticipated changes in temperature and precipitation in Portola Valley, increases in wildfire vulnerability is expected. According to Cal Adapt, from 1961 to 1990 approximately 106.4 to 116.0 acres of Portola Valley burned on average annually. By mid-century, this annual average area burned is expected to increase to approximately 217.6 – 233.7 acres, and 226.6 – 234.0 acres by the end of the century[5].

[4] Local Climate Change Snapshot for Portola Valley, CA. https://cal-adapt.org/tools/local-climate-change-snapshot
[5] Local Climate Change Snapshot for Portola Valley, CA. https://cal-adapt.org/tools/local-climate-change-snapshot

REGULATORY SETTING

In the event of a fire emergency, the Portola Valley planning area is served by the WFPD, Cal Fire, and Stanford University. Northern and eastern portions of the planning area are also served by the Menlo Park Fire Protection District and the Palo Alto Fire Department. Woodside Fire Protection District Station #8 serves Portola Valley. All of these fire protection services fight both structural and wildland fires, although the equipment operated by Cal Fire is designed to be most effective against grass, brush and forest fires, rather than structural fires carrying less water than urban fire engines, and capable of off-road driving.

The town established both an Emergency Preparedness Committee and Wildfire Preparedness Committee, which coordinates efforts with the WFPD and San Mateo County Office of Emergency Services. Since its establishment in 2019, the Wildfire Preparedness Committee has taken the lead on recommending a variety of wildfire mitigation measures related to home hardening, vegetation management, communications, evacuation, and insurance-related issues to the Town Council.

Domestic water is supplied to Portola Valley by the California Water Services Company (Cal Water). Bear Gulch District, which also serves the communities of Atherton, Woodside, parts of Menlo Park, parts of unincorporated Redwood City, and adjacent unincorporated portions of San Mateo County, including West Menlo Park, Ladera, North Fair Oaks, and Menlo Oaks. The Bear Gulch District considers fire flow needs when determining level of service. The current basic criterion for judging the adequacy of water supply for firefighting purposes is the 2019 California Fire Code (Title 24, Part 9) which requires 1,000 gallons per minute for a period of 1 hour, with a residual pressure of 20-lbs/sq. in. for structures under 3,600 sq. ft.

The Town of Portola Valley implements ordinances and standards to minimize fire hazards. The WFPD's ordinances and standards cover topics such as location of fire hydrants and provision of sprinklers and roadway widths and provide the basis for the rural fire prevention capital facilities standards specified in the Town's Safety Element. The Town has ratified the WFPD Fire Code, which adopts by reference the 2019 California Fire Code (California Code of Regulations, Title 24, Part 9) as amended by the changes, additions, and deletions set forth in the ordinance adopting the WFPD Fire Code.

Portola Valley Municipal Code

The Town of Portola Valley has adopted Chapter 7A (development in Wildland Urban Interface [WUI] areas) of the Building Code and it is applicable to all properties in town regardless of location. The Town adopted the Wildfire Preparedness Committee's recommended Building Code amendments on December 8, 2021. These amendments require additional "home hardening" measures including use of noncombustible exterior materials and construction for new construction and applicable remodels.

San Mateo County Local Hazard Mitigation Plan (2021)

Local Hazard Mitigation Plans (LHMPs) are required by the Federal Disaster Mitigation Act of 2000 (Public Law 106-390). Having an approved LHMP is needed in order for a local jurisdiction to qualify for certain federal disaster assistance and hazard mitigation funding. LHMPs are required to be updated every five years to remain eligible for these potential funding sources.

LHMP and Safety Element requirements are very similar, however both documents serve very different purposes. The LHMP focuses on understanding risks within a community and specific actions to reduce those risks, while the Safety Element provides a broader framework for the protection of life and property from hazard conditions affecting the community. Assembly Bill (AB) 2140 (2006) encourages (but does not require) a jurisdiction to incorporate the LHMP by reference into the Safety Element. Recent legislation, Senate Bill (SB) 379 (2015) and SB 1035 (2018), have linked required updates of the Safety Element to updates of the LHMP and Housing Element.

Santa Cruz County - San Mateo County Community Wildfire Protection Plan (2018)

A Community Wildfire Protection Plan (CWPP) is a planning and funding prioritization tool authorized by the Federal Healthy Forests and Restoration Act of 2003 as an incentive for communities to engage in comprehensive forest and fire hazard planning and help define and prioritize local needs. CWPPs are generally updated every five years but can be updated at any time if new priorities emerge or major changes occur in the built or vegetated landscape.

The Santa Cruz County – San Mateo County CWPP was collaboratively developed through interested parties including Federal, State, City, Town, and County agencies in the two-county region. The purpose of this plan is to identify the risks and hazards associated with wildland fires in the WUI areas of San Mateo and Santa Cruz Counties. The CWPP is not a legal document and does not satisfy any regulatory permitting processes, but identifies recommendations aimed at preventing and reducing both infrastructure and ecosystem damage associated with wildland fires.

State and Local Responsibility Areas

Cal Fire is required by law to map areas of significant fire hazards based on fuels, terrain, weather, and other relevant factors. These designations, referred to as Fire Hazard Severity Zones (FHSZ), mandate how people construct buildings and protect property to reduce risk associated with wildfires. There are three zones, based on increasing fire hazard severity: medium, high, and very high. The maps were last updated in 2007-2010. At that time, Cal Fire was only required to map Very High Fire Hazard Severity Zone (VHFHSZ) located in local responsibility areas.

As shown in Figure 1, the Woodside Highlands neighborhood and the Thornewood Open Space Preserve to the west of Portola Valley are located in a VHFHSZ. The town areas within the VHFHSZ contain a mix of undeveloped open space, single-family residential, and commercial uses. According to the LHMP, there are 146 buildings and approximately 427 people in Portola Valley's VHFHSZ.

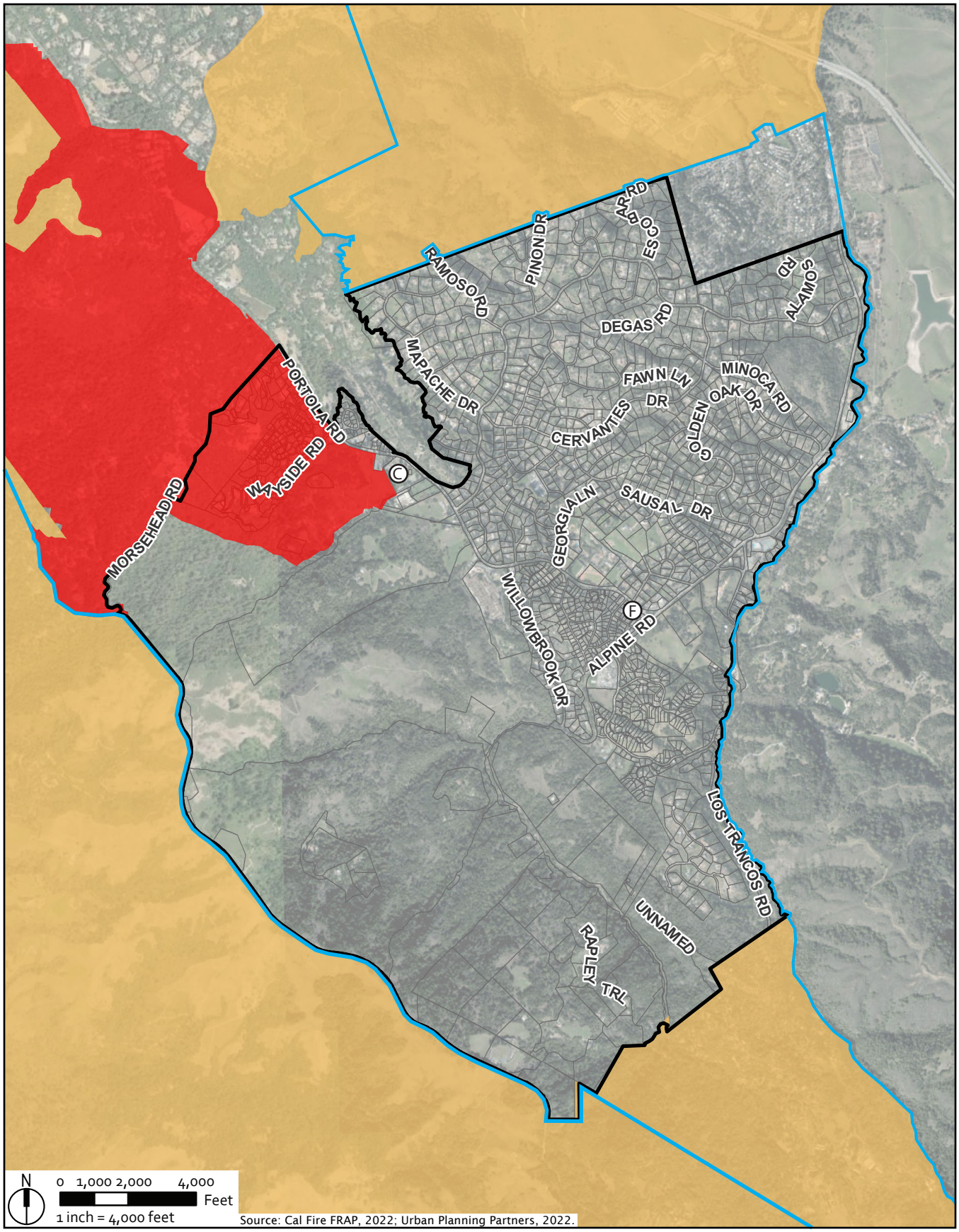


Figure 1
Portola Valley Fire Hazard Severity Zones
Portola Valley Safety Element
Draft Wildfire Hazards Memo

Under State law, the areas designated VHFHSZ are subject to more stringent requirements (Chapter 7A of the California Building Code) for buildings and property maintenance. Chapter 7A dictates the use of fire-resistant exterior materials and adherence to various design requirements. The Town did not officially adopt the Cal Fire VHFHSZ map but did elect to adopt Chapter 7A townwide.

Cal Fire is currently updating the criteria for how the FHSZ maps are developed and will be publishing all Fire Hazard Severity Zones (FHSZs), including very high, high, and moderate FHSZs, for the Local Responsibility Area (LRA). While not yet available, Portola Valley can use Cal Fire's forthcoming FHSZ Maps and identify potential future policies and programs to respond. With Cal Fire's changes to the FHSZs within a local agency's jurisdiction, new building code requirements become applicable for the high and potentially moderate zones.

Building upon Cal Fire's FHSZ maps, local knowledge of wildfire hazard, landscape and vegetation, housing stock, and infrastructure can also be used to develop a wildfire overlay zone for corresponding policies.

MORITZ MAP

In previous versions of the Safety Element, the Town has used a Fuel Hazards Map prepared by Moritz Arboricultural Consulting in 2008 to identify potential fire threats. The map identified eleven vegetation associations and assigned a rating of potential fire behavior and level of risk to each association. However, the map is now over 14 years old and does not reflect existing vegetative conditions. The Moritz map also omits several areas with Very High hazards in steep canyon areas. For these reasons, the Moritz Fuel Hazards Map is not used to identify fire hazards in this Safety Element Update.

VHFHSZ CONSTRAINTS AND CONCERNS WITHIN PORTOLA VALLEY

Location within the VHFHSZ in the Local Responsibility Area requires new development to comply with California Fire Safe Regulations. Areas located within the VHFHSZ include approximately 170 parcels in the northwestern portion of the Town. Uses within this area are primarily residential. Many of the parcels located within this area have limited access due to narrow steep roadways and single ingress/egress conditions. These constrained roadways rely on the accessibility of Portola Road, which is an identified evacuation route.

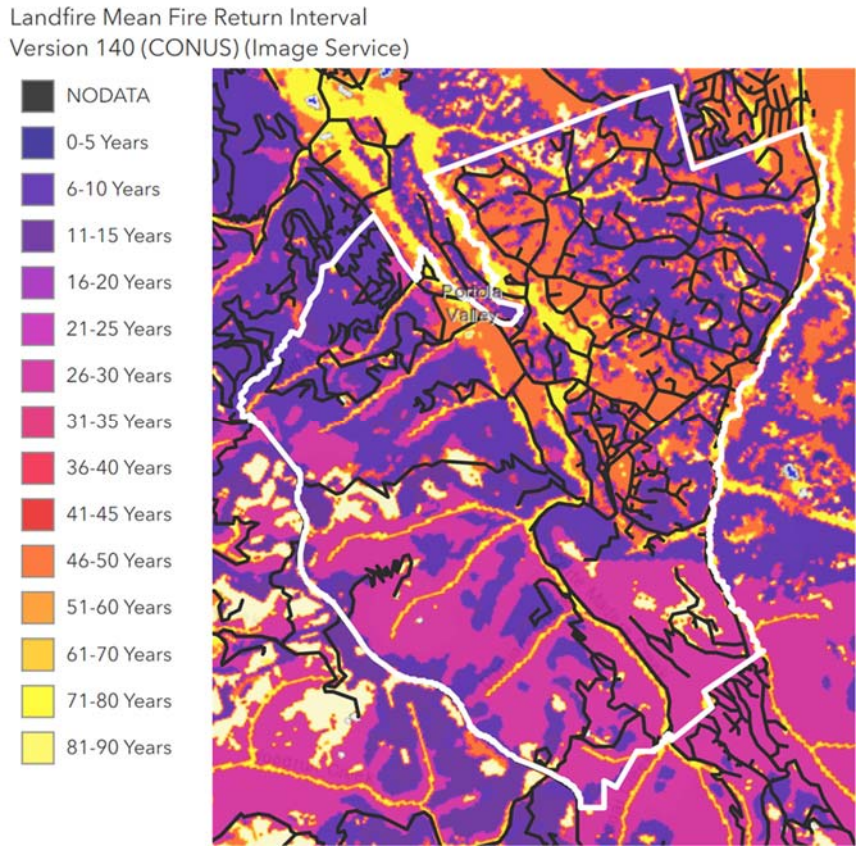
Additional development in these areas would require upgrades to circulation infrastructure, to allow emergency equipment and personnel access without constriction, and to ensure that evacuation standards are met. This could include, but not be limited to, additional access roads to provide multiple points of ingress and egress to the area, widening of roads to accommodate emergency response equipment and provide additional capacity. In conjunction with this, upgrades or expansion of utilities, especially water, may be required to meet fire flow requirements and daily demands, depending on the current infrastructure capacity in these areas.

USGS LANDFIRE DATA

The Landscape Fire and Resource Management Planning Tools or LANDFIRE, is a shared mapping and modeling program used by the U.S. Department of Agriculture Forest Service and the U.S. Department of the Interior. This tool provides consistent, comprehensive, geospatial data and databases that describe vegetation, wildland fuel, and fire regimes across California and the rest of the nation. Fire regimes are characterized by a variety of factors including vegetation composition, fuel structure, climate and weather patterns, and topography. As fire regimes are highly dependent on the landscape and ecosystem in which they occur, there is no standard classification for fire regimes. At a minimum, a fire regime is based upon the impact to the vegetation (severity), and when and how often fires occur in a given area known as the fire interval. Fire severity is the impact of fire on the ecosystem, and a fire interval is the number of years between fires in a given area.

