



SAN RAFAEL CITY COUNCIL AGENDA REPORT

Department: Fire

**Prepared by: Quinn Gardner, Deputy Director of
Emergency Management**

City Manager Approval: _____

TOPIC: WILDFIRE PREVENTION EFFORTS IN SAN RAFAEL

SUBJECT: INFORMATIONAL REPORT ON THE 38-POINT WILDFIRE ACTION PLAN AND MARIN WILDFIRE PREVENTION AUTHORITY ACTIVITY IN RECOGNITION OF WILDFIRE AWARENESS MONTH.

RECOMMENDATION:

Accept the informational report on the 38-point Wildfire Action Plan and Marin Wildfire Prevention Authority activity in recognition of Wildfire Awareness Month and provide feedback to staff.

BACKGROUND:

While wildfires are a natural part of California's landscape, the fire season in California and across the West is starting earlier and ending later each year and is filled with larger and more devastating fires. Warmer spring and summer temperatures, reduced snowpack, and earlier spring snowmelt create longer and more intense dry seasons that increase moisture stress on vegetation and make our environment more susceptible to severe wildfire. San Rafael's unique topography and geography make the entire city particularly susceptible to fires, particularly wind driven events.

Climate change is considered a key driver of this trend and is acting as a force-multiplier that will increasingly exacerbate wildland fires over the coming decades. Another contributor to the wildfire problem is that decades of fire suppression have disrupted natural fire cycles, leading to fuel build-up and more intense fires. Due to these factors, the state can expect to experience longer fire seasons, greater acreage burned, increased frequency and severity of drought, and related impacts such as widespread tree mortality and bark beetle infestation.

The cost of wildfires is often quantified in lives lost, structures destroyed, and acres burned. In California alone, in 2020 wildfire killed 33 people, destroyed over 11,000 structures, and torched a record-breaking 4.3 million acres of land. In 2021, 3 people were killed, over 2.5 million acres burned, and over 3,600 structures were destroyed. While these are startling statistics, the total cost of wildfires extends well beyond these three metrics, starting with the funds it takes to contain or suppress wildfires. According to

FOR CITY CLERK ONLY

Council Meeting:

Disposition:

data from the National Interagency Fire Center, Federal wildfire suppression costs in the United States have spiked from an annual average of roughly \$425 million from 1985 to 1999 to \$1.6 billion from 2000 to 2019. State suppression costs have also risen; in California, over the past decade the average annual suppression cost has nearly doubled compared to the previous one, reaching close to \$400 million. The 2020 wildfire season caused over \$10 billion in damages, with over \$2 billion in suppression costs. In 2021 over \$500 million was spent on suppression costs. There are also less quantifiable metrics that may be even more costly, including disruptions to business, taxes, and tourism; residents left with soaring medical bills; and polluted air, soil, and waterways.

In response to devastating wildfire events in 2017 and 2018, the City Council directed staff to create the [San Rafael Wildfire Prevention and Protection Action Plan](#) (WPPAP), which was approved as the wildfire prevention and mitigation framework in August of 2020. Prior to the Plan’s approval, a Citizens Wildfire Advisory Committee, led by then Mayor Phillips and Councilmember Bushey, met, reviewed, discussed, and had their suggestions incorporated into the final WPPAP and implementation strategies.

In March of 2020, Marin County voters approved Measure C, a parcel tax to fund wildfire prevention efforts in Marin County. Measure C established and funds the Marin Wildfire Prevention Authority (MWPA). The MWPA consists of 17 Marin County agencies and is tasked with improving wildfire safety for all of Marin residents, businesses and visitors. In June of each year the MWPA Board approves a work plan for the upcoming fiscal year. The WPPAP has been the framework for the City’s MWPA projects.

In February of 2021, City Council adopted Ordinance No. 1988, updating San Rafael Municipal Code (SRMC) Chapter 4.12 to establish citywide vegetation standards to better protect lives and property across San Rafael. This important code update directly addressed items 1-3 in the WPPAP. The specific elements of the Ordinance were included in the WPPAP and developed from the National Fire Protection Association (NFPA), the California Fire Code, and extensive review of policies and practices from other regional jurisdictions. In addition, these recommendations are aligned with national wildfire research conducted by the Insurance Institute for Business and Home Safety and the FIREWISE national wildfire fire safety campaign.

ANALYSIS:

The MWPA 2021-2022 workplan outlines a whole community fire adapted approach that includes improvement to evacuation routes, open space fuel reduction, public education, defensible space and home hardening, ignition reduction, early detection, alert and warning, and numerous other projects. The WPPAP has served as a guiding document to develop projects for MWPA funding.

These projects have included various shaded fuel breaks, open space fuel reduction near homes and along fire roads, the removal of hazardous and dense vegetation along evacuation routes, safe parking updates, numerous public education and outreach events, and a citywide defensible space inspection program.

In addition, free curb side chipping and debris removal services, direct resident assistance, and home hardening and vegetation management grants are available to property owners. A summary of the actions relating to each item in the WPPAP is provided below.

WPPAP Item Summary	Updates/Status
1. Eliminate highly flammable vegetation throughout San Rafael	MWPA Grants, Defensible Space Evaluations, vegetation projects, Direct Assistance

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2. Apply fire mitigation standards citywide	Updated SRMC Ch. 4.12 increases Defensible Space Evaluations and enforcement,
3. Reduce ember ignitions in immediate zone	Updated SRMC Ch. 4.12 increases Defensible Space Evaluations and enforcement,
4. Expand goat grazing	Additional acreage and earlier start in 2022
5. Establish additional fuel interruption zones	Numerous shaded fuel breaks and improved clearances along fire roads
6. Improve public education	Virtual and in person outreach and events, FireSafe Marin content, increased 1-1 education via inspections
7. Increase Firewise Communities	Established coordinator, grants available
8. Reduce risks on private unimproved lots	Inspection and enforcement program
9. Effective debris disposal	Chippers, debris boxes, air curtain burner, lop and scatter
10. Engage community groups	Dedicated staff re-engaging with community groups.
11. Reengage broom pull days	Numerous reoccurring and single events
12. Review and update WUI map	On Hold
13. Consider PRC 4290 and 4291	On Hold while State considers new legislation
14. Develop new solutions and resources	Received Hazard Mitigation Grant for fuel reduction project, continued partnership with Service Corps, Fire Foundry, Delta Fire Crew
15. Seize open space ignition sources and remove encampments	Local MWPA project to fund 1.5 Rangers
16. Reduce likelihood of ignitions	Sign improvements and Local MWPA project to fund 1.5 Rangers, Code changes in development
17. Explore enhanced safety opportunities with Building codes and 7A materials	On Hold while State considers new legislation
18. Eliminate shake and wooden roofs	Code changes pending
19. Vegetation Study	CWPP and future MWPA project
20. Analysis of fire roads and fuel breaks	Staff surveys completed, updates ongoing
21. Harden more homes	Increase inspections, resident grants
22. VMPs and RLTs	VMP reviews ongoing, RLTs merged into public education
23. Increase inspections	Over 1500 inspections completed in the past year
24. Improve Risk reduction via education and signs	In Progress. Education planting, signs, online education
25. Improve short term rental wildfire safety	Requirements established
26. Hire additional staff	Completed
27. Police Rangers	Local MWPA project to fund 1.5 Rangers
28. Reduce fuels along roadways	Evacuation Route clearance ~13 miles cleared
29. Parking Box Program	Local Project implemented on San Rafael Lincoln Hill, Downtown/West End and Dominican/Black Canyon in process
30. Improve Public emergency alerting	Emergency portal, Zonehaven, Alert Marin, Nixle,
31. increase early warning and detection	PG&E camera upgrades
32. Improve evacuation plans and drills	Zonehaven system
33. Safe and Critical Infrastructure	Fuel reduction work ongoing

34. Improve staff ability to send alerts	Training and policies established
35. Assure staff can communicate in emergencies	Tested in exercises and drills
36. Garage door battery back-ups	MWPA home hardening grant program
37. Multiple gates in select areas	MWPA home hardening grant program
38. Maintain and expand partner coordination	Ongoing

The above list represents only a summary of the completed work, which is also visually represented in the attached maps. In the coming year staff will work to improve and maintain previously completed projects, as well as work on more complicated planning projects for larger scale area treatments, implement additional shaded fuel breaks, and continue to work with the public to reduce risks to their homes and businesses.

COMMUNITY OUTREACH:

Staff remain committed to engaging and informing the public through our prevention and adaptation efforts. This has included community meetings, virtual and in person trainings, direct mail campaigns, the use of signs on A-frames, coordination with community and neighborhood leaders. In addition staff continuously provide updates on the City and MWPA websites and maintain a social media presence, and wildfire prevention direct emails and phone numbers. The MWPA Board, Operations Committee, and Technical Committee are all Brown Act compliant and meetings are open to the public for their information and feedback.

FISCAL IMPACT:

There is no direct fiscal impact associated with this information report. Staff time associated with public education, implementation and enforcement is covered by Measure C, MWPA defensible space funds.

OPTIONS:

Staff suggest the following options be considered on this matter:

1. Accept the report
2. Provide feedback

RECOMMENDED ACTION:

Accept the informational report on the 38-point Wildfire Action Plan and Marin Wildfire Prevention Authority activity in recognition of Wildfire Awareness Month and provide feedback to staff.

ATTACHMENTS:

1. Wildfire Prevention and Protection Action Plan
2. San Rafael Wildfire Prevention Project Site Map



Wildfire Prevention and Protection Action Plan

August 2020



SAN RAFAEL
THE CITY WITH A MISSION



San Rafael Wildfire Prevention and Protection Action Plan: A Framework for Wildfire Risk Reduction in San Rafael– August 2020



Executive Summary:

At the direction of the San Rafael City Council, staff have produced the San Rafael Wildfire Prevention and Protection Action Plan. This document is intended as a master planning document to guide continual efforts to reduce the wildfire risk in San Rafael. It does not provide specific program details for every objective, but serves as a framework for concurrent, complimentary and building block approaches to community safety. All items that require ordinance changes or resolutions will require additional action by City Council per San Rafael Municipal Code. This master plan incorporates lessons learned from recent wildfires, ongoing local and County efforts, existing plans, environmental best practices, and community input. This document is intended as a guide to overall approach and lays out the City of San Rafael’s plans for Wildfire Prevention and Preparedness. The framework will be executed in partnership with other city, county and community efforts including, but not limited to: the Marin Wildfire Prevention Authority (MWPA) and its committees and workplans.



Background:

In 2007, the City of San Rafael adopted a model ordinance for vegetation management. As we experience continued fire risk and activity associated with climate change, the City of San Rafael has been actively evaluating methods to further reduce our community's susceptibility to devastating wildfires. Wildfire risks will persist under extreme conditions; however, we can significantly mitigate those risk factors through enhanced regulations, education and enforcement. Public policy and programs provide a framework for a more resilient San Rafael but will require public support, compliance, effective implementation, and individual effort.

Currently, the City's wildfire prevention efforts focus on our Wildland Urban Interface (WUI) areas, which were established to identify areas thought to be most at risk for being impacted by a wildfire. Specific vegetation standards, including those adopted by San Rafael in 2007, apply only to property in the WUI. However, as climate change and increased fuel build-up contribute to more devastating fires, these boundaries no longer are sufficient or effective. Ember storms, explained in more detail below, can spread fire miles ahead of the flame front, regardless of WUI or jurisdictional boundaries. To adequately protect communities, more universal standards and approaches are necessary. Each structure burned in a fire is a risk to life, a personal and communal loss, and contributes to additional fire spread.

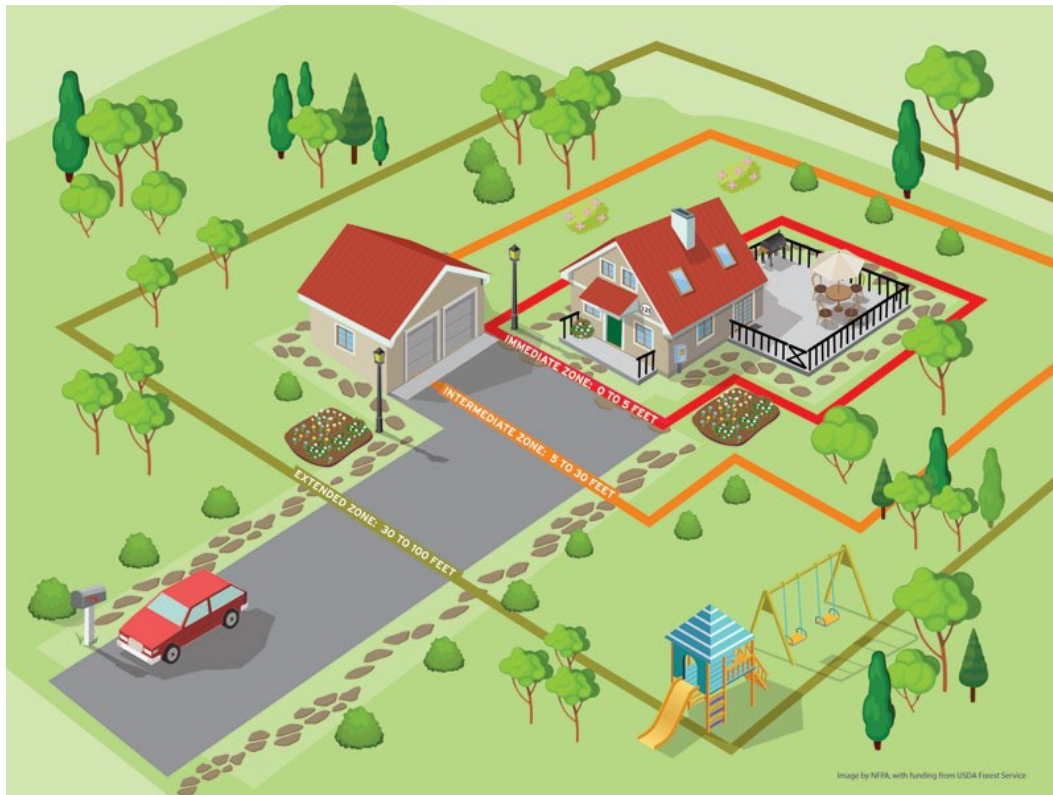
In early 2019 Fire Department had two part-time Vegetation Management Inspectors. Together, the Department conducted more than 1,200 WUI home inspections in the first half of Fiscal Year 2018/19 and assisted the Department of Public Works with removal of flammable vegetation on approximately 125 acres of City-owned public

space. Monthly chipper days – providing residents with free juniper and bamboo chipping services – are also overseen by the Fire Department. Altogether, more than 1,500 tons of vegetation was removed this past fiscal year as a result of the Fire Department’s vegetation management efforts. The City also works closely with Marin County Fire, FIREsafe MARIN, and other local and regional agencies on wildfire prevention and fuel reduction strategies.

Additionally, in prior years, the Police Department employed two part-time open-space rangers who patrol City open space for fire hazards and violations of City ordinances during the fire season (generally considered to be May through November). These rangers are empowered to remove dangerous items from encampments if they pose an immediate fire risk, and assist in removing abandoned campsites, garbage and other fire risks from the area. Note, enforcement of anti-camping ordinances is limited by the law and a recent U.S. 9th Circuit court ruling and the City is currently working to update its ordinances to be in compliance with the law.

In March of 2020, Marin County voters approved Measure C, a scaling parcel tax to fund wildfire prevention in Marin County. Measure C established and funds the Marin Wildfire Prevention Authority with an estimated annual tax revenue of 19.3 million dollars.

Despite the City’s ongoing efforts, wildfire risk and community concern require more action. Continual and expanded efforts to address wildfire prevention and safety will protect lives, property, businesses, as well as our natural resources, including forests, watersheds, and endangered species habitats.