LANDFIRE mapping of Fire Return Intervals (see Figure 2) for Portola Valley varies from (0-5 years) to (71-80 Years) depending upon the location in the Town. The areas of greatest concern within the identified VHFHSZ are predominantly characterized by low fire intervals between (0-5 Years) and (6-10 Years). Based on this data, we can expect that these areas have the types of conditions (topography, vegetation, etc.) to burn frequently. Arid climate and natural fuel sources make Portola Valley a susceptible location for fires to occur.

Figure 2 Fire Return Intervals



Source: LANDFIRE, 2016.

WILDFIRE HAZARD EXISTING POLICIES (P) AND NEW BEST PRACTICES (BP) FOR POLICY AND PROGRAM CONSIDERATION

New Development

BP-1 Promote new development outside of the Very High Fire Hazard Severity Zone. If development is proposed in the Very High Fire Hazard Severity Zone, require fire safe design and compliance with fire safe regulations contained in Title 14 of the California Code of Regulations. If vegetation management hazard mitigations are required as a condition of building permit approval, the developer shall sign a maintenance agreement or provide a funding source for future maintenance of the required mitigations.

P-2 Prior to the approval of any subdivision of lands in a Very High Fire Hazard Severity Zone, the planning commission should review the results of a study that includes at least the following topics:

a. A description of the risk and the factors contributing to the risk.
b. Actions that should be taken to reduce the risk to an acceptable level.
c. The costs and means of providing fire protection to the subdivision.
d. The costs and means of providing ongoing vegetation management for the subdivision.
e. An indication of who pays for the costs involved, and who receives the benefits.
f. If a proposed building site requires access to adjoining parcels to maintain 100 feet of defensible space from the primary structure, an easement or other legal agreement for access should be required as permitted by law.

BP-3 Ensure new public/critical facilities (schools, hospitals, fire stations, etc.), are not located in High and Very High Fire Hazard Severity Zones, to the greatest extent feasible. If located in these areas, ensure full compliance with fire safe regulations and adequate fire response and evacuation capabilities.

BP- 4 Require new development to incorporate design measures that enhance fire protection in High and Very High Fire Hazard Severity Zones. This shall include but is not limited to incorporation of fire-resistant structural design, use of fire-resistant landscaping, and fuel modification around the perimeter of structures.

BP- 5 Require fire protection plans for new development and major remodels in areas designated as High and Very High Fire Severity Hazard Zones by the California Department of Forestry and Fire Protection or equivalent hazard designation in Local Responsibility Areas.

BP-6 Require vegetation management plans in all new developments and major remodels.

BP-6-1 Explore the feasibility of other vegetation management strategies, including:
a. Elimination of use of fire-hazardous plants.
b. Use of non-prolific landscaping species.

c. Requiring project proponents in hillside areas to evaluate and upgrade as necessary fire flows and water supplies to hillside areas.

Vegetation Management

P-7 Provide adequate clearance around structures to prevent spread of fire by direct exposure and to assure adequate access in times of emergency and for the suppression of fire.

P-8 Vegetation management conducted by homeowners, should remove the most hazardous plant materials while leaving adequate vegetation to reduce risks of erosion, habitat loss, and reduce the potential for invasive species introduction.

BP-8-1 Conduct 3-dimensional mapping of understory vegetation in a format which is compatible with predictive wildfire spread models in collaboration with WFPD.

BP-9 Ensure open space brush areas, susceptible to wildfire risk, are adequately maintained in accordance with fire safe regulations, in accordance with the Fire Safe Regulations.

P-10 Encourage the use of fire-resistant vegetation for landscaping, especially in high fire hazard areas.

A-10-1 Provide information on methods for reducing fire hazards through the Town's website and newsletter, including information on clearing of plant debris and combustible materials, use of fire-safe landscaping and defensible space, and modifying buildings to make them fire-resistant.

P-11 Require vegetation clearance and maintenance for all private roads and properties in the high and very high fire hazard severity zones.

P-12 Maintain and adequately fund fuel breaks and other fire defense improvements on public property and require similar measures for private property in compliance with fire safe regulations.

Water Availability/Suppression Needs

P-13 Ensure access to privately owned sources of water, such as swimming pools, in or adjacent to high fire risk areas, for on-site fire protection use, if necessary.

BP- 14 Ensure that landscaping, lighting, building siting and design, water pressure and peak load water storage capacity, and building construction materials meet current fire safe regulations.

BP- 15 Prioritize development in areas with sufficient water supply infrastructure and roadway capacity to ensure adequate evacuation and emergency equipment access.

BP-16 Maintain and enhance water supply infrastructure to ensure adequate supplies for existing and future daily demands and firefighting suppression requirements.

Emergency Access/Evacuation

BP-17 Require new developments, redevelopments, and major remodels to enhance the City's evacuation network and facilities and comply with the City's Evacuation Assessment.

BP-17-1 Adopt a town program to reduce fire hazards along the town's public roads. Alpine Road and Portola Valley Roads are the highest priority for this work, which should thin low branches and dense trees to the maximum extent possible within the public right of way.

BP-18 Ensure street naming and numbering systems adequately identify properties, to avoid potential confusion for emergency response vehicles

BP-19 Require all new developments and redevelopments within the high and very high fire hazard severity zones, to provide a minimum of two points of access by means of publicly-accessible roads that can be used for emergency vehicle response and evacuation purposes.

A-19-1 Design and maintain all private roads to permit unrestricted access for all emergency equipment and personnel.

BP-19-2 Identify the feasibility of constructing additional emergency access improvements for existing developments that do not meet minimum road standards for emergency equipment, such as:

d. Additional vehicle pullouts at key hillside locations.
e. Limiting or restricting on-street parking at key hillside locations.
f. Potential for construction of new or improved emergency access routes.
g. Roadside clearance improvements.

BP-19-3 Establish mitigations for properties in High and Very High Fire Hazard Safety Zones with restricted and single points of access including parking restrictions and investigating the feasibility of establishing special assessment districts to improve road capacity, and adequate water supply.

Fire Suppression and Firefighter

BP-20 Collaborate with the WFPD to promote public awareness of fire hazards and safety measures, including outreach to at-risk populations, and identification of low-risk areas for temporary shelter and refuge during wildfire events

BP-21 Ensure adequate fire suppression resources in the local responsibility areas, and coordinate with WFPD and Cal Fire to meet current and future fire suppression needs.

BA-21-1 Portola Valley will update the Fire Hazard Severity Zones for Very High, High, and Moderate when the State completes their mapping update. The State update

recognizes that fire hazard severity is changing and is currently updating maps to reflect changing conditions.

BP-21-2 Identify fire defense zones where firefighters can control wildfires without undue risks to their lives, and areas where firefighter safety prohibits ground attack firefighting.

BP-21-3 Pursue funding for fire prevention and suppression (State grant funds, hazard mitigation funds, etc.).

BP-21-4 Become a Fire Risk Reduction Community through the State Board of Forestry and Fire Protection.

Codes and Regulations

BP-22 Building upon CAL FIRE's Fire Hazard Severity Zone maps, use local knowledge of wildfire hazard, landscape, housing, and infrastructure to develop a wildfire overlay for corresponding policies.

BP-23 Require compliance with Chapter 7A requirements of the California Building Code, for all development.

BP-24 Require new developments and major remodels or renovations to comply with the California Building Code, Fire Code, and local ordinances for construction and adequacy of water flow and pressure, ingress/egress, and other measures for fire protection. Require endowments or HOA-type assessments to fund long-term maintenance of wildfire mitigations.

BP-25 Require non-combustible roofs and exterior siding in all fire hazard areas.

BP-26 Work with WFPD to enforce regulations related to fire resistant construction, sprinkler systems, and early warning fire detection system installation.

BP-27 All developments shall comply with the WFPD Fire Code and incorporate recommendations from the Santa Cruz County - San Mateo County Community Wildfire Protection Plan, where applicable.

BP-28 New developments in fire-prone hillside areas, shall comply with statewide Fire Safe Regulations (see CCR, Title 14, Sections 1270 et seq.).

BP-29 Expand home hardening throughout the Town to reduce fire hazard vulnerability

BP-29-1 Update and expand the home hardening ordinance to existing buildings in high and very high fire hazard severity zone areas.

BP-29-2 Develop a program to support residents with home hardening and defensible space actions. The program may include various resources, incentives and educational components. Programs may include vegetation disposal assistance, home

hardening guidance and resources, or support with development of local resident-focused educational organizations like Firewise Communities.

BP-30 Incorporate updated WFPD fire hazard and risk assessment findings into the Safety Element.

BP-31 Monitor new State laws that increase minimum building standards and expand the requirements to more areas within the Town, including high and moderate areas.

BP-32 Upon the completion of the Structure Separation Experiments being carried out by National Institute of Standards and Technology (NIST), the Insurance Institute for Business and Home Safety, and Cal Fire on structure to structure ignition, consider science-backed approaches to addressing narrow setbacks. The Town may wait for State or WFPD guidance, implement findings into local building codes or provide voluntary guidance to residents.

APPENDIX A ABAG RESOURCE GUIDE #7: WILDFIRE PROGRAMS & POLICIES

RESOURCE GUIDE #7

Wildfire Programs & Policies for Housing Element Updates

The Bay Area and much of California are working to simultaneously address challenges of housing affordability and production as well as climate change adaptation. In many circumstances the solutions are complementary, but in others an approach to address one issue area can present challenges for the other. The Wildland Urban Interface (WUI) is one area where that tension can arise. Further action to protect and preserve homes from wildfires requires planning and investment and the addition of policies and programs in the Housing Element is a key step forward.

The Resource Guide includes six sections:

1. ***Common wildfire and housing challenges in the San Francisco Bay Area***
2. ***Approaching wildfire policies and programs in the Housing Element update***
3. ***Summary table of sample Housing Element policies and programs***
4. ***Additional background and resources for sample policies and programs***
5. ***ADU case studies for tackling housing challenges in the WUI***
6. ***Resources from the Wildfire/Housing Work Group***

Jurisdictions are encouraged to edit sample policies for use in their community and reference linked resources to strengthen policy and program development.

SECTION 1: Common wildfire and housing challenges in the San Francisco Bay Area

How can structure ignition be reduced during wildfire events?

The science of wildfire mitigation and adaptation is rapidly evolving. There is sufficient scientific evidence and agreement on actions homeowners should take to mitigate the risks to individual homes; however, implementation of strategies is continuing to evolve in neighborhoods with limited structure separation distances and/or evacuation constraints. Resource Guide #6 highlights upcoming State efforts that will help provide approaches to meet these challenges.

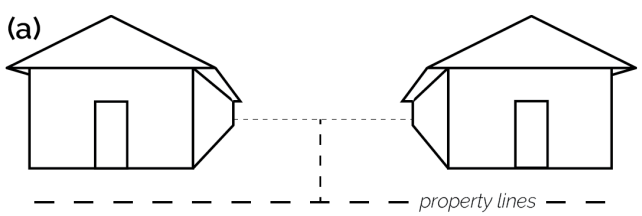
How can structure ignition be reduced during wildfire events?

One of the central themes of the ABAG Wildfire/Housing workshop series was identifying guidance to reduce wildfire damage to housing. In addition to landscape-scale vegetation management, defensible space and home hardening were identified as essential to reducing structure ignition for all homes in the WUI. Individual homeowners are key to addressing this challenge, but in many communities, there are gaps in awareness and knowledge of what to do. As science and regulations catch up to current conditions, jurisdictions may consider new or updated policies and programs to incentivize homeowner action. Public education and buy-in will be critical to meeting this challenge.

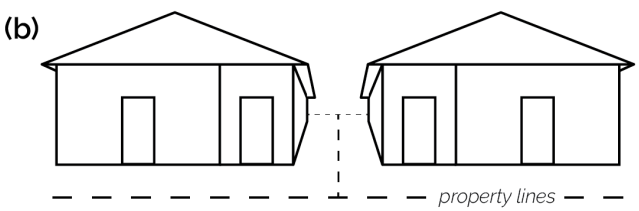
How can homes with narrow setbacks be made more resilient for a wildfire-adapted environment?

The Bay Area has many neighborhoods with moderate housing density, high lot coverage, and narrow setbacks situated in or near the WUI. Large property setbacks are one wildfire adaptation approach to reduce the likelihood of radiant heat and direct flame ignition between homes, but small setbacks increase flexibility to accommodate needed housing. To meet the challenge of a housing crisis while also mitigating risk to wildfire, jurisdictions may need to implement innovative policies and programs that consider specific approaches to reduce structure-to-structure wildfire spread for pre-existing properties or for new/expanded development. In communities where setbacks are narrow, jurisdictions may need to take a leading role in this work by expanding development regulations in the WUI.

Figure 1: Approaches to reduce structure-to-structure ignitions in parcels with (a) large setbacks, (b) narrow setbacks.



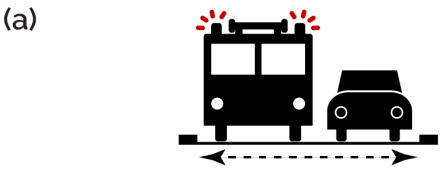
In situations with large separation between buildings only baseline home hardening and defensible space best practices are needed.



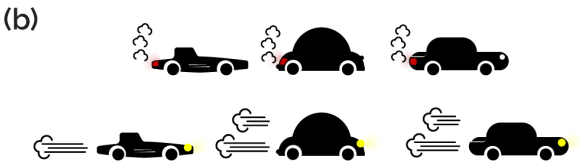
In situations with narrow separation between buildings baseline best practices can be supplemented with special considerations to address structure-to-structure fire spread.

Many communities raise evacuation concerns about how new housing could increase on-street parking demand and the number of people evacuating from their homes. Evacuation issues often nest under two sub challenges (a) insufficient access and right-of-way for fire apparatus to pass other parked or evacuating vehicles, and (b) insufficient evacuation capacity leading to long clearance time, as shown in Figure 2. Jurisdictions may choose to study and implement responsive strategies to ensure sufficient right-of-way and evacuation network capacity support existing and future residents and first responders.

Figure 2: Evacuation challenges in the WUI.