Fire Science:

A basic understanding of fire science and behavior is needed to best understand how the items proposed in this plan will reduce the wildfire risk in San Rafael. Fire requires heat, oxygen, and fuel to burn. Wildfire behavior is impacted by weather, topography, and fuel. Fuel is the consistent feature in fire ignition and behavior that we can do the most to control. Recent fires and subsequent studies have aided in Fire Professionals understanding of fire behavior, risks to lives and property, and how best to mitigate those risks.

Wildfire prevention focuses on reducing ignition sources, such as heat and easily ignitable fuel. Wildfire mitigation focuses on reducing fuel to reduce the ability of a wildfire to spread and impact lives and property. Types of fuel are generally defined by the amount of time it takes a fuel to respond to changing weather conditions or dry out. 1 hour, or flash fuels, like tall grass, ignite and burn very quickly. 10, 100, and 1,000-hour fuels take increasingly more heat and time to ignite but burn for longer. Similar to the way one would build a camp fire, fire mitigation work should start with the easily ignitable fuels and progressively remove the others from areas of protection.

When referring to fuel structures, or the way the fuels exist in the environment, the three common in San Rafael are surface, ladder, and aerial fuel. Surface fuel includes dead and dying vegetation material on the ground's surface. Fire that only impacts ground fuels is much easier to contain and extinguish. Ladder fuels connect separate fuel sources and contribute to fire spread. Reducing ladder fuels helps keep fire on the

ground and reduces the rate of spread. Ladder fuels allow ground fire to spread into canopies and aerial fuels. Aerial fuels exist above the ground, and include the tree canopy, branches and high brush. Fires consuming large amounts of aerial fuels are difficult to contain.

The three primary methods of wildfire spread are described below:

Embers: According to recent research, embers are the most prolific cause of home ignition at a rate of two out of every three homes destroyed. Embers are glowing or burning pieces of vegetation or construction debris that are lofted during the wildfire. Embers can move up to a mile ahead of a firestorm. These small embers or sparks may fall on the vegetation near your home – on dry leaves, needles or twigs on the roof– and then subsequently ignite and burn down the home. The concentration of embers that land on the roof and roll off makes the removal of all flammable materials close to the house critical. Ember storms place all structures without fire resistant landscaping and construction within miles of the fire at potential risk.

Direct flame contact: Direct flame impingement refers to the transfer of heat by direct flame exposure. Direct contact will heat the building materials of the home; if the time and intensity of exposure is severe enough, windows will break, and materials will ignite.

Radiant heat: A house can catch on fire from the heat that is transferred to it from nearby burning objects, even in the absence of direct flames or embers. By creating defensible space around homes, we can significantly reduce the risk from radiant heat. A home with 100 feet of clearance from forest or shrubs will usually have minimal impact from radiant heat or direct flame.

Establishing strong guidelines for defensible space and fire-resistant building materials helps prevent ignition from radiant heat and embers. Limiting fuel and available vegetation reduces the possibility of direct flame contact igniting structures or other vegetation. Conditions are increasingly making ember storms, created by winds and highly combustible vegetation, the primary method of wildfire spread.

NFPA and [Firewise USA](#) recognize three zones surrounding a structure:

Immediate Zone (within 5 feet of a structure): This zone is most vulnerable to embers and should be clear of all dead and flammable vegetation. Improvements in this zone are essential to preventing structure ignitions.

Intermediate Zone (5 to 30 feet from a structure): This area should be carefully landscaped to act as a fire break.

Extended Zone (30 to 100 feet – or, in some cases, up to 200 feet – from a structure): This zone should act to interrupt the path of fire and keep embers from becoming airborne.



Methodology:

This document lists a series of prescriptions, programs, and recommended ordinance changes needed to make San Rafael more fire and disaster-resistant. These action items reflect the need for a comprehensive approach to reducing wildfire risk. Removing dangerous vegetation, using fire-resistant building materials, and avoiding risky activities all are vital for protecting the community.

This plan is written with regards to the City and County of Marin Local Hazard Mitigation Plans (LHMP); Marin County Community Wildfire Protection Plan (CWPP); Marin County Lessons Learned 2017 North Bay Fire Siege, September 2018 (*2017 Lessons Learned report*); San Rafael Climate Change Action Plan, and the San Rafael General Plan.

The initial draft plan was presented to City Council on January 22, 2019. Following the initial presentation, additional public input was gathered through public meetings, Homeowners Association and Neighborhood Association meetings, online feedback forms, social media, Nextdoor polls and direct contacts.

The framework adopted by San Rafael City Council in March of 2019 was re-organized and renumbered following feedback received from the initial draft. Throughout 2019 a 15-member Citizen's Advisory Committee, met in a public setting to discuss and improve the plan. The Committee's feedback was incorporated into the October 2019 version of the plan. The October 2019 draft plan was presented at 3 community meetings, one of which included translated materials and Spanish translation. This final version considers and incorporates feedback from the extensive digital and in-person outreach listed above to provide a comprehensive, equitable, and community minded path forward.



Intent:

The San Rafael Wildfire Prevention and Protection Action Plan is designed to serve as a master plan and framework for the ongoing work to reduce wildfire risk in San Rafael. This plan considers and incorporates local, county, regional, and national findings and best practices, including those incorporated into the Marin County Wildfire Prevention and Protection Plan and the 2017 Lesson's Learned report.

The plan is designed to address all the phases of disaster response (mitigation, preparedness, response, and recovery) while engaging the whole community. Creative and innovative solutions are considered to help achieve these goals. As a community member summarized via the feedback form "if ever there was a situation where you should not let 'the perfect be the enemy of the good', this is it." This plan is presented as a framework to move efforts forward, establish benchmarks, and provide opportunities for evaluation and improvement.

The following were the guiding principles and intent of this plan:

- Public safety and risk reduction
- Coordination and collaboration
- Environmental protection and sustainability
- Equity
- Cost effectiveness
- Incentivize voluntary compliance before fines and penalties

Structure:

The action items are organized into three categories in alignment with the Marin County *2017 Lessons Learned* report: 1) Vegetation Management 2) Wildfire Prevention and Protection and 3) Emergency Notifications and Evacuation. Each action item includes the objective, rationale, required actions, concerns, costs, potential stakeholders, a proposed timeline, and anticipated outcomes in the following format:

OBJECTIVE

Action	This section includes a description of the proposed action.
<i>What this means</i>	This section should explain in more detail what this action would mean to those impacted by it.
<i>Rationale</i>	This section includes a discussion of why we recommend this, including the scale of impact we believe it will have.
<i>Concerns</i>	This section includes a discussion of political, legal, or cost feasibility concerns that we've identified. It lists any identified trade-offs, such as the dedication of existing staffing resources away from other projects to do this work.
<i>Stakeholders</i>	This section includes a list of stakeholders.
<i>Timeline</i>	This section says if the action is underway and if not, why. For example, it is noted here if the action requires further or extensive legal review, future City Council action, community outreach, program design work, etc.
<i>Outcomes</i>	This section outlines the anticipated result of the item implementation.



Impacts on Budget and Staff Time:

A full, year-by-year budget estimating the cost to implement has been developed by staff. This includes open space fuel reduction projects, staff time to implement and maintain the plan, support for residents through cost share programs and chipper days, outreach and education, as well as supplies and funding for specific projects.

Some cost recovery may be attained through enforcement fines through the City's master fee schedule. The City strives for voluntary compliance before implementing fines or fees for dangerous non-compliance.

Measure C, via the MWPA, will provide the majority of the funding required for the implementation and staffing of most items in this plan. Measure C provides an avenue to continue and expand wildfire prevention efforts despite the financial constraint and public funding challenges presented by COVID-19.

Definitions:

For the purposes of this document, the following words are defined:

"Fuel" means any combustible vegetation, including grass, leaves, ground litter, plants, shrubs and trees, that can feed a fire.

"Prescription" means a set of standards, regulations, or recommendations that consider the unique aspects of a particular issue including vegetation, slope, aspect, nearby construction materials, and surrounding area.

"Vegetation Management Plan" means a site-specific written plan for a property to mitigate the risk of wildfire through strategic reduction of combustible vegetation.

"Wildfire" means a fire that originates in an area of combustible vegetation, as opposed to a structure fire, which originates in or adjacent to a building.

"Wildland-Urban Interface" is an area where human development (e.g., houses) abut or intermingle with undeveloped vegetation and where the risk of wildfire is high.

Table 1 – Acronyms

ACRONYM	DESCRIPTION
AFN	Access and Functional Needs
CERT	Community Emergency Response Team
CSA	Community Service Agreement
CSD	Community Service District
CWPP	Community Wildfire Protection Plan
DPW	Department of Public Works
EOC	Emergency Operations Center
GETS	Government Emergency Telecommunications Service
HEAT	Homeless Emergency Action Team
LHMP	Local Hazard Mitigation Plan
MCSO	Marin County Sheriff’s Office
MMWD	Marin Municipal Water District
MWPA	Marin Wildfire Prevention Authority
NCCC	National Civilian Conservation Corps, An AmeriCorps Program
NFPA	National Fire Protection Association
NRG	Neighborhood Response Group
OES	Office of Emergency Services
PG&E	Pacific Gas and Electric
PRC	Public Resource Code
RLT	Resilient Landscape Template
SRA	State Responsibility Area
SRFD	San Rafael Fire Department
SRMC	San Rafael Municipal Code
SRPD	San Rafael Police Department
VMP	Vegetation Management Plan
WEA	Wireless Emergency Alerts
WPS	Wireless Priority Services
WUI	Wildland-Urban Interface

VEGETATION MANAGEMENT

1. Eliminate highly flammable vegetation throughout San Rafael

ACTION	Propose revising the existing provisions that prohibit Juniper and Bamboo to include Acacia and Italian Cypress, and universally apply these regulations on all properties in San Rafael.
WHAT THIS MEANS	<p>All property owners in San Rafael, both public and private, will be required to remove all Juniper (<i>Juniperus spp.</i>), Bamboo (<i>Bambusa spp.</i>), Acacia (<i>Acacia spp.</i>), and Italian Cypress (<i>Cupressis sempervirens</i>); the timeline for compliance will be decided at the time the City Council approves a proposed change in the ordinance. Enforcement will include a required vegetation inspection fee as part of the Residential Building Resale (RBR) process. Non-compliance will require a disclosure and be resolved through private sale negotiations.</p> <p>Outreach to nurseries and landscaping companies will be included to help prevent the sale and planting of highly flammable vegetation. Fire hazardous, non-native and invasive species will also be removed from public spaces as possible. Consider ordinance banning the sale of prohibited plants or requiring “fire hazardous” warning labels within San Rafael.</p>
RATIONALE	<p>These species are known to propagate fire at a high rate of spread and create unnecessary risks to the property owners, first responders, and community at large. The ordinance update will help reduce fire ignition, the spread of wildfire, and improve responder safety throughout the entire community by eliminating highly combustible vegetation. Establishing and maintaining citywide vegetation standards simplify education and enforcement efforts. To address aesthetics and erosion, outreach and education efforts will include information about less fire prone plants recommended as replacements.</p>
CONCERNS	<p>Staff time is required to proactively encourage voluntarily compliance and enforce as necessary.</p> <p>Costs to residents, businesses and City to remove and dispose of hazardous fuel loads. Cost to City to meet vegetation standards on City property. Ability to assure equitable wildfire protection with assistance programs. Need and want to replace the removed species for erosion protection, carbon sequestration, habitat, and beautification.</p>
STAKEHOLDERS	<p>All property owners in San Rafael, both public and private. Fire Department. Public Works. Nurseries and Landscapers.</p>
TIMELINE	<p>Ordinance changes will be internally drafted, reviewed and presented at public meetings in the future. Education, outreach, and assistance with vegetation removal for property owners will begin within 30 days of the ordinance adoption. Updates to City ordinances will become effective in 2021.</p>
OUTCOMES	<p>Voluntary compliance and enforcement results in less highly flammable fuels in San Rafael resulting in reduced likelihood of ignition and less fire spread within the immediate and</p>

intermediate zones. The data reviewed to consider the success of implementation would include tons of vegetative debris removed, results of inspections.

2. Apply vegetation management and defensible space and fire mitigation standards citywide

ACTION

Establish Citywide vegetation standards, rather than just for the Wildland Urban Interface (WUI). Additional vegetation regulations may apply to structures and roads within the WUI.

WHAT THIS MEANS

Vegetation standards, including the removal of four fire hazardous species, will apply to all structures and roadways in the City of San Rafael. Proposed ordinances will outline new citywide vegetation, building, and ground covering standards. A set of revised ordinances will establish citywide vegetation standards. The timeline for compliance will be decided at the time the City Council approves a proposed change in the ordinances. A section unique to WUI ordinances will be maintained for any unique standards. Outreach and education provides property owners with suggestions for species to plant with consideration to fire resistance, drought tolerance, and carbon sequestration. Application of vegetation standards may include considerations for building material, topography, surrounding fuel and infrastructure, or other impacts to fire behavior. An internal policy would guide the interpretation and enforcement of the ordinances. A permit process allowing homeowners to remove specific vegetation on public land to achieve defensible space for their home will be considered in coordination with City efforts to reduce hazardous fuels in open space. Guidelines will also include standards for planting, maintaining and removing invasive and fire hazardous trees.

RATIONALE

Wildfires do not respect WUI boundaries, and can easily spread to urban areas, outside the WUI as painfully demonstrated in the 2017 Wine County fires. This improvement is included in the *2017 Lessons Learned* report. Uniform application of all vegetation management and fire prevention related codes and ordinances will improve wildfire resilience throughout the community. Uniform standards provide clarity and simplify enforcement. The removal of highly flammable and dense vegetation stands also promote healthy vegetation growth.

CONCERNS

Public will have varying costs to meet new vegetation management standards. This requires staff training on updated Municipal Code. High cost burden for properties not currently up to the new code. High cost to obtain compliance with new code; could trigger substantial rehab/ or tax reassessment, and possible new insurance costs. Could disincentivize development. The City hillside ordinance will need to be reviewed and updated to allow new construction to alter landscaping to achieve defensible space. Replacement of removed species for erosion protection and carbon sequestration. Challenges educating property owners not residing in San Rafael of new ordinances.

STAKEHOLDERS	Fire Department, Building Department, residents, businesses, landowners, Marin Builders Association.
TIMELINE	Ordinance changes will be internally drafted, reviewed and presented at public meetings in the future. Staff aims to have updated ordinances effective in 2021. Additional changes, such as those for building materials will follow and require close collaboration with the Chief Building Official.
OUTCOMES	Reduces hazardous fuels and wildfire risk throughout the Immediate, Intermediate, and Extended zones. Reducing likelihood of ember storms to create new ignitions in or outside of the WUI boundaries. Community wide resilience.

3. Reduce ember ignitions within immediate zones to prevent structure ignitions through enhanced standards and support

ACTION Propose revising the municipal code Title 4 (“Fire”) to include a series of standards to be selectively applied within the immediate zone of a structure with consideration to unique construction materials, slope, aspect, surrounding vegetation, and fire risk of each property. A policy will be drafted to define the approach to the enforcement.

WHAT THIS MEANS

The perimeter around a structure will need to meet a set of standards designed to reduce the likelihood of embers creating spot fires and igniting structures in the immediate home ignition zone. The immediate home ignition zone is up to 5 feet from the structure as identified by the National Fire Protection Association. The timeline for compliance will be decided at the time the City Council approves a proposed change to the ordinance. There will be a phased in approach to compliance with a focused effort to incentivize willing compliance wherever possible. This phased in approach includes homeowners receiving guidance from the fire professionals during their defensible space inspection and collaboratively developing a plan together for achieving compliance. Code enforcement mechanisms will be used as a last resort. If a Fire Chief approved plan is in place to achieve compliance, enforcement mechanisms will not be used.