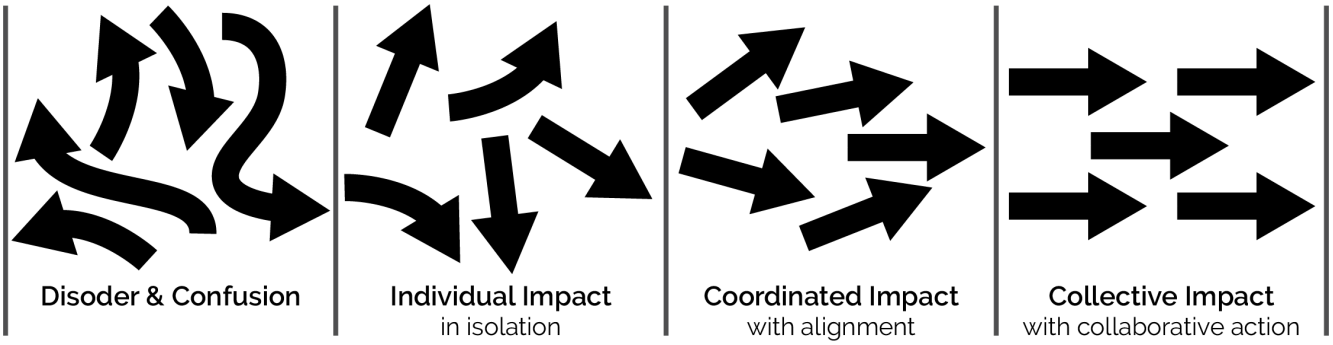
Areas with insufficient access and right-of-way for fire and emergency apparatus. Road width is a key variable with special considerations for dead end roads and long driveways.



Areas with insufficient network capacity to enable quick clearance times. Network capacity and the number of households evacuating influence clearance time.

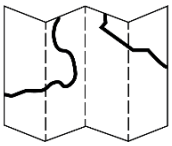
Many housing-related wildfire adaptation actions are the responsibility of individuals, but wildfire risk is shared on a neighborhood/community level. A single resident's actions to adapt their home are greatly enhanced by the actions of their neighbors and community. To adapt to wildfire, collective action is needed on the community level between residents, community-based organizations, and the jurisdiction itself.

Figure 3: Wildfire adaptation cannot be achieved solely by an individual. Wildfire adaptation requires collective impact at the community scale.

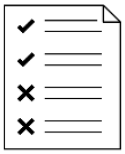


SECTION 2: Approaching wildfire policies and programs in the Housing Element Update

For the purposes of this Resource Guide, policy and program concepts are broken apart into four elements. While described as distinct elements, successful programs and policies will incorporate and weave the "Where, What, Who/How, and Tracking" elements throughout the policymaking or program implementation process.

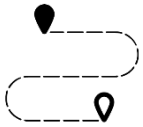


Where – Identify where to apply policy to address current and future wildfire risk. As climate change progresses, wildfire hazard can increase for existing WUI zones and expand to new areas. Practitioners must proactively consider where and how often neighborhoods will be impacted by future wildfires. Creating maps, overlays, and zones of wildfire hazard is a key first step. Communities may choose to also include other variables in developing wildfire overlays, for example identifying areas with wildfire hazard and evacuation constraints.



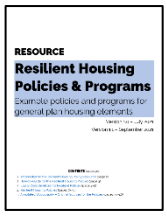
What – Identify what regulation or standard is the right fit to reduce wildfire risk to residents and housing. Using a zone identified by the "Where" step above, determine appropriate building and development standards for properties. Policies and programs can be developed for new development, but because most homes were built before the adoption of the WUI standards in 2008, guidance and standards for existing homes is imperative.

Who/How – Identify how to communicate the policy or program. Wildfire-adapted housing requires ongoing and collective action from public agencies, private landowners, and homeowners; neighborhoods must take action to protect their own homes and each other's. Empowering residents to act starts with a clear understanding of the risks and the best practices and programs to support them. Planning, engagement, and partnership are all crucial methods for active implementation.



Tracking – Stay on the pulse of policy and program progress. Once wildfire adaptation policies and programs have been implemented, consider tracking them at the property, neighborhood, or community scale. Leverage existing data sources and create data collection associated with new programs and policies.

Supplemental resources for wildfire and housing policies and programs



In July of 2021, ABAG released Resilient Housing Policies & Programs. This resource is a collection of resilient policies and programs that could be applied to Housing Element Updates. The resource was not hazard/impact specific; it takes generic concepts from the guide and applies them for use in communities with wildfire risks. The guide can be revisited to further develop approaches for wildfire or other climate or natural hazard impacts like flooding or seismic risks.

The *Co-Existing with Wildfire* section of the Greenbelt Alliance Resilience Playbook lays out a holistic approach to advancing solutions to address overlapping environmental, economic, and social challenges associated with preparing communities to live with wildfire through nature-based solutions. This user-friendly online resource details what's at risk, critical actions to take, and includes a policy matrix with supporting strategies, actions, and policies showcasing best practices from General Plans around the country.

The Town of Paradise, which was severely impacted by the Camp Fire in 2018, included wildfire resilience goals, policies, and programs in their draft 2022-2030 Housing Element. One Housing Element goal is to "Improve, rebuild, and preserve safe, decent housing and neighborhoods for all Paradise residents, including preparation for wildfire resiliency." The corresponding policies and programs can be reviewed starting on page 73.

SECTION 3: Summary table of sample Housing Element policies and programs

How-to-guide for navigating and identifying sample programs and policies

Section 3 provides an overview of the sample programs and policies organized into the where, what, who/how, and tracking categories described above. It is recommended to start by identifying a few policy and programs that are of high interest, and then proceeding to **Section 4, where additional detail, context, and examples for the sample policies and programs are provided.** Figure 4 below describes how the information in Section 4 is organized.

Summary Table of Sample Policies and Programs – Identify items to explore in detail in Section 4

Policy/Program Title	Applicability	Language
Where?		
Adopt CAL FIRE's Fire Hazard Severity Zone Update	*Applicable to all jurisdictions, particularly towns and cities*	The [jurisdiction] will update the Fire Hazard Severity Zones for Very High, High, and Moderate when the State completes their mapping update. The State update recognizes that fire hazard severity is changing and is currently updating maps to reflect changing conditions.
Use local knowledge to develop a wildfire zone overlay	*Applicable to all jurisdictions*	Building upon CAL FIRE's Fire Hazard Severity Zone maps, use local knowledge of wildfire hazard, landscape, housing, and infrastructure to develop a wildfire overlay for corresponding policies.
What?		
Implement expanded State laws that increase wildfire standards for housing	*Applicable to all cities and towns with very high and high FHSZs*	The [jurisdiction] shall comply with new State laws that have increased minimum building standards and expanded the requirements to more areas within the [jurisdiction].
Develop/Update a home hardening and defensible space program to preserve existing housing	*Applicable to all jurisdictions*	The [jurisdiction] will develop/update a program to support residents with home hardening and defensible space. The program may include various resources, incentives, and educational components. Programs may include vegetation disposal assistance, home hardening resources, or support with development of local Firewise Communities.
Consider future action for narrow setbacks informed by forthcoming structure-to-structure ignition prevention research	*Applicable to all jurisdictions with narrow setbacks*	Upon the completion of research being carried out by National Institute of Standards and Technology (NIST), the Insurance Institute for Business and Home Safety (IBHS), and CAL FIRE on structure-to-structure ignition, consider science-backed approaches to addressing minimal setbacks. The [jurisdiction] may wait for State guidance, implement findings into local building standards, or provide voluntary guidance to residents.

Develop a "Wildfire Reach Code" to inform action in areas with reduced structure separation distances	*Applicable to jurisdictions with narrow setbacks*	The local building department may consider wildfire reach code actions to address areas with reduced structure separation distances. The reach code could be provided as voluntary guidance for the community or be required for new construction and/or substantial building remodel triggers.
Perform an evacuation assessment	*Applicable to jurisdictions with significant evacuation concerns*	The [jurisdiction] will conduct an evacuation assessment that meets State law requirements to identify evacuation routes and locations. The analysis will identify points of evacuation congestion and study solutions to improve evacuation clearance times. Following the analysis, the [jurisdiction] will develop responsive actions.
Install street parking boxes to improve ingress and egress in WUI areas	*Applicable to jurisdictions that have already identified right-of-way as a key evacuation constraint*	The [jurisdiction] will strategically identify where it is safe to park on hilly, winding roads with minimal street widths and indicate these areas using parking boxes. Parking box locations will be determined based on improving routine and emergency access, ensuring ease of passage for emergency vehicles, and improving visibility and turning safety for larger vehicles.
Develop/Update a pre-evacuation strategy and program for WUI residents	*Applicable to jurisdictions that have already identified congestion as a key evacuation constraint*	Develop/Update a strategy and program for residents to understand wildfire hazard warnings, develop a household evacuation plan and be ready to evacuate. Encourage residents to consider pre-evacuation during extreme red-flag events that could result in fast moving wildfires if they occur.

Who/How?

Engage and educate residents on policy changes and upcoming program opportunities	*Applicable to all jurisdictions*	Develop a public engagement and education strategy to educate residents, contractors, and developers about recent policy changes. Work with community partners, local officials, and non-profit organizations and leverage social media, traditional forms of outreach, and education programs to distribute best practices for meeting required or voluntary fire adaptation measures to reduce risks to structures, landscaping, and property.
Leverage existing community-based partnerships to disseminate wildfire adaptation information	*Applicable to jurisdictions with existing relationships with community-based organizations (CBOs)*	Expand existing partnerships with local non-profit organizations, neighborhood groups, and other community organizations to create a broad network of wildfire-informed residents.
Promote neighborhood-based wildfire-centered networks	*Applicable to jurisdictions that do not have existing community networks to leverage in the WUI*	Foster neighborhood-wide solutions and establish neighborhood-wide communication networks for citizens to work together. To build relationships between neighbors, offer incentives like chipper programs or access to local wildfire experts to speak at neighborhoods events.
Update residents with best available wildfire adaptation guidance	*Applicable to all jurisdictions*	Update [jurisdiction] website with current State guidance on home and building owner wildfire adaptation actions. Provide the best available guidance related to defensible space, home hardening, and evacuation.
Provide proactive communication to current and new residents on safe evacuation	*Applicable to jurisdictions with known evacuation challenges*	Working with the Fire Department and/or Office of Emergency Services, the [jurisdiction] will publish best practices for wildfire evacuation, hold annual drills, offer proactive evacuation warnings, and increase redundancy of evacuation communication platforms.
With neighboring cities, explore the creation of a collaborative multi-agency organization to advance wildfire prevention efforts	*Applicable to all jurisdictions*	[Jurisdiction] will participate in public meetings and workshops with neighboring cities to explore whether a multi-agency organization or joint powers authority similar to the Marin Wildfire Prevention Authority may advance wildfire prevention activities faster.

Tracking

Track wildfire building code adoption of new and existing properties in a database	*Applicable to all jurisdictions*	Track which parcels through new construction, significant remodels, or voluntary action meet higher WUI building code requirements. Develop a database and method to track information already collected as part of permitting, inspections, and other already occurring processes.

SECTION 4: Additional background and resources for sample policies and programs

Where? – Maps, Overlays, and Zones

Adopt CAL FIRE's Fire Hazard Severity Zone Update

Applicable to all jurisdictions, particularly towns and cities

[Jurisdiction Name] will update the Fire Hazard Severity Zones for Very High, High, and Moderate when the State completes their mapping update. The State update recognizes that fire hazard severity is changing and is currently updating maps to reflect changing conditions.

Background: In addition to updating the criteria for how the maps are developed, CALFIRE will also publish all Fire Hazard Severity Zones (FHSZs), including very high, high, and moderate FHSZs, for the Local Responsibility Area (LRA). While not yet available, a jurisdiction can call out the use of CAL FIRE's forthcoming FHSZ Maps and identify potential future policies and programs to respond. With CAL FIRE's changes to the FHSZs within a local agency's jurisdiction, new building code requirements become applicable for the high and potentially moderate zones (see Resource Guide #6, page 3 for more details on how AB 642 and SB 63 have changed CAL FIRE's mapping process and corresponding building requirements). Including this policy articulates how adjustments to State maps and recent State bills linking maps to building standards when implemented by local government will make future housing safer.

Use local knowledge to develop a wildfire zone overlay

Applicable to all jurisdictions

Building upon CAL FIRE's Fire Hazard Severity Zone maps, use local knowledge of wildfire hazard, landscape, housing, and infrastructure to develop a wildfire overlay for corresponding policies.

Background: In addition to using CAL FIRE zones, cities and counties can take local actions to refine overlay zones for subsequent policies. Some local fire departments and districts have already chosen to identify their own WUI zones. Additionally, as it relates to housing production specifically, some communities are using transportation infrastructure to identify locations with fire hazard and constrained evacuation egress.

> *Example – Modest Expansion:* The City of Berkeley uses a larger overlay zone that encompasses areas designated as Combined Hillside District in the city's Official Zoning Map as well as areas designated as very high FHSZ. More information about the City of Berkeley's overlay zones can be found on their Hillside Overlay webpage.
>
> *Example – All-City Expansion:* In 2009, the Town of Portola Valley expanded their wildfire zone across the entire town, rather than just a small portion identified as very high FHSZ. This is a large step to take towards improving wildfire preparedness across an entire community and should only be considered in communities with significant wildfire hazard city- or county-wide. There are important equity considerations that should be factored into making such a decision to ensure that new codes do not inhibit housing needs at any income level. More information about Portola Valley's building code expansions can be found in the ordinance amendment document.
>
> *Example – Combined Hazard & Constraint Overlay:* The City of Oakland created the S-9 Fire Safety Protection Combining Zone Map Overlay, to identify areas designated as very high FHSZs by CAL FIRE, and with narrow road widths, or areas with cul-de-sacs. These areas correspond to specific sections in Oakland's Municipal Fire Code. More information about the S-9 Overlay can be found on page 5 of this April 15, 2021 committee memo. See pages 103-120 of the memo to review proposed updates for the S-9 Overlay Zones.

What? – Applying Requirements, Standards, and Regulations

Implement expanded State laws that increase wildfire standards for housing

Applicable to cities and towns with very high and high FHSZs

[Jurisdiction Name] shall comply with new State laws that have increased minimum building standards and expanded the requirements to more areas within the [jurisdiction].

Background: SB 63 (2021), AB 642 (2021), and SB 901 (2018), described in greater detail on page 3 of Resource Guide #6, have expanded the breadth of building standards and regulations for cities with very high and high FHSZs. In addition to new requirements in those zones, it is likely the zone boundaries may expand for many communities in 2022 as CAL FIRE releases new maps. Acknowledging this change from the past may help clarify that minimum requirements are expanding and that without any special local action the city will be doing more to ensure a more wildfire-adapted community.

These new requirements are for Local Responsibility Areas (primarily cities and towns) and have less impact on State Responsibility Areas (primarily unincorporated areas). If a jurisdiction does not have a very high or high FHSZ, then this policy likely isn't for you.

Develop/Update a home hardening and defensible space program to preserve existing housing

Applicable to all jurisdictions

[Jurisdiction Name] will develop/update a program to support residents with home hardening and defensible space actions. The program may include various resources, incentives, and educational components. Programs may include vegetation disposal assistance, home hardening guidance and resources, or support with development of local resident-focused educational organizations like Firewise Communities.

Background: Existing and forthcoming State requirements ensure new construction is built to higher wildfire standards – existing housing represents a much greater ignition risk in a wildfire. To view a model for a home hardening and defensible space program, see Fire Safe Marin's program in Section 3 of Resource Guide #4. Jurisdictions that are ready to advance programs immediately can access a range of funding programs through CAL FIRE, Coastal Conservancy, FEMA, and others to support efforts. Jurisdictions who would prefer to borrow an approach could wait for framework under development by CAL FIRE and CalOES who are working with three pilot communities to develop a replicable framework for launching a local program for home hardening that will leverage FEMA HMA grant assistance. The CAL FIRE and CalOES pilot will launch in 2022 and last three years, however, if there is early success the program could expand in 2023.

Consider future action for narrow setbacks informed by forthcoming structure-to-structure ignition prevention research

Applicable to jurisdictions with narrow setbacks

Upon the completion of the Structure Separation Experiments being carried out by National Institute of Standards and Technology (NIST), the Insurance Institute for Business and Home Safety (IBHS), and CAL FIRE on structure-to-structure ignition, consider science-backed approaches to addressing narrow setbacks. [Jurisdiction Name] may wait for State guidance, implement findings into local building codes, or provide voluntary guidance to residents.

Background: The research is still catching up with how to adapt to complex wildfire challenges. Communities may determine the best approach for dealing with the structure-to-structure ignition challenge is to focus on core wildfire and housing strategies (baseline defensible space and home hardening techniques) and let the research catch up on the issue of narrow setbacks. The goal of the NIST and IBHS research is to provide guidance, and ultimately code recommendations for separation distances to minimize the chance of structure-to-structure ignition. The research will study single family homes, Accessory Dwelling Units (ADUs), and shed structures and may provide direction for determining use of noncombustible and other enhanced fire- and ignition-resistant materials and assemblies. More information about this research is available on the NIST Structure Separation Experiments webpage.

Develop a "Wildfire Reach Code" to inform action in areas with reduced structure separation distances

Applicable to jurisdictions with narrow setbacks

The [Jurisdiction Name] building department may consider wildfire reach code actions to address areas with reduced structure separation distances (SSD) (also referred to as narrow setbacks). The reach code could be provided as voluntary guidance for the community or be required for new construction and/or substantial building remodel triggers.

Background: Beyond minimal fire codes, cities or counties can develop a "Wildfire Reach Code" to exceed current defensible space and home hardening requirements to further reduce radiant heat and direct flame ignition scenarios, which are issues in areas with narrow setbacks. The **Fire Safe Regulations** and **Additional Design Code Considerations** could help inform specific code guidance for structures with narrow setbacks.

> *Example:* The Town of Portola Valley has amended their building code to further define and set standards for "ignition-resistant" materials. The Portola Valley ordinance to amend the building code can be found on page 953 of their December 8, 2021 Council Agenda. The Portola Valley example is not specific to areas with narrow setbacks, but it does include measures that would address radiant heat concerns. At the end of the Portola Valley Council adoption, Councilmembers summarized their reasoning for the amendment (listen to their comments 5:41:30 – 5:46:00).

The **Fire Safe Regulations** constitute the minimum fire safe development regulations of the California Board. The Fire Safe Regulations focus on emergency access, water supply, road signage, and greenbelts. The regulations address fire safe development leading up to the parcel, but not on the parcel itself and are not related to the California Building Code Chapter 7A. While the Fire Safe Regulations are not specific to building and defensible space standards, the below element of the draft regulations may help guide local government codes and/or residents with narrow setbacks.

> *DRAFT* Fire Safe Regulations § 1276.01 Building and Parcel Siting and Setbacks. (pp. 62-63).*
>
> ***Note: These are draft regulations and are subject to change before final approval.***
>
> *a) All parcels shall provide a minimum thirty (30) foot setback for all Buildings from all property lines and/or the center of a Road, except as provided for in subsection (b).*
>
> *b) A reduction in the minimum setback shall be based upon practical reasons, which may include but are not limited to, parcel dimensions or size; topographic limitations; development density requirements or other development patterns that promote low-carbon emission outcomes; sensitive habitat; or other site constraints, and shall reduce Structure-to-Structure ignition by incorporating features such as, but not limited to:*
>
> *(1) noncombustible block walls or fences; or*
>
> *(2) five (5) feet of noncombustible material extending five (5) feet horizontally from the furthest extent of the Building; or*
>
> *(3) installing hardscape landscaping or reducing exposed windows on the side of the Structure with a less than thirty (30) foot setback; or*
>
> *(4) additional structure hardening that exceeds the requirements in the California Building Code, California Code of Regulations Title 24, Part 2, Chapter 7A.*
>
> *Authority cited: Section 4290, Public Resources Code. Reference: Sections 4290 and 4291, Public Resources Code.*

Additional Design Standard Considerations: ABAG/MTC staff met with speakers from the Wildfire/Housing Workshop Series to identify specific considerations for narrow setbacks to complement the high-level measures above. The guidance below offers additional details and acknowledges that not all Chapter 7A materials are equal in terms of the protection offered for wildfire exposure resistance.

Summary of expert opinion:

1) *Start with Baseline Best Practices for Defensible Space and Home Hardening:* Before focusing on any measure specific to a narrow setback between buildings, compliance with defensible space codes, especially the zero- to five-foot zone is the first step. Home hardening standards, especially those that address ember ignitions, are key. In neighborhoods with narrow setbacks, the best mitigation strategy is to minimize the chance that the first home ignites.
2) *On building faces with separation distances less than 30 feet:*
   a) Windows: Recommend dual-pane windows with two panes of tempered glass. Glass in windows can break from exposure to radiant heat, after which it can become a point of entry for embers and fire. Two panes of tempered glass add strength to windows in these scenarios. In addition to choosing windows rated for tougher fire conditions, consider limiting windows on the sides facing nearby homes, or off-setting windows with the windows of neighboring buildings. For existing construction, installation of deployable metal shutters may be considered. Screens on windows should be metal.
   b) Siding: Particularly in situations where the space between homes is limited, use a noncombustible siding material as part of a one-hour fire-rated assembly. There should be a minimum six-inch distance between the ground and the start of the siding (i.e., only the concrete foundation is visible).
   c) Eaves: Recommend use of soffit eaves constructed using a noncombustible material. Open eaves are vulnerable to ignition and rapid lateral fire spread, potentially facilitating fire entry into the attic. Targeting this common deficiency will further limit fire spread between buildings.
   d) Gutters: Recommend use of noncombustible gutters and noncombustible gutter covers. Gutters and their contents are vulnerable to rapid ignition via embers and radiant heat. Gutters often share points of contact with exterior walls and rooves, so a gutter fire can quickly ignite a structure.
   e) Decks: Recommend use of noncombustible materials for attached decks to reduce vulnerability to structure ember and radiant heat exposure.
3) *On the ground area between buildings with minimal home separation distances:*
   a) Recommend noncombustible landscaping features (e.g., rock mulch and noncombustible hardscape) and fencing in the area with minimal separation distances. At a minimum fencing should be noncombustible and could be designed to provide partial radiant heat shielding between buildings.

Perform an evacuation assessment

Applicable to all jurisdictions with significant evacuation concerns

[Jurisdiction Name] will conduct an evacuation assessment that meets State law requirements to identify evacuation routes and locations. The analysis will identify points of evacuation congestion and study solutions to improve evacuation clearance times. Following the analysis, [Jurisdiction Name] will develop responsive actions.

Background: If jurisdictions are not able to complete a more comprehensive evacuation assessment before the Housing Element update deadline, they may consider the development of an evacuation assessment as a policy measure in their Housing or Safety Element. SB 99 is triggered by the Housing Element update and requires all jurisdictions to identify residential developments that do not have at least two emergency evacuation routes. In addition to the evacuation assessment required by SB 99, a more comprehensive evacuation analysis in compliance with AB 747 and AB 1409 (triggered by the next LHMP update) may create an opportunity to adopt more responsive evacuation strategies. For more information about evacuation laws and evacuation assessment considerations, and sample evacuation planning RFPs, see to Resource Guide #5 and Workshop 3.

Important Context: The physical landscape and development patterns of each community are unique. While we can learn from evacuation study results from single communities, all jurisdictions will need to conduct an assessment. Jurisdictions using the Zonehaven platform for evacuation notifications may be able to leverage its features in lieu of more specialized evacuation modeling to support decision making in the near term.

Install street parking boxes to improve ingress and egress in WUI areas

Applicable to jurisdictions that have already identified right-of-way as a key evacuation constraint

[Jurisdiction Name] will strategically identify where it is safe to park on hilly, winding roads with narrow street widths and indicate these areas using parking boxes. Parking box locations will be determined based on ensuring emergency vehicle access and improving visibility and turning safety for larger vehicles.

Background: Other cities in the region are taking a similar approach through an update of their curb management along narrow roadways. Partnerships between Public Works and Fire Departments identify areas where additional red curbs are needed to ensure sufficient ingress and egress, or where past red curbing has faded and required maintenance to be clearer to motorists. "Soft shoulders" may be used to increase available parking area beyond paved right of way. Consider adding signage to parking boxes to ensure understanding. Ticketed violations could be used to support costs associated with paint and sign maintenance. Enforcement could be greater before and during red flag conditions.

> *Example:* In September of 2021, the City of San Rafael instituted a parking box program on select roadways. Some boxes include "soft shoulders" to maximize possible parking areas. Learn more about San Rafael's parking box program and read their parking box ordinance.

Develop/Update a pre-evacuation strategy and program for WUI residents

Applicable to jurisdictions that have already identified congestion as a key evacuation constraint

[Jurisdiction Name] will develop/update a strategy and program for residents to understand wildfire hazard warnings, develop a household evacuation plan, and be ready to evacuate. [Jurisdiction Name] will encourage residents to consider pre-evacuation during extreme red-flag events that could result in fast-moving wildfires if they occur.

Background: Evacuation preparation and proactive evacuation can reduce the number of vehicles evacuating during an event. Pre-evacuation is a new strategy that will not work for every household. There are other strategies communities could consider to reduce evacuation congestion by reducing the number of vehicles. Strategies and education that reduce the number of vehicles households use to evacuate are important messages to increase evacuation clearance and enable access for fire apparatus.

Definition: Extreme red-flag events are weather conditions that in addition to resulting in a red flag warning, represent baseline conditions that could move a fire rapidly if it developed.

> *Example:* The City of Berkeley hosts a website and video series to educate residents about how to proactively prepare and respond to wildfires. In addition to recommending residents reach out to their network outside the WUI, Berkeley has also worked with local hotels to offer reduced rates. View Berkeley's evacuation resource page and their pre-evacuation hotel resource page.

> *Example:* Fire Safe Marin, a Fire Safe Council, helps residents prepare themselves and their homes for wildfire events. Resources include emergency alerts, evacuation checklists, resources for those who may require additional assistance during wildfire events, and more. View these resources in Resource Guide #4 and on Fire Safe Marin's website.

Who/How? – Communication and Engagement

Engage and educate residents on policy changes and upcoming program opportunities

[Jurisdiction Name] will develop a public engagement and education strategy to educate residents, contractors, and developers about recent policy changes. [Jurisdiction Name] will work with community partners, local officials, and non-profit organizations. [Jurisdiction Name] will leverage social media, traditional forms of outreach, and education programs to distribute best practices for meeting required or voluntary fire adaptation measures to reduce risks to structures, landscaping, and property.

Background: Review and publish for the public the latest and most up-to-date wildfire policies and programs. Consider including the latest local or State hazard mapping. Ensure all materials are clear, easy to understand, and provided in multiple commonly spoken languages and that staff or additional information is available to help the community interpret maps if needed.

> *Example:* Napa Communities Firewise Foundation's website presents information as part of the Napa County Community Wildfire Protection Plan (CWPP). On this website, community member can review the CWPP, local Fire Safe Council Work, and community base maps that show local projects and hazard vulnerability.

Leverage existing community-based partnerships to disseminate wildfire adaptation information

Applicable to jurisdictions with existing relationships with community-based organizations (CBOs)

[Jurisdiction Name] will expand existing partnerships with local non-profit organizations, neighborhood groups, and other community organizations to create a broad network of wildfire-informed residents.

> *Example:* Marin Wildfire Prevention Authority (MWPA) funds several public outreach and education projects to create sustainable, wildfire-adapted communities through its partnership with Fire Safe Marin, the local Fire Safe Council. Fire Safe Marin provides resources for homeowners to maintain defensible space, hosts a monthly webinar series, and even has a YouTube channel where they host a show called "Wildfire Watch" to help citizens of Marin keep themselves safe. Find out more about their education and outreach campaigns on Fire Safe Marin's programs webpage and in Resource Guide #4.

Promote neighborhood-based wildfire-centered networks

Applicable to jurisdictions that do not have existing community networks to leverage in the WUI

[Jurisdiction Name] will foster neighborhood-wide solutions and establish neighborhood-wide communication networks for citizens to work together. To build relationships between neighbors, [Jurisdiction Name] will offer incentives like chipper programs, or access to local wildfire experts to speak at neighborhoods events.

Background: The National Fire Protection Association (NFPA) runs the Firewise USA® recognition program, which provides a framework to help neighbors get organized, find direction, and take action to build wildfire-adapted homes and communities together. Neighbors may worry about ignition from poor defensible space or homes constructed with older, more flammable building materials. Community members may obtain or request a written wildfire risk assessment from the local jurisdiction to identify the status of the community and identify shared goals to catch older homes up to newer standards of wildfire adaptation. To learn more about Firewise Communities, see Resource Guide #1, Resource Guide #4, and a list of existing Firewise USA® sites.

> *Example:* The Diablo Fire Safe Council recently won a grant through the CAL FIRE Early Action California Climate Investments (CCI) Program. Part of the grant award was to develop Firewise Communities to continue collective, community-wide efforts. More information about the grant award can be found on page 43 of the 2021 CAL FIRE CCI Grant Award Recipient List.

Update residents with best available wildfire adaptation guidance

Applicable to all jurisdictions

Update the [Jurisdiction Name] website with current State guidance on home and building owner wildfire adaptation actions. [Jurisdiction Name] will provide the best available guidance related to defensible space, home hardening, and evacuation.

Background: For communities with out-of-date guidance or no existing guidance, consider borrowing best practice documents, websites, and videos from the State and neighboring jurisdictions. Resource Guide #3 includes a small set of resources jurisdictions can pull from to point residents to up-to-date resources. For communities with more capacity, consider developing a comprehensive guidance checklist for renters and building owners, specific to your jurisdiction, and consider including template permit applications.

> *Example:* The City of Oakland's wildfire resource webpage leverages CALFIRE's wildfire public information webpage. Leveraging the latest in State resources is a fast way to point residents to the latest information on how to stay prepared. Like Oakland, a city can augment State resources with local information.

Example: The City of Santa Rosa hosts a Property Owner Resource Library for property owners to learn about their property's wildfire risk, implement home hardening and defensible space, and prepare for evacuation.

Provide proactive communication to current and new residents on safe evacuation

Applicable to jurisdictions with known evacuation challenges

Working with the Fire Department and/or Office of Emergency Services, [Jurisdiction Name] will publish best practices for wildfire evacuation, hold annual drills, offer proactive evacuation warnings, and increase redundancy of evacuation communication platforms.