Individual prescriptions may be established considering unique attributes of the property, via an annual fee-based inspection and approval from the Fire Chief or their designee. Vegetation standards within five feet of a structure will consider the fire resistance of exterior construction materials (walls, windows, roof, eaves, etc.) Standards within the immediate zone will include a selection of the proposed components:

- a) All vegetation within 5 feet of structure shall be well-irrigated, maintained to eliminate any dead or dying material build-up, and trimmed to prevent contact with the structure.

- b) Hardwood trees are permitted within the zone provided they are well-irrigated, limbed five feet or one-third of the tree height and have five feet between other tree canopies.
- c) Vines and ivy shall be well-irrigated and maintained to eliminate any dead or dying material build-up.
- d) Mulch and other combustible ground covering are only permitted when no contact is made with combustible exterior walls or plants. Rocks, pavers, and similar ground cover plants are encouraged.
- e) Vegetation within five feet of a structure shall not be continuous or able to serve as a fire bridge between other vegetation and the structure.
- f) Vegetation directly under windows or encroaching within two feet of windows, may not include fire hazardous species as identified by FIRESafe Marin, National Fire Protection Association, or local Fire officials.
- g) No vegetation in the immediate home ignition zone shall make direct contact with combustible elements of a structure. Vegetation may make contact with Class A and non-combustible materials such as, but not limited to, concrete, brick, and stucco.
- h) Erosion control shall be considered.

All properties requesting an exemption from vegetation standards will be subject to an annual fee-based vegetation inspection which will consider local fire risk, slope, structure construction, and other factors.

RATIONALE	Through willing compliance and proactive enforcement, a series of vegetation and other fuel standards should reduce structure ignitions during an active wildfire by reducing the combustible fuel needed to develop embers into flames. Recent case studies show that urban fire conflagrations are not spreading as a wall of fire, but rather as embers starting hundreds of new fires. Reducing structural ignitability reduces property loss and creates less fuel to continue spreading the fire. This requirement accounts for embers falling from roofs and eaves onto the ground. Focusing on the “house out” concept empowers all property owners, regardless of lot size to reduce wildfire risk for themselves and their neighbors. The public’s responsibility to decrease structure ignitability and maintain defensible space is included as an area of improvement in the <i>2017 Lessons Learned</i> report.
CONCERNS	Initial cost to private and public property owners. Ability to enforce. Ability to notify all property owners of updated regulations.
STAKEHOLDERS	All property owners in San Rafael, both public and private. Fire Department. Code Enforcement. Nurseries, Landscapers.
TIMELINE	The requirement can be incorporated into the new citywide vegetation standards. Staff aim to have ordinances in effect in 2021, beginning education and outreach within 30 days of adoption.

OUTCOMES Reduced likelihood of structure ignitions. Removal of hazardous fuel near structures.

4. Expand goat grazing for vegetation maintenance

ACTION	Increase the use of goat grazing through cooperative relationships with contractors, FIREsafe MARIN, Marin County and other land-owning agencies.
WHAT THIS MEANS	San Rafael currently leases goats from private industry for specific times throughout the year. The City is working to gain access to the County’s new goat resources for open-space vegetation clearance. In addition, new contractors are being considered to help meet the demand and reduce per acre cost. Coordination will also occur between various public and private landowners. Staff will work with property owners to link project sites to create continuous fuel breaks and reduce transportation costs.
RATIONALE	Coordinated grazing reduces the costs associated with transporting the goats to new sites and creates more continuous fuel breaks. Goats are an effective way to manage reoccurring fuels, such as grasses and French Broom (<i>genista monspessulanus</i>). Reducing mechanical removal of fuels, such as mowers and weed eaters, also reducing carbon emissions.
CONCERNS	Goats and vegetation management contractors are in high demand. Goats are most cost effective on larger treatment areas. In 2018, over \$80,000 was spent on goat grazing. Moving and securing goats can be challenging. Coordinating the timing of grazing with rain, vegetation growth, and high fire danger is challenging.
STAKEHOLDERS	Fire Department, Public Works, FIREsafe MARIN, Marin County Fire.
TIMELINE	In progress. Contracts are in place for the 2019 and 2020 fire season. Grazing is needed annually. The timing of grazing is impacted by rainfall, plant growth and seeding, and extreme fire conditions, but typically occurs between June and September each year.
OUTCOMES	Goat grazing serves as a low carbon emitting fuel reduction and maintenance tool throughout San Rafael.

5. Establish additional fuel interruption zones

ACTION	Remove hazardous fuels on public land within 100 feet of structures. Strategically remove hazardous fuels within 30-50 feet of private, improved property to create fuel interruption zones. Efforts will focus on shaded fuel breaks and removal of ground and ladder fuels.
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WHAT THIS MEANS	San Rafael, supported by the MWPA, will take on the cost and burden of clearing vegetation on San Rafael owned and maintained land that abuts structures on privately owned and developed land. Fuel interruption zones consist of low-cut grasses, removal of dead vegetation and ladder fuels, and shaded fuel breaks.
RATIONALE	San Rafael must do its part to reduce fuels, particularly in areas bordering other property to assure efforts of one parcel are not negated by another's. This will reduce fuels to limit fire ignition and spread in San Rafael Open Spaces and help reduce the potential for a fire to spread from undeveloped to developed land. Aligns with <i>Marin CWPP</i> transition zone strategy.
CONCERNS	Cooperation and coordination with other public agencies and landowners may be difficult. Costs.
STAKEHOLDERS	Fire, Public Works, landowners, Marin County, State Parks, MMWD
TIMELINE	In progress. Fuel reduction work is ongoing and can now be expanded with the passage of Measure C. New and expanded projects will be outlined and put out for bids in 2020. The timeline for each project will be impacted by environmental review, crew availability, tax revenue distribution, and desired treatments and outcomes. -
OUTCOMES	Reduction in hazardous fuels near structures and more pre-established fuel breaks to slow fire spread.

6. Improve public education regarding fire-safe landscaping and living with wildfire

ACTION	Outreach and education efforts, including information about areas of refuge, emergency alerts, defensible space, and reducing structure ignitability will be conducted citywide.
WHAT THIS MEANS	Additional outreach and online resources will be created to support fire smart landscaping and strategies to effectively harden homes. Outreach will target residents, nurseries, and community groups with an emphasis on gardening and landscaping. Current outreach is focused on WUI areas, but this expanded program will target all areas in San Rafael. This item includes an expansion of outreach and improved online resources, in collaboration and support of FIRESafe Marin efforts. In addition, education and outreach materials will be updated to reflect lessons learned from recent wildfires, including helping residents understand wildfire evacuations and areas of refuge. Outreach and education will provide property owners with suggested ground coverings and species of plants with consideration to fire resistance, drought tolerance, and carbon sequestration. Efforts will also include point of sale locations such as nurseries and landscapers. Property owners will also be better informed on the best ways to dispose of different vegetative debris.

RATIONALE	Education and outreach efforts need to be expanded to adequately reach the entire community. Residents want to maintain a beautiful community while increasing fire safety. Additional education and outreach are needed to assure residents are landscaping with wildfire risks in mind. Residents are concerned about wildfire evacuations and need to be better informed to make quick decisions. San Rafael needs to incorporate lessons learned from other devastating fires in our wildfire prevention and preparedness efforts.
CONCERNS	Multiple outreach strategies are needed to reach various demographics. Volunteer coordination can be time consuming and unreliable. Mailers and outreach materials may not reach property owners, but rather occupants. Need additional strategies to make property owners aware of wildfire safety, new requirements, and actions they can take or empower their renters to take.
STAKEHOLDERS	Fire Department, Community organizations, property owners, Open Government and Digital Services, nurseries and landscapers, FIRESafe Marin, Marin County
TIMELINE	Year-round education, with an emphasis in the Summer/Fall of each year will help residents be more prepared for wildfire. Outreach and education regarding updated ordinances will begin within 30 days of their adoption. Updates and lessons learned from recent wildfires will be incorporated into future community presentations.
OUTCOMES	Property owners, residents, and businesses will have a better understanding of how to achieve and maintain defensible landscaping, resulting in more voluntary compliance. Better community preparedness and resiliency.