Background: Proactive communication is key to reducing evacuation strain on local roads. In the ABAG Wildfire/Housing Workshop Series, fire professionals reiterated a need to bolster evacuation education among residents. These experts communicated key messages, like the importance of evacuating with as few vehicles as possible when a fire is imminent. In addition to evacuation planning measures before an event, there are several ways evacuation times can be improved during response to an active fire. Timely and targeted evacuation warnings can improve clearance times and target households at greatest risk. Potential communication avenues may include mobile phone alerts, texts, radio or television warnings, speaker systems installed in neighborhoods, or other methods.

Example: Fire Safe Marin's Evacuation Checklist offers residents synthesized information on evacuation best practices in a single document, available in both English and Spanish.

Example: The City of Albany recently held an evacuation drill for Albany Hill to prepare residents for wildfire evacuation events. Residents learned how to pack their "go bags" and sign up for emergency alert notification systems before participating in an evacuation drill.

With neighboring cities, explore the creation of a collaborative multi-agency organization to advance wildfire prevention efforts.

Applicable to all jurisdictions

[Jurisdiction Name] will participate in public meetings and workshops with neighboring cities to explore whether a multi-agency organization or joint powers authority similar to the Marin Wildfire Prevention Authority may advance wildfire prevention activities faster.

Background: Wildfire preparedness is an increasing priority for many Bay Area jurisdictions due to devastating wildfire seasons in California and the Bay Area over the last five years. While each community has unique challenges, many wildfire challenges are shared across jurisdictions. As solutions to adapt to wildfire advance, communities may want to consider whether joint efforts with neighbors may yield stronger results.

Example: The Marin Wildfire Prevention Authority (MWPA) was launched in 2020 to organize wildfire prevention efforts across Marin County. A full background on the MWPA and its formation is available in Resource Guide #2.

Tracking Policy and Program Progress

Track wildfire building code adoption of new and existing properties in a database

Applicable to all jurisdictions

Track which parcels, through new construction, significant remodels, or voluntary action, meet higher WUI building code requirements. Develop a database and method to track information already collected as part of permitting, inspections, and other existing processes.

Background: A database to track the progress of properties and their level of resilience to wildfire provides jurisdictions a common operating picture of the state of wildfire-adapted properties. A database could help jurisdictions identify buildings in need of defensible space or home hardening improvements and inform outreach and incentive programs.

1) *Use **GIS** to:*
   a) *Identify existing properties built after 2009 in the very high FHSZ that were built to Chapter 7A building standards.*
   b) *Track future properties in newly designated very high, high, and potentially moderate FHSZs that will be constructed in compliance with expanded Chapter 7A building standards called for by SB 63.*
2) *Use **permit data** to:*
   a) *Track existing properties that permit remodels that trigger wildfire compliance measures, as instituted by the jurisdiction.*
   b) *Track existing properties that permit voluntary or incentivized wildfire retrofits.*

3) *Use **inspection data** to:*
   a) *Track properties that undergo regular inspections. Currently, many wildfire resilience home inspections only consider defensible space. Home hardening measures may also be incorporated into inspections to provide residents with further guidance about protecting their property.*
      i) *Example: MWPA has instituted a defensible space and home hardening inspection program. Inspectors provide property owners with a comprehensive report detailing how they can improve their property's safety. This information could be input into a database to capture prior homeowner improvements.*
   b) *Track properties in very high and high FHSZs that go through the hazard disclosure process at point-of-sale.*
      i) *Example: Only properties located within CAL FIRE-designated very high or high FHSZs are required to get inspections in accordance with AB 38. The City of Santa Rosa allows property owners to request inspections during a point-of-sale to be done by a Fire Prevention Staff Member for a fee of $159. See their AB 38 inspections webpage for more information.*
   c) *Background: The CC1102.9 Hazard Disclosure applies to the very high and high FHSZs in both the SRA and LRA. Property owners in these areas are required to provide documentation stating the property is in compliance with Section 4291 of the Public Resources Code, or local vegetation management ordinances upon the sale of their property. This requirement could be used to track the resilience of properties, as well as corroborate existing data about properties indicated in the above methods.*

SECTION 5: ADU case studies for tackling housing challenges in the WUI

Disclaimer: *MTC/ABAG has conducted its own research to assess examples of ADU Ordinances with amendments for wildfire mitigation and adaptation in the WUI. The following are a set of jurisdictions that have worked to amend their ADU ordinances to balance State ADU requirements and wildfire risk. MTC/ABAG is not promoting a specific approach for ADUs and does not know whether these approaches meet State ADU laws; however, the following are highlighted as examples for how communities can take approaches to identify wildfire and evacuation informed overlay zones and corresponding housing policy.*

Jurisdiction	*Where*	*What*	*Relevant Materials*
Berkeley *[Not finalized]*	Locally defined fire zones[1]	Limit to one ADU or JADU for single family zone, with parking and building details.[2]	- Staff presentation of amendment options. - Draft ADU Ordinance
Corte Madera	Uniquely defined overlay[3]	Sets capacity limit for ADU or JADU across overlay[4]	- Planning Commission Staff Report & Amendment
Larkspur	Combines VHFHSZ and limited roadways[5]	Prohibits ADU or JADU but includes waiver process[6]	- Municipal Code 18.23.040 ADU Restricted Areas
Oakland	Combines VHFHSZ and limited roadways[7]	Limit to one internal conversion ADU or JADU[8]	- Council Agenda – Item 3.1 with attachment links - Staff Report

[1] *Berkeley Fire Zones use CAL FIRE FHSZ and local knowledge to identify areas at higher risk to wildfire. Wildfire-related ADU restrictions are applied in Berkeley Fire Zones 2 and 3.*

[2] *Berkeley allows one ADU or one JADU for single family dwellings. For duplex or multiple-family dwellings up to two ADUs are allowable. JADUs have no parking requirements, while ADUs in the overlay zone may need to provide an off-street space. Rooftop balconies and decks are prohibited in the overlay zone. No projections into the four-foot setback are allowed in the overlay zone.*

[3] *Corte Madera identified a single neighborhood with unique development conditions that include: (i) steep, narrow, winding roads, (ii) small developed lots with limited off-street parking, (iii) heavily vegetated area with wood structures, and severe fire hazard, (iv) a road configuration and on-street parking that limit ingress/egress of evacuating residents and emergency responders.*

[4] *Corte Madera divided the ~250 residential unit overlay zone into eleven subdistricts and allowed a 10% increase in units, or 25 JADUs or ADUs in total.*

[5] *Larkspur identified parcels in the VHFHSZ and served by a single emergency access route and with one of the following limitations, (i) streets with limited width, where permitted on-street parking is strictly limited to designated locations with white outlined parking space rectangles, or streets with minimum twenty-foot roadway width required for emergency access, or one-lane roadways allowing two-way traffic, or remote areas not served by improved or paved roads.*

[6] *Larkspur prohibits any ADU or JADU in the designated areas; however, offers a waiver process that can only consider factors related to ingress/egress for emergency vehicles and resident evacuation. The Zoning Administrator and Fire Department will consider factors like whether multiple points of ingress or egress exist and the distance from the property to the closes road with unconstrained access.*

[7] *Oakland identified parcels in the VHFHSZ and served by roadways with one of the following limitations: (i) roadway width less than twenty-six feet, or cul-de-sacs longer than 600 feet.*

[8] *Oakland limits one internal conversion ADU or JADU per lot and prohibits other newly constructed attached and detached ADUs in the overlay zone.*

SECTION 6: Resources from the Wildfire/Housing Work Group

In fall 2021, ABAG's Wildfire/Housing Work Group provided resources for local planning and housing staff working to integrate wildfire and housing issues in local land use planning efforts like the Housing and Safety Element updates. Four virtual workshops featured national and state experts, who presented current information and best practices, case studies, and recent experiences. These sessions helped local agencies gain a better understanding of the evolution and behavior of wildfires, defensible space, home hardening, evacuations (new laws, practical approaches, and new models), and responsive land use planning in the Wildfire/Urban Interface (WUI). Each session included Resource Guides with practical takeaway information, references to key documents, and helpful background information. Below are links to the information and expertise that was collected.

ABAG Technical Assistance Portal

Find all information about the Wildfire/Housing Work Group, including workshop topics, recordings and slides, and Resource Guides on ABAG's Technical Assistance Portal at: https://abag.ca.gov/technical-assistance/wildfires-how-preserve-protect-housing.

Workshops

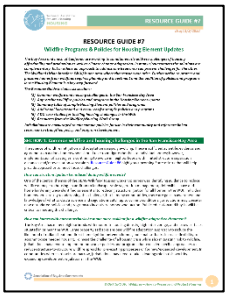
WORKSHOP #1
WILDFIRES & HOUSING 101
Overview of fire evolution, fire science, intro to home hardening & defensible space, plus introduction of Marin Wildfire Prevention Authority.

WORKSHOP #2
DEFENSIBLE SPACE & HOME HARDENING
Deep dive into defensible space & home hardening with updates from CAL FIRE plus practical resident guidance.

WORKSHOP #3
EVACUATIONS: LAWS & TECHNOLOGY
Exploration of new evacuation laws (SB 99, AB 747), OPR updates, and approaches to modeling.

WORKSHOP #4
LAND USE PLANNING IN THE WUI + ADUS
Outline planning & risk mitigation initiatives for wildfires. Explore how to add ADUs and housing in the WUI.

Resource Guides



- ✓ *1 - Wildfires – Research, Science & Key Organizations*
- ✓ *2 - Marin Wildfire Prevention Authority (MWPA)*
- ✓ *3 - Home Hardening and Defensible Space Resources for Residents*
- ✓ *4 - Fire Safe Marin's Collaborative Wildfire Public Education and Programs*
- ✓ *5 - New Evacuation Laws, Key Considerations and Planning Resources*
- ✓ *6 - Coming Soon 2022 – State Resources*
- ✓ *7 - Tackling Housing Challenges in the WUI*

Further Technical Assistance

ABAG is offering one-on-one technical assistance in spring 2022 to agencies looking to incorporate wildfire/housing information into their Housing and Safety Element updates. If interested, please contact ABAG Resilience Planner Michael Germeraad at mgermeraad@bayareametro.gov.

FEHR PEERS

Memorandum

Date: May 11, 2022

To: Carla Violet and Curtis Banks; Urban Planning Partners

From: Taylor Whitaker, Charlie Coles, Dan Rubins, and Bob Grandy; Fehr & Peers

Subject: Town of Portola Valley Prioritized Street Network Assessment and Constrained Parcel Assessment (Senate Bill 99 Assessment) for the General Plan Safety Element Update

SJ21-2127

Purpose

This memorandum summarizes key observations from the *Senate Bill 99 (SB 99) Evacuation Analysis* (December 22, 2021) prepared by Atlas Planning (see **Attachment A**) and provides policy and implementation program recommendations for incorporation into the Town's General Plan Safety Element to guide the Town's implementation of SB 99.

Background

During a Housing Element revision, a General Plan Safety Element update is required by California Government Code Section 65302(g) to address existing and potential hazards. A hazard is identified as a physical process or event that can harm human health, livelihoods, or natural resources. To inform the Safety Element update, Fehr & Peers identified the prioritized street network and the constrained parcel groups (a SB 99 assessment requirement).

There are a variety of events that could require an evacuation of parts of the Town of Portola Valley. These events could be caused or fueled by nature, including wildfires, floods, geological or seismic events; while others can be caused by human initiated events such as utility failures, infrastructure failures or other factors (such as airplane crashes or vehicular crashes). With climate change increasing drought conditions and weather events throughout the state, it is prudent to identify neighborhoods and residential developments within hazard areas with less than two emergency evacuation routes.

Adopted on August 30, 2019, SB 99 requires review and update of the safety element to identify residential developments in hazard areas that do not have at least two emergency evacuation

routes. To improve connectivity and resilience of the evacuation network within the Town, this assessment identifies the prioritized street network for evacuations and constrained parcel groups of residential developments in the Town with just one emergency evacuation route. Those residential developments within a designated hazard area and one emergency evacuation route would specifically address SB 99.

The County of San Mateo Department of Emergency Management is holding a series of meetings with Town officials, Sheriff's Office, Woodside Fire Protection District, and various Town stakeholders to help develop and coordinate various evacuation planning efforts at the Town's schools and other major institutions. Those meetings are anticipated to last approximately six months, until September 2022.

Prioritized Street Network

The prioritized street network is determined by identifying the streets that serve residential parcels with a single connection to the street network, which includes cul-de-sacs and streets with one emergency evacuation route. Forty percent of streets within Portola Valley are constrained streets (also referred to as "constrained roadways" in **Attachment A**) and seventy-five percent of the parcels are served by these constrained streets. Some streets within the constrained street network identified throughout the Town, such as Wayside Road, Santa Maria Avenue, Valley Oak, Hayfields Road, Escobar Road, Alamos Drive, and Buck Meadow Drive, are expected to be at greater risk of evacuation time due to their length.

Portola Valley has five streets that are designated as evacuation routes:

- Portola Road
- Westridge Drive
- Alpine Road
- Arastradero Road
- Los Trancos Road

Figure 1 shows the prioritized street network of constrained streets and evacuation routes.

Constrained Parcel Groups (SB 99 Assessment)

The SB 99 assessment identifies the constrained parcel groups that are within one or more hazard areas and are served by one access point to the street network. Atlas Planning (refer to **Attachment A**) identified the constrained parcel groups, which is a group of parcels within one or more hazard areas (e.g., seismic, flood, wildfire, and landslide) and one access/egress point to the street network. **Figure 2a** shows the constrained parcel groups within a Fire hazard area in the Town of Portola Valley. The constrained parcel group within this hazard area is Constrained Parcel Group 6. **Figure 2b** shows the constrained parcel groups within a Flood Zone and Landslide zone. The constrained parcel group within the Landslide zone are Constrained Parcel Group 5. The

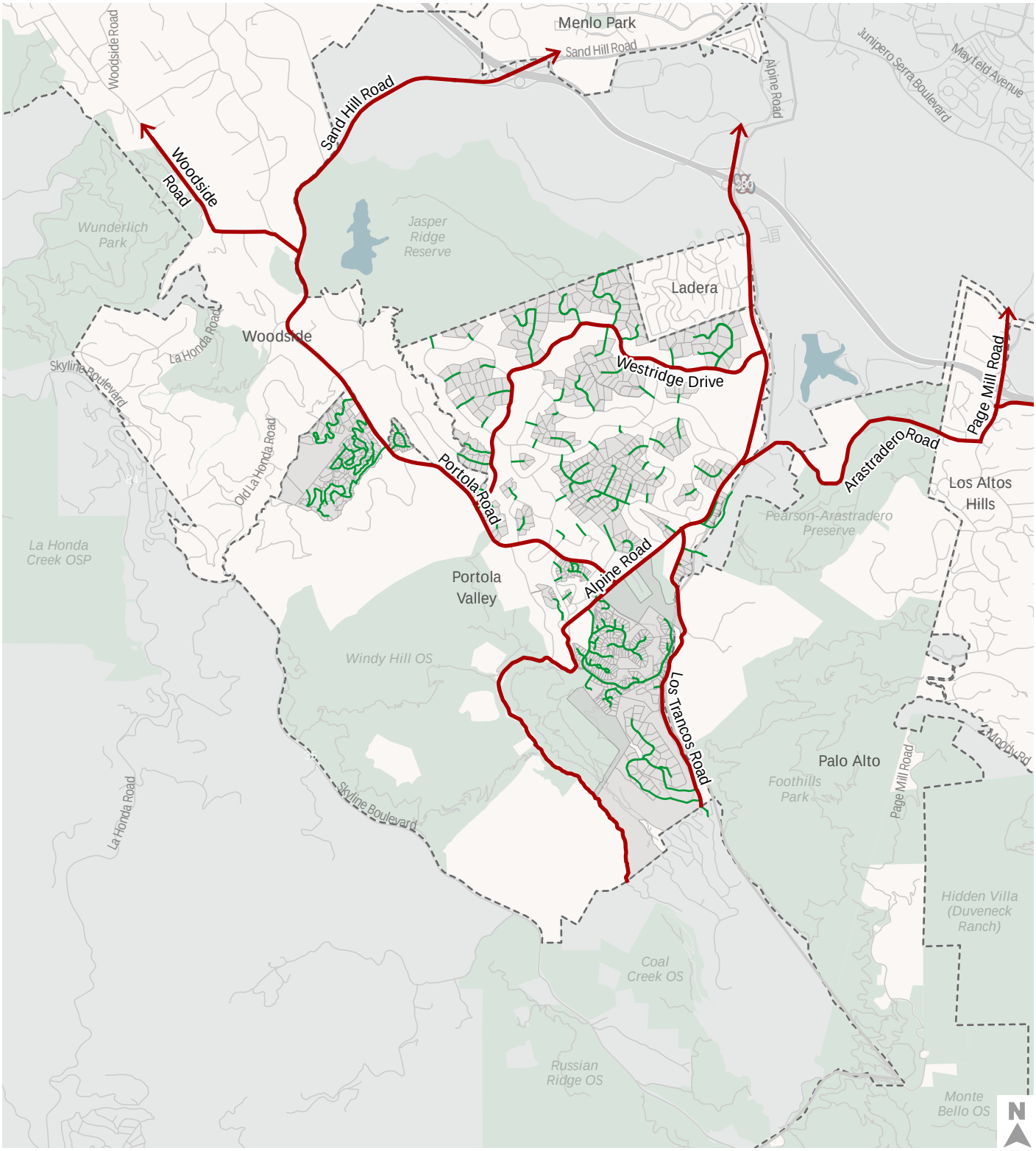
constrained parcel group within the Flood zone are Constrained Parcel Group 4 and 2. All of the parcels are within a Seismic hazard zone. The parcel group in the Woodside Highlands area (Wayside Road, Santa Maria Avenue, and Hayfields Road) of Town will be affected by the most hazards (three), this parcel group is identified as Constrained Parcel Group 6 in the *SB 99 Evacuation Analysis,* with 170 residential parcels at risk.

Table 1 shows the percentage of parcels served by a constrained street that interact with the identified hazards. Within the Town, seismic and landslide hazards are the greatest affect to the constrained parcels. Earthquakes can affect large portions of the prioritized street network by blocking constrained streets and/or evacuation routes.

Table 1: Portola Valley Parcels Served by a Constrained Street and within a Hazard Area

Hazard Area	Percentage of Parcels Served by a Constrained Street
Seismic "Violent Shaking Zone"	100%
Landslide Susceptibility	37%
Fire Hazard LRA Zone	19%
Flood Zone	3%

Source: Fehr & Peers, 2022; Atlas Planning, 2022; FEMA, Cal Fire, California Geological Survey, USGS.



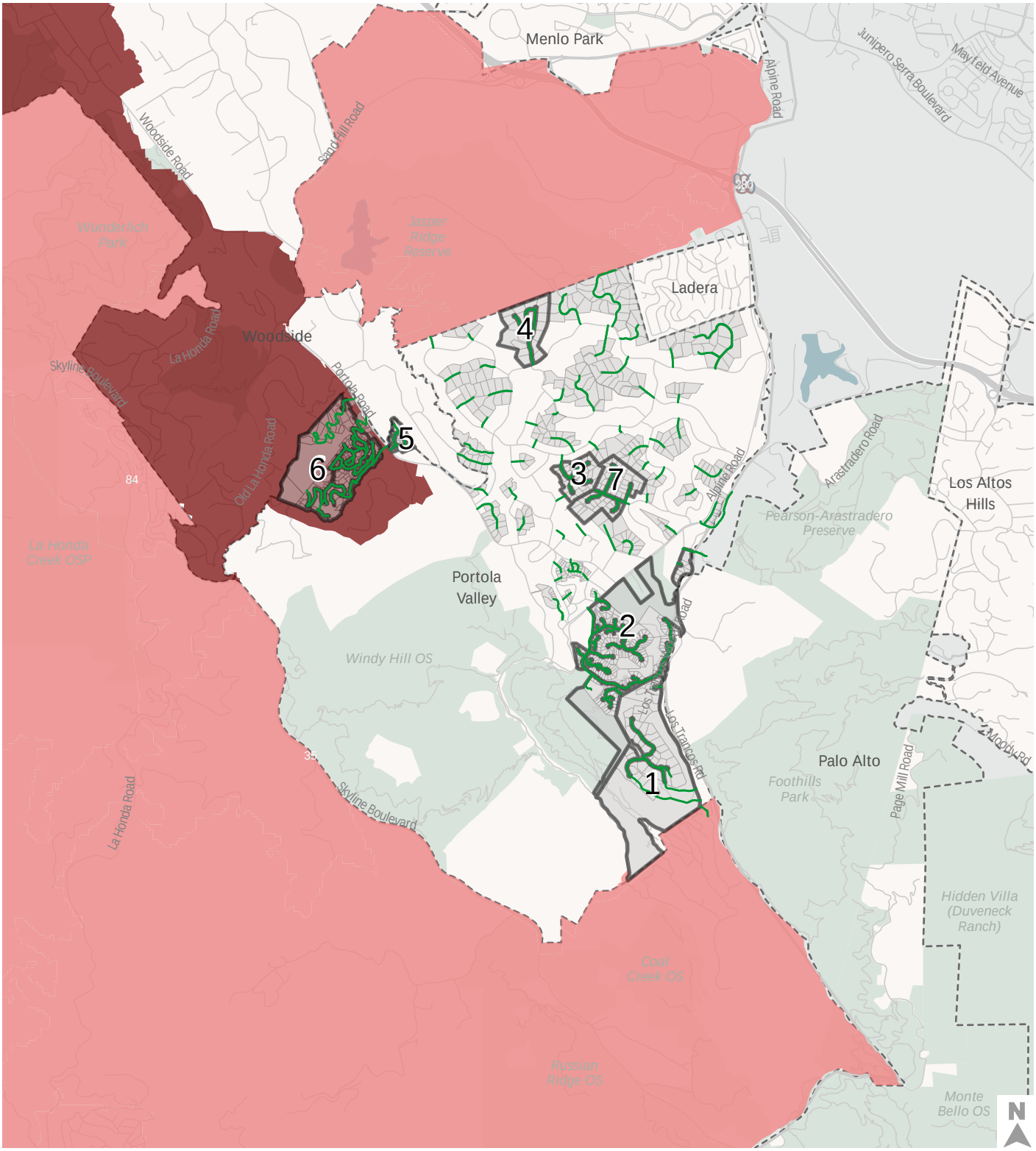
Portola Valley Evacuation Routes

Constrained Streets

Single Access Parcels

Figure 1

Prioritized Street Network

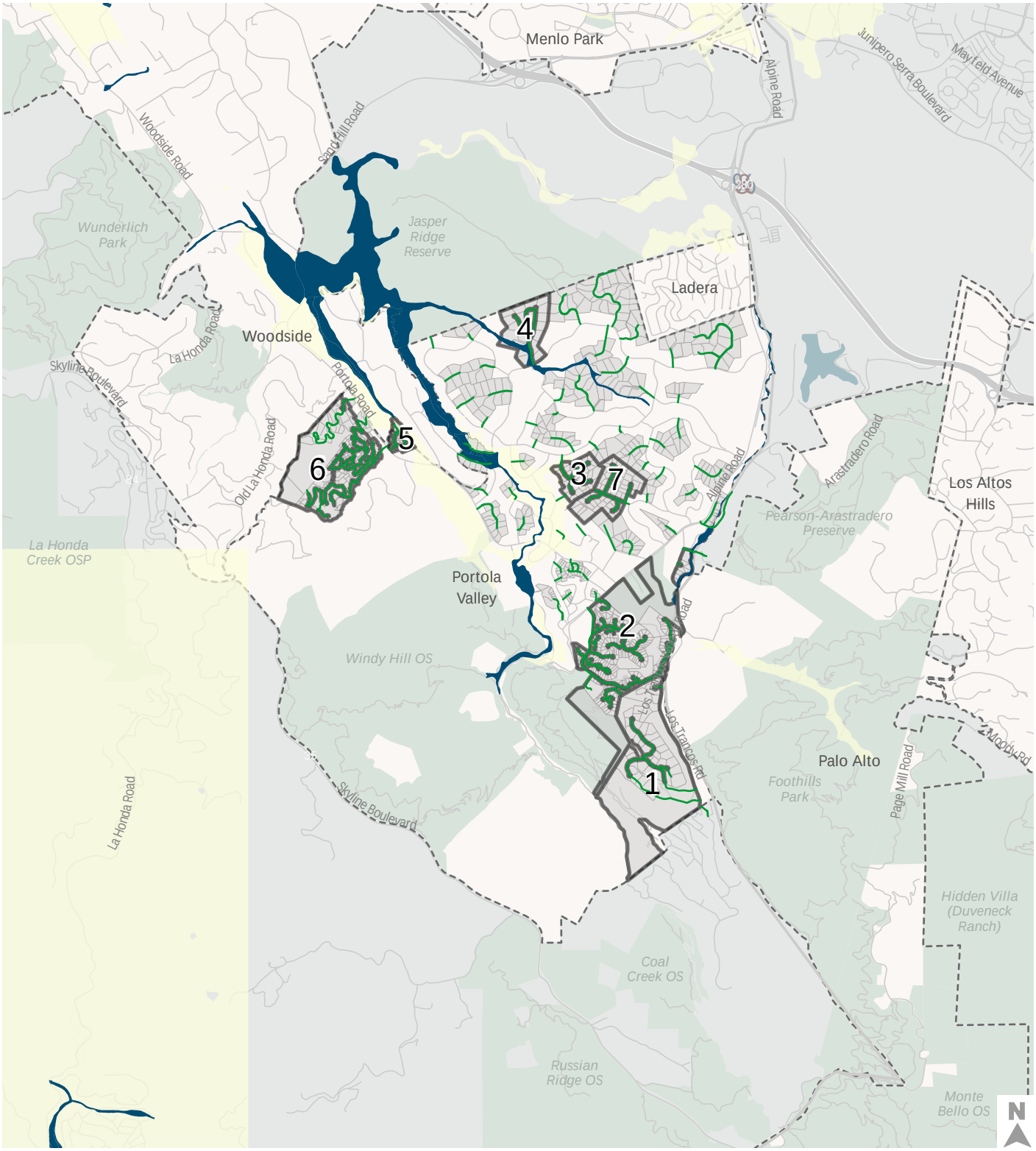


Constrained Streets
Single Access Parcels
Constrained Parcel Groups
Fire (LRA)
Fire (SRA)

**Town of Portola Valley is within a Seismic hazard area*

Figure 2a

Constrained Parcel Groups within Fire Hazardous Area(s) and Served by a Constrained Street



Constrained Streets
Single Access Parcels
Constrained Parcel Groups
Flood Zone
Landslide

**Town of Portola Valley is within a Seismic hazard area*

Figure 2b

Constrained Parcel Groups within Landslide and/or Flood Hazardous Area(s) and Served by a Constrained Street

Recommended Evacuation Policy and Implementation Programs

The following recommendations focus on improving and managing the prioritized street network for evacuations and the constrained parcel groups within the Town of Portola Valley. These recommendations include suggestions about expanded street network capacity, traffic management techniques that evacuate residents of constrained parcel groups first, and appropriate traffic management techniques for evacuation routes within and outside of Portola Valley.

As the Town continues to plan for emergency evacuation events, the following policy options for the Safety Element are provided for consideration:

- Coordinate with other governmental entities and private organizations to facilitate evacuation implementation.
    - Coordinate with County Department of Emergency Management, Woodside Fire Protection District, County Sheriff, California Highway Patrol, and Caltrans.
    - Coordinate the development of targeted evacuation plans with schools, senior care facilities, and those without access to vehicles.
    - Coordinate the development of a multi-jurisdiction evacuation scenario plan with Woodside and Los Altos Hills that identifies evacuation routes, evacuation locations, evacuation time estimates under a range of emergency scenarios, evacuation route improvements, evacuation route priorities and traffic control, and strategies for small-scale and large-scale events.
- Reduce emergency evacuation demand by implementing vehicle reduction strategies such as carpooling, reducing large size vehicles, and implementing phased evacuations. Encouraging residents to take only one or two vehicles (based on household size) to reduce the number of evacuating vehicles would reduce times to evacuate. However, challenges would exist in convincing residents to conduct evacuations without all their vehicles. Training and education may be needed. If a household decides to take all vehicles, they should also be encouraged to give a ride to someone without a vehicle.
- Maximize the capacity and redundancy of critical transportation evacuation routes to allow for continued access and movement in the event of an emergency, while balancing day-to-day multimodal and sustainability goals of the street network. This may include targeted expansion of existing streets or bicycle facilities, retrofit of existing streets to address the effects of potential hazards such as earthquakes and floods, provision of new secondary or parallel routes for evacuation purposes only, and provision of new evacuation gates to ensure there are multiple viable evacuation routes.
    - Portola Road, Westridge Drive, and Alpine Road all intersect with creeks which are vulnerable to flood risk during an evacuation. Parcels located in Parcel Group

6 in the Woodside Highlands area (Wayside Road, Santa Maria Avenue, and Hayfields Road) are in a Very High Fire Severity Zone, have only one evacuation route, and those routes are located along the San Andreas Fault. We recommend that the Town consider strategies for retrofitting evacuation routes which are vulnerable to hazards.