7. Establish more Firewise communities in San Rafael

ACTION	Conduct outreach to identify communities interested in becoming “Firewise” and support them throughout the process. Coordinate efforts with FIRESafe MARIN and NFPA.
WHAT THIS MEANS	SRFD will dedicate time and effort to help additional communities meet “Firewise” standards, earn and maintain Firewise recognition. This will include increased education, disaster preparedness, and fuel reduction. There are currently eleven Firewise communities within the SRFD response area, with more in progress. City staff will also communicate the benefits of Firewise communities with insurance companies and support FIRESafe MARIN’s efforts. Currently, only one insurance company offers discounts for policy holders in Firewise communities.
RATIONALE	Firewise is a National Fire Protection Association (NFPA) program that “teaches people how to adapt to living with wildfire and encourages neighbors to work together and take action now to prevent losses.” The program provides valuable educational information and a roadmap to help make San Rafael neighborhoods more resilient. Reducing fire risk takes neighborhood coordination as hazardous fuels on nearby property can negatively impact a

	well mitigated property. Firewise provided a mechanism for a few motivated neighbors to help their neighborhood become more fire resistant. Increasing the number of Firewise communities is a priority of the <i>2017 Lessons Learned</i> report.
CONCERNS	Staff time. In 2019, only one insurance company offered discounts for policy holders in Firewise communities. Increasing insurance company support of the program will help encourage more neighborhoods to work together to achieve Firewise recognition.
STAKEHOLDERS	Fire Department, Homeowners Associations and Neighborhood groups, property owners, FIRESafe Marin
TIMELINE	In progress. In coordination with FIRESafe Marin, SRFD will continue to support existing and forming Firewise communities.
OUTCOMES	San Rafael will have more Firewise communities, and therefore more resilient neighborhoods.

8. Reduce hazardous fuels through an abatement process on privately owned unimproved lots and within 200 feet of a structure or 20 feet of roadway

ACTION	Develop program and policy to reduce hazardous fuels through increased vegetation removal mandates and abatement on property with noncompliant and unresponsive owners. City and County ordinance and policy changes may be required.
WHAT THIS MEANS	After establishing a vacant parcel list, parcels will be inspected and noticed if they do not comply with the updated vegetation management standards. The abatement process will also be used to enforce vegetation standards on improved lots with unresponsive owners. A public hearing will be conducted giving any property owner the opportunity to commit to compliance within a set period. If property owners do not mitigate the issue themselves, they will be fined and/or have the cost of the City clearing the hazardous fuels charged to them. A policy will be developed to guide the abatement process.
RATIONALE	Many privately-owned parcels do not comply with vegetation management standards and create safety risks for the entire community. Establishing a consistent notification process, timeline for compliance, and cost recovery process will help address these risks.
CONCERNS	Potential challenges with recouping costs of abatement. Fines will need to be substantial to encourage compliance.
STAKEHOLDERS	Fire Department, Public Works, Code Enforcement, Marin County, landowners

TIMELINE	Program can be developed and brought to the City Council for approval within 90 days. Coordination with the County may delay this process.
OUTCOMES	Reduce hazardous fuels and recover associated costs from absentee and noncompliant property owners.

9. Effectively coordinate the removal of vegetative debris from public and private property

ACTION Work with Marin Sanitary Service to develop a plan to support removal of increased vegetative debris. Consider identifying a City drop off site for removed hazardous fuels. Consider utilizing a scheduled bulk pick up day for vegetation.

WHAT THIS MEANS Research and stakeholder input are needed to determine if a vegetation debris removal site is necessary or beneficial to helping reduce hazardous fuels. Additional discussions will help determine if a drop-off site should be always public, public on select days, or for City staff and contractors only. Other considerations include increasing green waste carts, chipper days, bulk removal days, large containers (BioBox) or a combination thereof. Responsible disposal will also take into consideration proper disposal and composting to reduce additional greenhouse gas releases. Encourage homeowners to fully utilize their green carts on a weekly basis, reducing the need for bulk removal.

RATIONALE Stronger vegetation regulations will result in an increased amount of woody biomass and vegetative debris. A coordinated, multi-faceted approach will be needed to remove biomass effectively and responsibly from San Rafael. Goals will include reducing the costs associated with City sponsored chipper days, diverting woody biomass from landfills to biomass markets, and supporting property owners’ fuel reduction efforts.

CONCERNS Cost. Security. Assuring appropriate use of space. Large piles of vegetative debris could pose additional fire risk if not properly protected. Fuel reduction in areas around drop-off sites will be required.

STAKEHOLDERS Fire Dept, Public Works, Sustainability Program, Residents, Marin Sanitary Service.

TIMELINE Short and long-term recommendations will be drafted within 120 days. The timeline considers the vegetation removal requirement deadlines placed on residents. Implementation will be impacted by funding.

OUTCOMES Hazardous fuel debris is removed from public and private property and diverted from landfills.

10. Engage Community Emergency Response Team (CERT) members, Neighborhood Response Groups (NRGs) and other volunteers in fire prevention

ACTION	Develop program and training to enable San Rafael CERT, NRGs and other disaster volunteer groups to support fuel reduction efforts through education, outreach, data gathering, and direct service.
WHAT THIS MEANS	Utilize existing volunteers and recruit additional volunteers to supplement the outreach, education, and hazard identification work of SRFD.
RATIONALE	San Rafael has almost 500 trained CERT members, many anxious for ways to be more involved in disaster preparedness. Training and engaging CERT and NRG volunteers will help increase public outreach and education and help inform SRFD’s vegetation inspection priorities. CERT and NRG members will utilize local knowledge and willpower while building more resiliency through education and relationship building. Volunteer hours dedicated to fuel reduction may be used as match dollars for fire grants.
CONCERNS	Volunteer safety and assuring the accurate distribution of information and data collection.
STAKEHOLDERS	Fire Department, CERT members, NRGs, Marin County CERT
TIMELINE	In progress. San Rafael CERT steering committee is re-engaged and looking for ways to stay involved in disaster preparedness and response during ‘blue skies. Training needs to be developed and presented by fire prevention staff. A pilot program in a limited geographic area can be rolled out within three months.
OUTCOMES	Increase capacity of volunteers to support mitigation efforts. Expanded reach and impact with minimal cost implications.

11.Reengage volunteer “Broom Pull Days”

ACTION	Work with the volunteer program to reestablish an ongoing volunteer program to pull invasive Scotch and French broom (<i>cytissus scoparius and genista monspessulanus</i>) from public open space and high fire risk areas.
WHAT THIS MEANS	A previous program saw a great deal of success removing and eliminating French Broom in parts of San Rafael. Education and best practice materials exist and can be re-used to support a reinvigoration of this effort. City staff will be needed to support the effort and City staff may be required at the start of projects to assure work areas are clear of -debris and threats. With approval, work may include areas in the hundred-foot easement onto state owned lands to establish an effective fuel break.

RATIONALE	The focus of this project will be to engage community members and volunteer labor to work on eliminating French and Scotch broom from high fire risk areas of San Rafael. Volunteer programs provide a path for residents to directly reduce wildfire risks. Volunteers will help reduce the need for contractors and support maintenance in previously cleared areas.
CONCERNS	Safety of volunteers. Time and effort needed to coordinate project sites, registration, and volunteer safety and technique training. Potential community conflicts over project areas.
STAKEHOLDERS	Fire Department, Public Works, Police Department, Sustainability and Volunteer Program Coordinator, MMWD, State Parks, Marin County
TIMELINE	A volunteer project can be scheduled within 60 days of having the necessary approvals, tools, safety equipment, and strategy in place.
OUTCOMES	Increase of 20% in citywide volunteer hours dedicated to fuel reduction and wildfire mitigation. Decrease in hazardous fuels in public/private land borders.