- Ensure future street design accommodates additional evacuation capacity through design treatments that allow greater traffic flow when needed, while balancing day-to-day multimodal and sustainability goals of the street network.
    - Inclusion of dynamic shoulder lanes (e.g., utilize shoulder space that is otherwise used for parking or bikeways) that can be used for emergency vehicles or additional evacuation lanes.
    - In evacuation events, painted medians (instead of raised medians) could provide additional lane width to allow for an additional egress lane.
- Implement transportation operations strategies for evacuation events.
    - Coordinate with emergency responders and adjacent community staff on traffic management at upstream streets and intersections outside the Town boundaries including coordination with Woodside and Los Altos Hills on evacuation routes priorities, possible closures of I-280 interchange ramps, and potential partial closures of westbound lanes of arterial streets east of I-280 (e.g., redirect traffic originating in Palo Alto and Stanford University east to US 101).
- Ensure targeted evacuation management to areas of the community that do not have redundancy in the prioritized street network, such as those that rely on one street or highway for evacuations and the movement of goods and services, as well as areas that have multiple evacuation routes but are not as prepared for an evacuation event.
    - Additional traffic control officers assigned to constrained parcel groups within hazard areas.
    - Provide support for evacuation of schools, senior care facilities, and those without access to vehicles.
    - Prepare a master evacuation assessment that identifies recommendations.
- Require new developments to provide at least two points of emergency ingress/egress.
- Identify evacuation shelter locations, shelter improvements, and local evacuation strategies for vulnerable populations to access the shelters if evacuation routes are temporarily obstructed, and shelter-in-place is required. The shelter locations should be outside designated hazard areas.
- Develop an Emergency Communications Plan that identifies improvements to public and private communication systems to harden them in the event of a natural disaster, provides faster notification, and shares enroute traffic conditions.
- Develop a Local Street Wildfire Access Program for development of neighborhood street evacuation strategies for existing streets located in constrained parcel groups or have narrow widths (i.e., less than 20 feet).

    - The program could be modeled after neighborhood traffic calming programs that are structured by designated boundaries, have a designated annual budget for conducting a neighborhood assessment, require a petition to initiate the assessment, identify desired strategies, and ultimately require a majority of residents sign a petition to implement.
- Develop an Impaired Access Mitigation Fee for new developments to assist in funding the mitigation and enhancement of the street network to alleviate evacuation constraints. This fee could assist in delivering redundant infrastructure that would assist in evacuation events.
- Pursue federal and state grant funds to implement capital improvements to expand the capacity and redundancy of the primary evacuation network.
    - Federal Emergency Management Agency (FEMA) grant programs
    - State climate programs
- Consider local tax measure for Portola Valley voters that would provide dedicated funding for wildfire prevention. A recent example is Marin County Measure C, a parcel tax approved in March 2020 for a 10-year period; revenues are used exclusively to prevent and mitigate wildfires.

Attachment A: Portola Valley Safety Element Update SB 99 Evacuation Analysis

Portola Valley Safety Element Update

SB 99 Evacuation Analysis

DATE: February 28, 2022

TO: Charlie Coles
Fehr & Peers

FROM: Aaron Pfannenstiel
Atlas Planning Solutions

As a key component of the Portola Valley Safety Element update, the Town is required to address evacuation hazards. Compliance with recently adopted state requirements (Senate Bill 99[1] and Assembly Bill 747[2]) is intended to assist jurisdictions with understanding constraints and opportunities associated with evacuation routes. This memo provides an analysis of the potential locations within the City that may be vulnerable during an evacuation in conformance with SB 99 requirements.

Current Evacuation Routes

Portola Valley's regional evacuation network has been expanded upon since the last general plan update. **Figure 1** displays the Town's roadways that are designated as evacuation routes. While these roadways include both north/south and east/west routes (**Table 1**), they may not include all routes used by Town residents, visitors, and employees during an evacuation event. Of these routes, Los Trancos Road should be considered limited as the connection to Alpine Road occurs outside of the Town and segments of these two roadways are narrow. Evaluation of all evacuation routes for width and grade was not conducted as part of this analysis.

Table 1: Evacuation Routes

North/South:	East/West:
Alpine Rd	Westridge Dr
Los Trancos Rd	Arastradero Rd
Portola Rd	

Constrained Roadways

Of the Town's 52.88 miles of roadways, approximately 40% (21.16 miles) are identified as constrained roadways (**Figure 2**), which includes cul-de-sacs and roadways with a single connection to the rest of the roadway network. This analysis focuses on the number of ingress/egress points for roadways and does not identify other roadway constraints like width and grade. Analyzing these conditions is beyond the requirements identified in SB99.

[1] SB 99 (2019) amended Government Code § 65302(g) to require the safety element to include information identifying residential developments in hazard areas that do not have at least two emergency evacuation routes (i.e., points of ingress and egress) (GC § 65302(g)(5)).
[2] AB 747 (2019) added Government Code § 65302.15 to require the safety element to identify evacuation routes and their capacity, safety, and viability under a range of emergency scenarios.

Figure 1: Evacuation Routes for Portola Valley

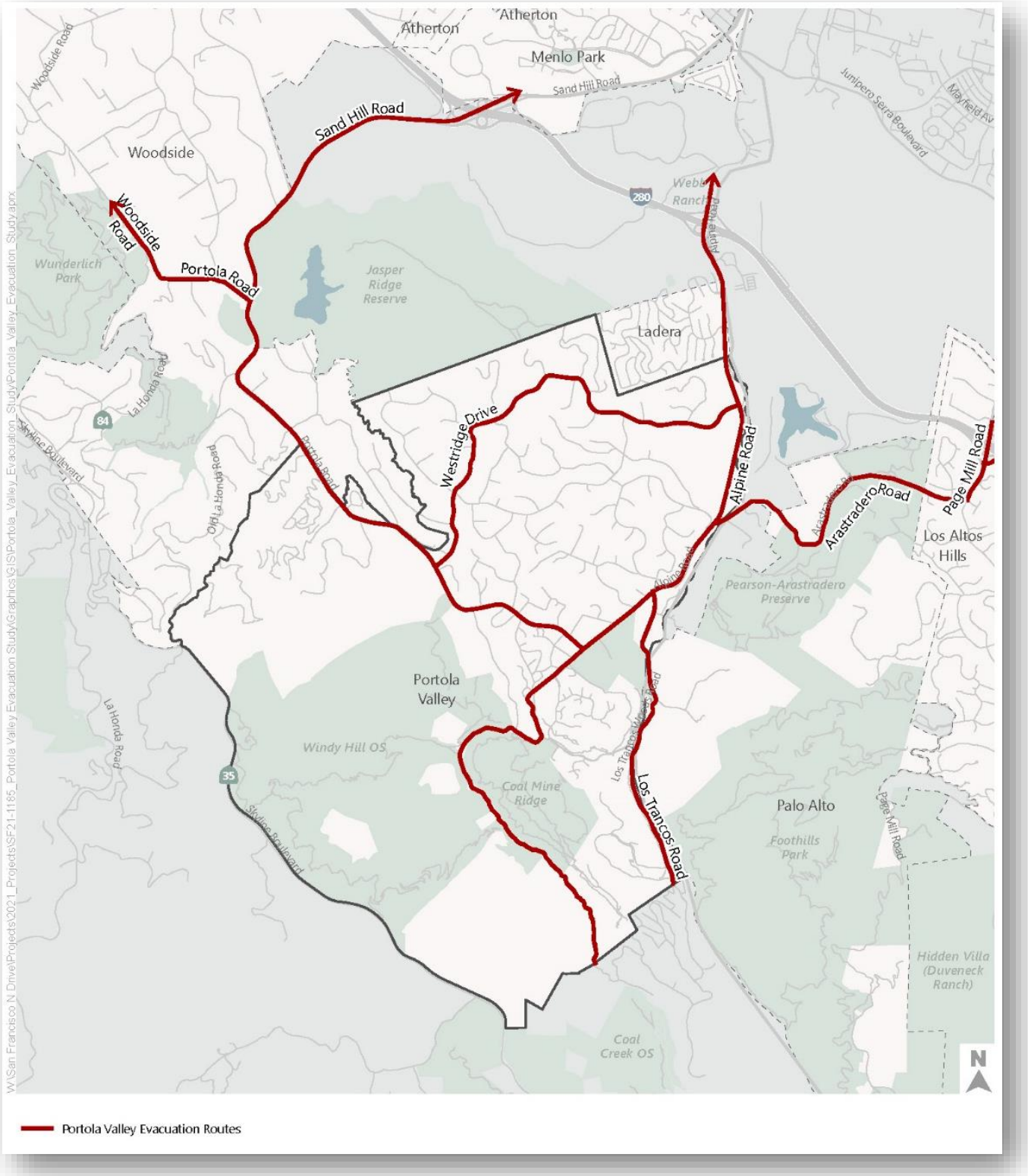
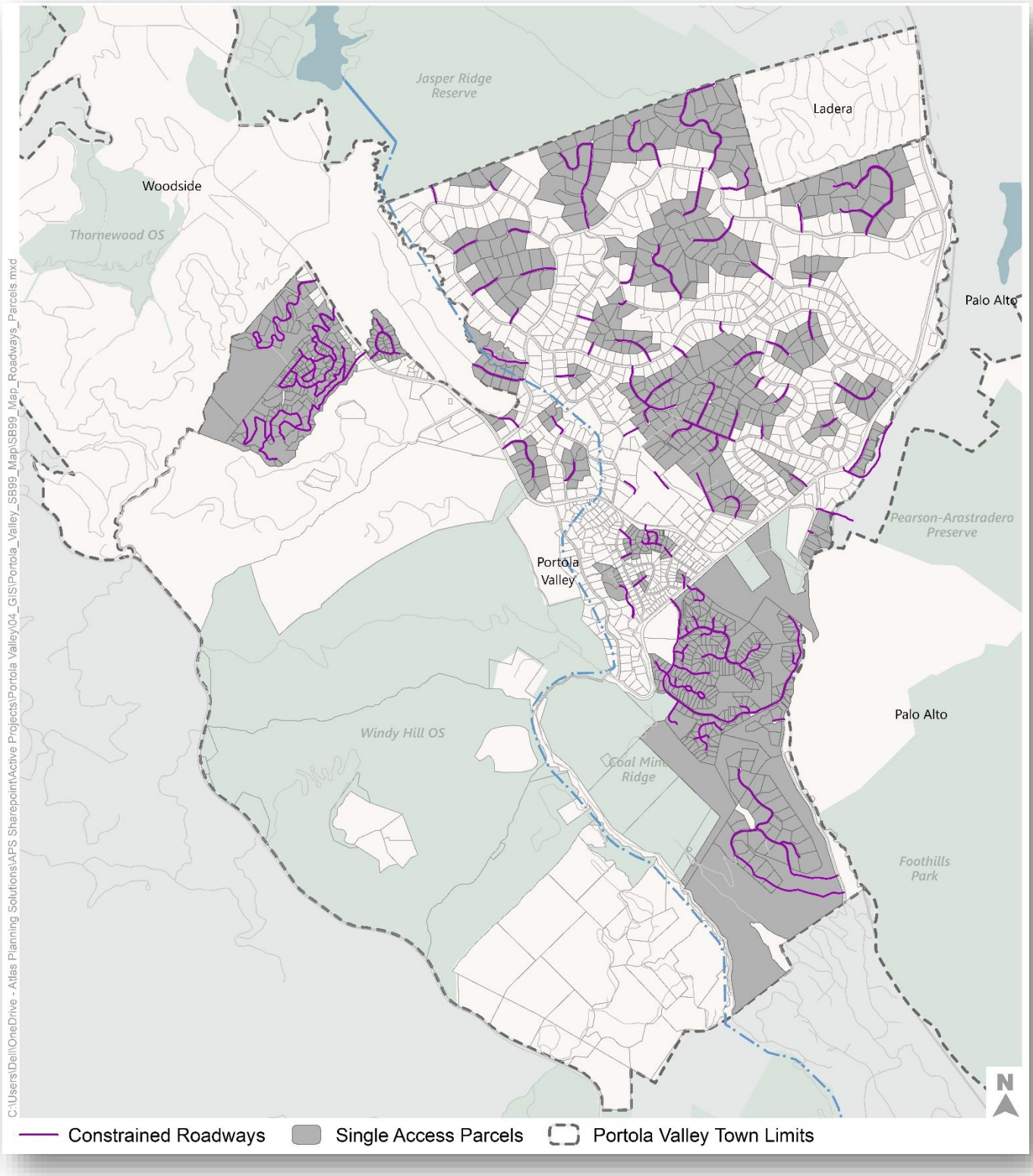


Figure 2: Constrained Roadways



Existing Non-Conforming Developments (SB 99)

Based on initial analysis, Portola Valley has a total of seven constrained parcel groups (CPG). These CPGs all have single ingress/egress access routes and were identified based on the number of parcels accessing the identified constrained route. Using a threshold of 20 housing sites located on a single access roadway, the Town has 7 locations that would meet this threshold. While there is no formal guidance, the California Department of Forestry and Fire Protection (Cal FIRE) and the Public Resources Code Section 4290.5, has typically suggested a threshold of 30 dwellings per single access roadway. However, given the larger parcel sizes and structures within the Town, CPGs with at least 20 parcels were identified in this analysis. This threshold captures the potential presence of existing or future accessory dwelling units (ADUs), which may be used to accommodate additional housing development within the Town. This development potential assumes an additional 10 ADUs could be developed on 20 existing parcels, exceeding the standard 30 dwelling unit threshold. While this approach is conservative, if the 30-dwelling unit threshold were used, 1 of the CPGs would be eliminated from this analysis. **Table 2** identifies the seven CPGs analyzed and the number of residential parcels at risk due to constrained roadway conditions.