12. Review and update WUI map

ACTION	Review and update the San Rafael WUI map for more practical application and consistency with County and other land management agencies' maps.
WHAT THIS MEANS	SRFD will review and update the WUI map for consistency between maps and application of WUI code. The map will be simplified and updated to apply current fire behavior expectations to WUI boundaries. The initial review of the map suggests updates may remove about 500 homes from the WUI and add 2,000.
RATIONALE	The current San Rafael WUI map has multiple variations used by different jurisdictions and does not accurately reflect the threat posed to many areas in or near the currently defined WUI. Updating the map will improve education, vegetation management, and fire prevention efforts. Maintaining a designated WUI can help with resource prioritization, grant funding, and State code application.
CONCERNS	Potential insurance and code compliance changes for property owners being added or removed from the WUI.
STAKEHOLDERS	Fire Department, property owners, land management agencies with current San Rafael WUI maps.
TIMELINE	160 days will be needed for internal review and coordination with partners. The updated map will be presented to the City Council within 60 days of completion to be adopted through a resolution.

OUTCOMES

San Rafael will have a consistent and logical Wildland Urban Interface map.

13. Consider adoption of Public Resource Code 4290 and 4291

ACTION

Following the adoption of the new California State Fire Code, reconsider adoption of Public Resources Code (PRC) sections 4290 and 4291, which serve as guidelines for defensible space and fuel management regulations.

What this means

At a minimum, San Rafael vegetation standards will meet the state minimum outlined in PRC sections 4290 and 4291. Proposed amendments to the language will apply the standards citywide.

Rationale

Adopting PRC sections 4290 and 4291 assures San Rafael complies with State vegetation management standards and simplifies the existing San Rafael vegetation management standards. PRC sections 4290 and 4291 do not relax our existing codes. Adopting PRC sections 4290 and 4291 will also allow for immediate enforcement of PRC changes. Adopting PRCs 4290 and 4291 will support uniform application of wildfire mitigation standards.

Concerns

If PRC sections 4290 or 4291 are revised in the future in ways that are deemed detrimental to the City, additional municipal code amendments could be necessary to clarify their application in San Rafael.

Stakeholders

Fire Department, property owners

Timeline

Ordinance changes proposing to adopt PRC 4290 and 4291 would be internally drafted, reviewed and presented at public meetings in the future. Staff aims to have an initial round of draft ordinance updates ready for public and City Council input within 90 days. Enforcement would begin in 2021.

Outcomes

Reduction in dead and dying vegetation within 100 feet of all San Rafael structures. Clear fuel standards within the immediate, intermediate, and extended ignition zones.

14. Develop new efforts, solutions, and resources dedicated to wildfire prevention and protection

ACTION	To support hazardous fuel removal, abatement, education and outreach, inspections, and other wildfire risk reduction efforts additional efforts, resources, and solutions are needed. This item seeks to establish new partnerships, funding avenues, and revenue opportunities, including but not limited to adjustments in existing City budget, grants, taxes, fees, donations, and use of conservation corps, inmate crews, volunteers, and on-duty engine crews. Efforts will work to reduce the financial impact on individual property owners, businesses, and the City’s general fund. Available funding would support work on public property and be considered for homeowner assistance programs.
WHAT THIS MEANS	San Rafael is applying to numerous grant programs for funding to help reduce the fire risk. Grant funding may provide one-time funding sources to help reduce heavy fuel loading. However, grants do not provide a reoccurring funding source to address the ongoing needs associated with vegetation management. To accomplish this objective San Rafael will also seek and review project bids from non-traditional labor pools such as the Conservation Corps of the North Bay, AmeriCorps NCCC, AmeriCorps St. Louis, Cal Fire Delta crews, and County fire crews. The City is also exploring an expanded partnership with Downtown Streets Team to help with fuel reduction work that will provide community members with income and job training. Collaboration with County efforts will be considered for cost efficiency and timeliness of outcomes. Staff will continue to seek mutual beneficial partnerships to support implementation of the plan.
RATIONALE	Heavy fuel loads create dangerous situations throughout the area. Aggressive strategies are needed to mitigate the current risk while implementing a long-term fuel maintenance program. Current funding and resources are not adequate to quickly reduce decades of fuel buildup. Finding additional funding sources and utilizing new crews will be necessary to address the wildfire risk in a timely manner. AmeriCorps NCCC members will be able to assist low-income, disabled, and elderly residents achieve defensible space. A program partnership with Downtown Streets Team may offer an opportunity for cost- effective fuel reduction, job training, and a reduction in individuals experiencing homelessness. Use of on-duty engine crews for inspection will be considered permitting effective emergency response times and staff health.
CONCERNS	Grant applications and management of projects require substantial staff time and effort. Some grant funds may not be available within the desired timeline. Effective use of various crews will require strategic management. Grants are one-time applications and do not provide an ongoing, predictable funding source for long term strategic fuel management. Some grants require match funds, which may limit other projects. Fuel maintenance will require additional funding to prevent new fuel buildups.

STAKEHOLDERS	Fire Department, Public Works, Finance, property owners, businesses, Marin County, Downtown Streets Team, AmeriCorps NCCC
TIMELINE	In progress. Various projects, grants, and labor options are currently being explored. CAL FIRE prevention grants award notices may be issued in April with funding available in September. Hazard Mitigation Grant applications are due in April . An application and onsite visit have been completed for the City to host a National Civilian Conservation Corps (NCCC) team this Spring and Summer. Each year a final decision is expected in mid-March. If approved, crews may be available between April and July for six to twelve weeks.
OUTCOMES	The City will dedicate staff time to finding, applying, and managing resources to support wildfire mitigation and education in San Rafael, ideally increasing the available resources with a minimal burden to residents.

15. Immediately seize ignition sources at encampments and remove encampments in open space as quickly as possible.

ACTION	Evaluate City ordinances for revision and compliance with Martin v. Boise regarding camping limitations and continue collaborative Homeless Emergency Action Team (HEAT) efforts to limit fire risk associated with encampment fire risk.
WHAT THIS MEANS	Continue immediate removal of flammable items and ignition sources posing a fire threat. Continue collaborative effort and improve coordination between Police Rangers, Public Works, Fire, and vegetation contractors to remove abandoned encampments in open spaces. Evaluate City ordinances for appropriate time, place, and manner restrictions on camping in certain areas due to health and safety risks. Consider redirecting individuals experiencing homelessness to identified fire safe areas. Consider efforts to remove abandoned encampments in shorter time intervals.
RATIONALE	Reduce health and safety threat by eliminating flammable items and potential ignition sources in open space.
CONCERNS	Legal constraints related to limitations on camping enforcement and notice prior to removal of encampments. Resources required to remove and dispose of fire risks, including refuse and other abandoned items in open space areas. Encampments removed from open space may relocate to other areas.
STAKEHOLDERS	Fire, Police, Public Works, Homeless Planning and Outreach
TIMELINE	Ongoing. Continually update strategies based on new case law and best practices.

OUTCOMES Reduced fire ignitions originating in open space encampments.

16. Reduce likelihood of ignition in undeveloped land

ACTION

Propose revision to the municipal code to remove any specific time period of fire season. Resulting in smoking being prohibited in City open space all year. Assure parking areas are clear of flash fuels (highly combustible, fine fuels such as grasses, leaves, pine needles, etc.). Work with other land-owning partners to limit smoking and ignition sources in open space. Update municipal code to close open space during red flag warnings.

WHAT THIS MEANS

Updates will deconflict existing code and remove any dates associated with fire season, expanding the ability of the Fire Chief to enforce fire safety regulations to prevent a wildfire in open spaces. Smoking will be explicitly prohibited year-round within City open spaces. Currently, SRMC has some conflicting information and dates associated with smoking prohibition and fire season. In addition to updating SRMC ordinances, staff will work with other public land-owning agencies to limit smoking in public open space with wildfire risk.

RATIONALE

Updates will provide increased safety, clarity, and consistency within municipal code. Reducing ignition sources helps protect the community and natural resources from a wildfire ignited in the open space.

CONCERNS

Enforcement is challenging; signage is not very effective. Additional staff is needed to enforce.

STAKEHOLDERS

Fire Department, Police Rangers, Public, Park and Open Space Commission, State Parks

TIMELINE

An update to SRMC 19.10.060(13) will be prepared and presented for community and Councilmember input within 90 days. Enforcement will begin immediately after adoption.