Table 2: Constrained Parcel Groups

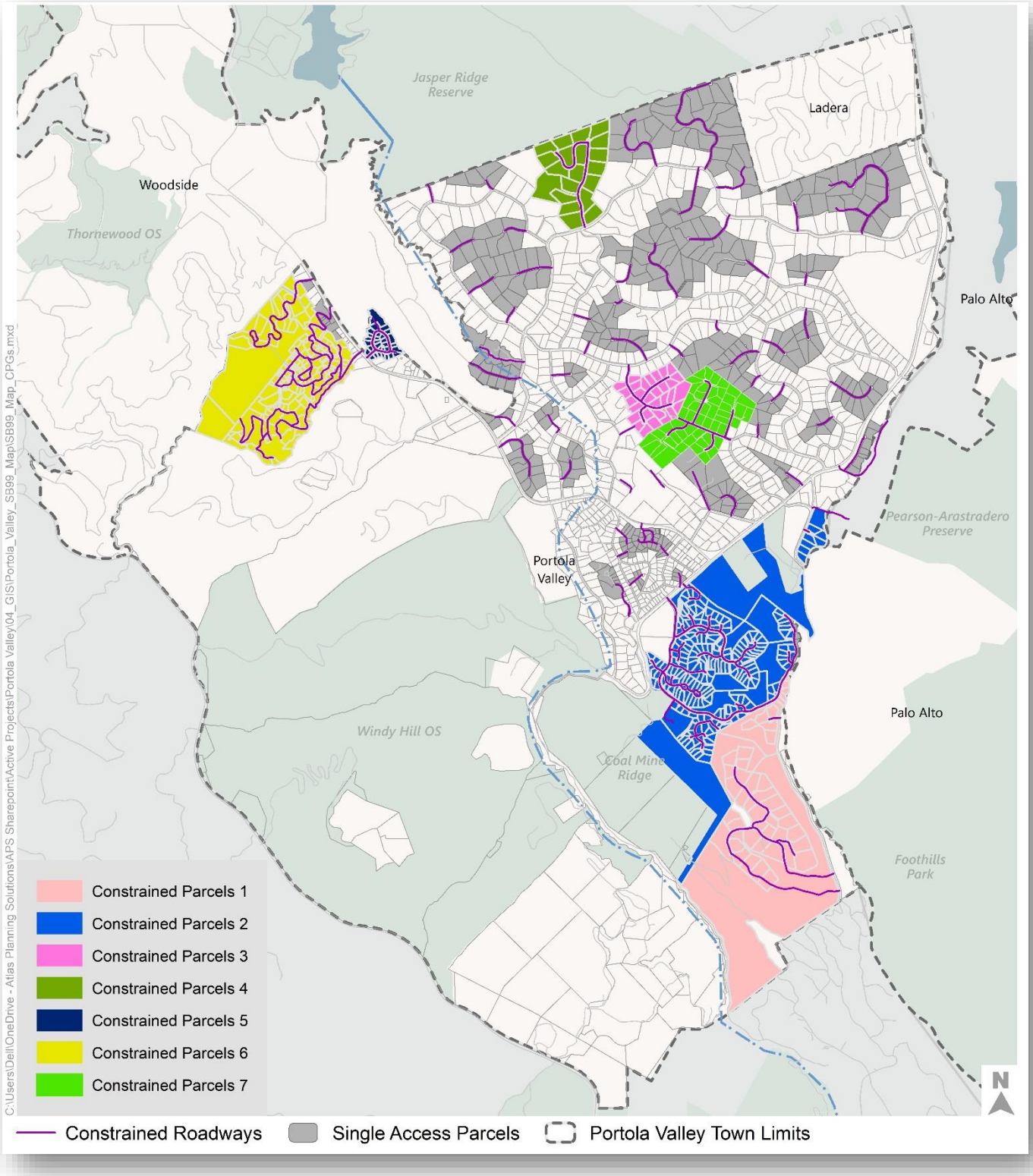
Parcel Group	Number of Residential Parcels At Risk
1	48
2	241
3	30
4	20
5	30
6	170
7	50
Total	**589**

Figure 3 identifies the locations of these 7 CPGs, which include a total of 589 individual parcels that may be affected by evacuations due to limited ingress/egress conditions during a hazard event.

Evacuation Concerns/Data

In accordance with SB 99, the Town is required to identify the constrained routes and locations in relation to natural hazard conditions. A review of existing available information has identified areas of the town prone to seismic, flood, wildfire, and landslide hazards. Location within or proximity to these hazard areas further compounds the concern for loss of life or property damage during an emergency.

Figure 3: Constrained Parcels with Limited Ingress/Egress



Seismic Hazards

Portions of the Town are transected by the San Andreas Fault Zone, which has the potential to generate significant seismic shaking and cause damage to roadways, infrastructure, and buildings. While all areas of the Town are susceptible to similar amounts of shaking, CPGs 1, 2, 5, and 6 are the most susceptible to physical impacts associated with fault rupture from this fault. No mapping was prepared for this analysis regarding seismic hazards.

Flood Hazards

Figure 4 identifies the areas of the Town mapped within FEMA flood hazard zones[3]. The main waterways identified within these flood hazard zones are Sausal and Corte Madera Creeks. CPGs 2, 5, and 7 intersect these flood hazard zones exposing 15 parcels to potential flooding hazards along these waterways.

A key concern regarding flooding is the potential for floodwaters to affect the ability for roadways to continue to function during storm events. **Table 3** identifies the roadways (highlighted in Figure 4 as water crossing road segments) that intersect the creek location. While these roadways may be susceptible to flooding due to these crossings, other locations along stream corridors could also be impacted if the right conditions occur.

Table 3: Evacuation Routes with Potential Flood Risk from Corte Madera Creeks

Evacuation Route	Evacuation Route Intersection with Potential Hazard
Portola Road	Crosses the creek in between Grove Drive and Brookside Drive
Westridge Drive	Crosses the creek in between Possum Lane and Bow Way.
Alpine Road	Crosses the creek at Willowbrook Drive
	Crosses the creek near Rapley Trail
	Crosses the creek in between Joaquin Road and near Coal Creek

Fire Hazards

According to Cal Fire, fire hazard severity zones are located within the Town and surrounding areas. Mapping in **Figure 5** indicates the northwest portion of the Town is located within the Very High Fire Hazard Severity Zone (VHFHSZ) within a Local Responsibility Area (LRA)[4], while areas to the north, west, and south of the town are in moderate, high, and very high zones within State Responsibility Areas (SRAs). CPG 6 is the only constrained location located within a VHFHSZ, which includes a total of 170 parcels. Due to the number of parcels and limited connection to Portola Road, evacuation from this area will be an issue for the Woodside Fire Protection District and Cal Fire. To further constrain this area, all access points to these neighborhoods are located along the San Andreas Fault, which increases the vulnerability to those roadway connections.

[3] Federal Emergency Management Agency National Flood Hazard Layer (NFHL) Viewer, 2012

[4] The Town Council has not formally adopted this VHFHSZ designation, but such designation is being used here for the purposes of this analysis

Figure 4: Constrained Parcels with Limited Ingress/Egress (Flood Hazards)

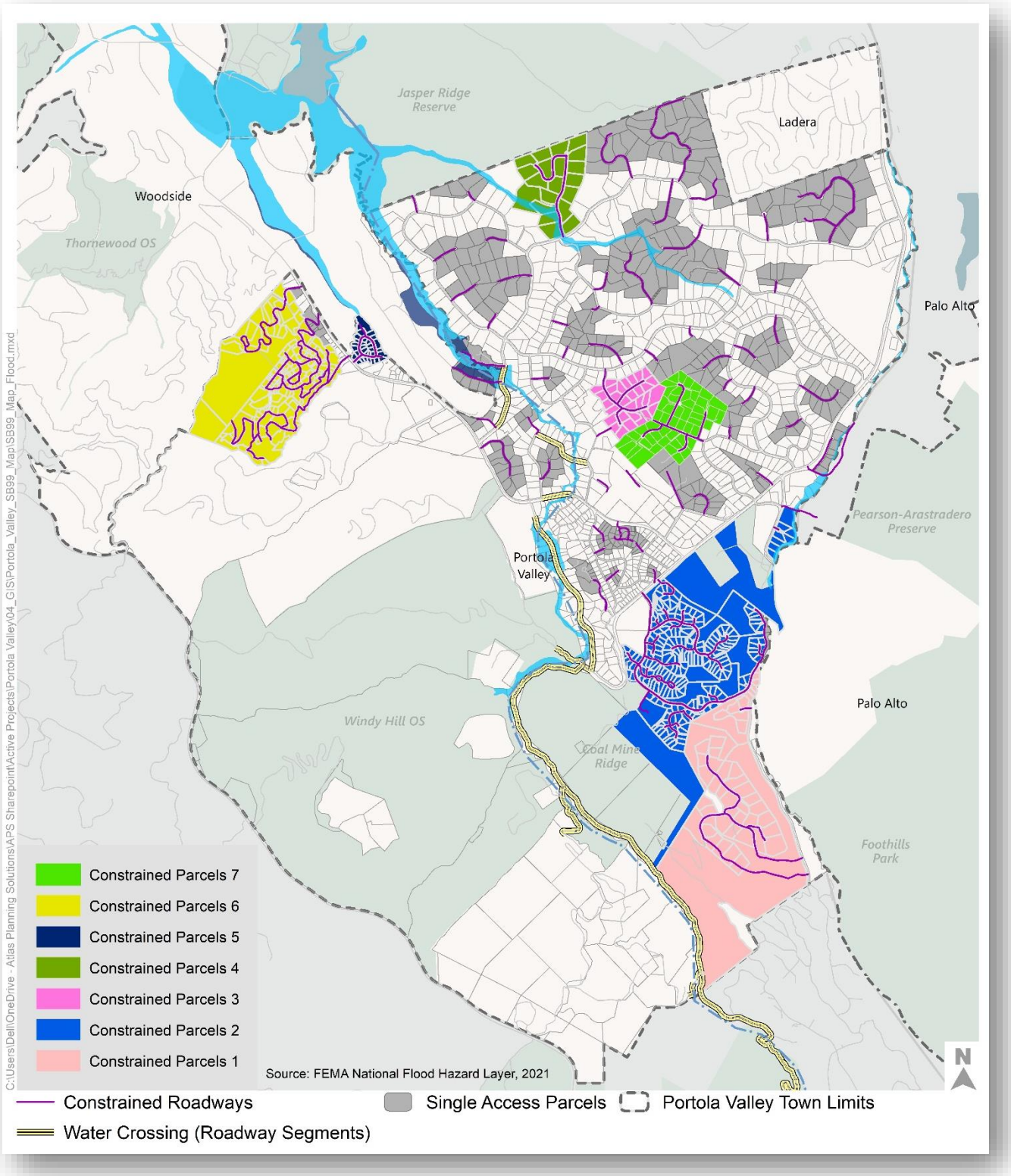
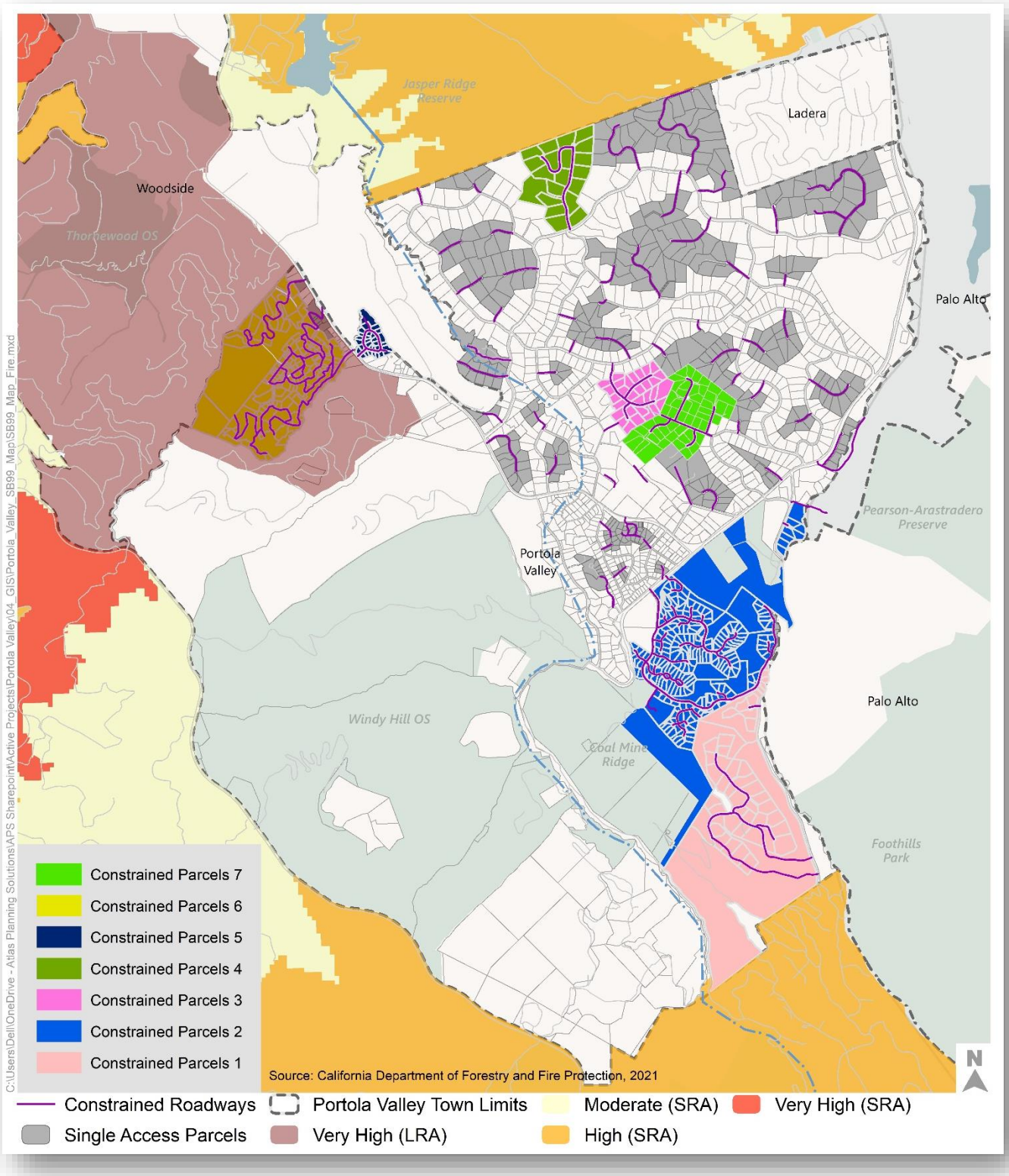


Figure 5: Constrained Parcels with Limited Ingress/Egress (Wildfire Hazards)



Landslides

Landslides are a significant concern for the Town due to the topography, proximity to active faults (San Andreas), and the types of earth materials throughout the community. According to the California Geological Survey, a significant portion of the community is mapped (**Figure 6**) within a landslide susceptibility zone[5]. Many of the parcels within the Town, are located within areas of medium or high landslide susceptibility.

Within the 7 CPGs, approximately 210.2 acres are within areas of medium landslide susceptibility and 401.3 acres are within areas of high landslide susceptibility. Given the proximity to the San Andreas Fault and other active faults within the region, the Town is also susceptible to earthquake induced landslides.

The high degree of landslide susceptibility can provide challenges to evacuation if roadways are blocked or damaged, making them unpassable.

Conclusion

Evacuation from the Town will require careful planning and situational awareness regarding the various hazards and conditions that can impact residents' movement to safety. **Table 4** summarizes the results of the analysis for flood, wildfire, and landslide hazards for the seven CPGs.

Table 4: Constrained Parcel Groups (CPG's)/Hazard Susceptibility

Constrained Parcel Group	Parcels in Flood Zone	Parcels in VHFHSZ Located in a Local Responsibility Area	Parcels located in Landslide Susceptibility Areas (In Acres)	
			Medium (5,6,7)	High (8,9,10)
1	0	0	44.4	184.9
2	8	0	99.7	66.5
3	0	0	7.7	1.9
4	6	0	25.9	5.9
5	1	0	1.5	0.0
6	0	170	12.0	142.2
7	0	0	20	0
Total	**15 Parcels**	**170 Parcels**	**210.2 Acres**	**401.3 Acres**

[5] California Geological Survey, 2011, C.J. Wills, F.G. Perez and C.I Gutierrez. Susceptibility to Deep-Seated Landslides in California, Map Sheet MS-58.

Figure 6: Constrained Parcels with Limited Ingress/Egress (Landslide Hazards)