OUTCOMES

No smoking allowed in open space. Reduced ignition potential.

17. Explore opportunities in Fire and Building Code updates to increase use of fire-resistant materials and application of CA Building Code Chapter 7A

ACTION

Review updated State building and fire code and consider ordinance changes. Review and propose updates to SRMC to apply CA Fire Code Chapter 7A (fire resistant building material requirements) outside the WUI and to additional structures.

WHAT THIS MEANS	Chapter 7A outlines the materials and construction methods to reduce potential structure ignition during a wildfire for new construction and substantial remodels (50%) within the WUI. Proposed updates to the SRMC suggest applying Chapter 7A to a broader list of improvement and all new construction, regardless of WUI proximity. Ordinance changes will require any new material construction materials used in San Rafael be fire rated. This will include new construction, remodels, and updates. By way of example, if a resident replaced a broken window, that new window will need to be a Class A fire rating. However, they will not need to replace all their windows.
RATIONALE	Increase compliance with known fire prevention methods, including fire resistant building materials. Include all structures to reduce likelihood of an urban fire conflagration. To reduce the impact of a wildfire, consideration for the toxicity of building materials when burned should be considered. The <i>2017 Lessons Learned</i> report calls on property owners to harden homes, including fire resistant materials.
CONCERNS	Potential to discourage otherwise positive improvements because of additional costs associated with Chapter 7A compliance. Potential to discourage compliance with permits and inspections for fear of additional costs to meet Chapter 7A requirements.
STAKEHOLDERS	Fire Department, Community Development, Marin Builders Association, property owners, Marin Association of Realtors
TIMELINE	Fire and Building Code adoptions occurred in concert with other agencies in late 2019.. Implementing additional codes will explore a phased approach to minimize financial impacts while progressing towards a safer San Rafael.
OUTCOMES	San Rafael would have more hardened homes, with a reduced risk for wildfire ignition, property damage, and loss of life.

18. Eliminate fire hazard associated with shake and wooden roofs

ACTION	Ordinance change. Update building code to require all shake roofs be replaced in five years. Require structures with shake roofs disclose the replacement requirement at time of resale.
WHAT THIS MEANS	Property owners and owners of commercial property with shake roofs will have 5 years to replace their roofs with a safer material and shake roofs will no longer be allowed in new construction. Based on area surveys, staff believe less than 200 shake roofs, most at least 20 years old, are in San Rafael. This will effectively result in the near-complete elimination of

	shake roofs from San Rafael by 2025. The City will explore options for financial incentives available to those replacing roofs in the near future.
RATIONALE	This ordinance will eliminate a known threat to structures and the public, decreasing potential ignition and the rate and intensity of the spread of fire. Roof material is a critical component to a wildfire-hardened home. Removing wood roofing materials will increase safety for firefighters and first responders, as well as the neighboring community. Per the 2016 Marin County Community Wildfire Protection Plan (CWPP), “homes with a non-combustible roof and defensible space at least 30 to 60 feet around the structure have an 85-95% chance of survival”. Reducing the likelihood of ember ignition on a shake roof also protects neighboring homes from ignition.
CONCERNS	Roof replacement could be prohibitively expensive for some homeowners and businesses. An exemption for historical structures should be considered. Applicable fines for having a shake roof after the deadline will need to be substantial to encourage compliance. Implementing at time of sale may slow down process and create -increased burden on sellers and buyers.
STAKEHOLDERS	Fire Department, Community Development, Property owners, Businesses, Marin Association of Realtors
TIMELINE	The updated building code can be prepared and presented for community and City Council input within 90 days. There will be a five-year period of compliance to minimize financial hardships. Assistance programs, including hazard mitigation grants, will be considered to encourage compliance at the beginning of the implementation period.
OUTCOMES	Shake and wooden roofs and the associated fire hazard are eliminated in San Rafael by 2025.

19. Develop comprehensive San Rafael hazardous vegetation study and mitigation measures

ACTION	Consider contracting with a vendor for parcel-level vegetation mapping. Identify areas of with high risk vegetation, including unmaintained Eucalyptus groves. Incorporate findings into mitigation and vegetation maintenance plans.
WHAT THIS MEANS	Studies will need to be conducted to gain a better understanding of high fuel density and risk areas. Specific attention will be paid to Eucalyptus grove locations, density and nearness to structures. This data and imagery will help inform strategic vegetation management and forest health moving forward. For example, an identified high-risk Eucalyptus grove may be scheduled for pruning or thinning over the course of a few years, with ground fuel maintenance (removing leaves, dead limbs, etc.) every three to five years thereafter.

RATIONALE	Baseline information and imagery will help establish a comprehensive fuel management strategy. Identifying high risk areas will prioritize projects and available funding. Reoccurring studies and aerial imagery will also help show trends in regrowth, successful management strategies and before and after comparisons. Break out mapping by fire agency is included in the <i>2017 Lessons Learned</i> report.
CONCERNS	Balancing fire mitigation, erosion control, habitats, and forest health.
STAKEHOLDERS	Fire Department, Public Works, Marin County Fire
TIMELINE	Staff will work to develop fuel management plan for 2021.
OUTCOMES	Shift in fuel mitigation strategy from citizen-reported to data-driven and aerial imagery.

20. Complete an analysis of fire roads and strategic fuel breaks

ACTION	Develop a plan for a survey of all San Rafael fire roads to identify areas in need of strategic surface improvements, to be used as shaded fuel breaks, and that need vegetation clearance for safe access.
WHAT THIS MEANS	Identify high risk areas and assure the fire road surface and clearance will remain accessible. Increase fuel clearance along strategic fire roads (such as ridge lines) to create significant fuel breaks to stop or slow fire spread. These fuel breaks will include forest thinning and understory clearing to create shaded fuel breaks. Shaded fuel breaks reduce fire risk while supporting erosion control, carbon sequestration, and natural beauty. Coordination between other landowners, including private, MMWD, County, and State Parks would help assure continuity and effectiveness of efforts.
RATIONALE	Fire roads provide critical access for fire personnel to access and contain existing fires. Fire roads also serve as fuel breaks, means of access for fuel reduction work and enforcement in open space. Increasing fuel clearance along fire roads helps protect responders using the roads and creates existing fuel breaks to limit a fire's spread. Fire roads also serve as trails and provide recreational opportunities in open spaces.
CONCERNS	High costs and potential environmental impact to implement.
STAKEHOLDERS	Fire Department, Public Works, public using fire roads, agencies with connecting fire roads
TIMELINE	In progress. Road and fuel break analysis is underway. Fire road surface maintenance is an ongoing effort. Additional focus and funds are needed to develop and implement a more strategic and effective approach. The timeline for repairing fire roads and implementing strategic fuel breaks will be dependent on funding.

OUTCOMES San Rafael fire roads will be well maintained for emergency access and serve as fuel breaks and recreational trails.

21. Increase the number of hardened homes in San Rafael

ACTION Outreach and education to help property owners understand the various steps they can take to harden their homes. Consider support for property owners unable to implement on their own. Suggestions range from simple vent covers to building material recommendations and be aligned with FIRESafe MARIN and Marin County Fire suggestions.

WHAT THIS MEANS In coordination with NFPA recommendations and FIRESafe Marin, the City will work to better inform and support property owners attempting to harden their homes and reduce the likelihood of ignition. Methods to harden homes will range from simple vent covers to building material recommendations. Outreach and education would be aligned with FIRESafe MARIN and Marin County Fire recommendations.

RATIONALE Hardening homes is as necessary a step to protect homes from wildfires as vegetation management. Hardened homes with defensible space are most likely to survive a wildfire. Hardening homes includes fire resistant building materials, and design considerations, and limiting the possibility of an ember entering the home. Per FIRESafe Marin, two out of every three homes destroyed are ignited by wind-blown embers (Maranghides and Mell 2009). Encouraging residents to take steps to harden their homes is aligned with the *2017 Lessons Learned* report.

CONCERNS Efforts will target residents, but almost 50% of San Rafael residents are renters. Additional efforts to encourage landlords to protect their investments will be needed.

STAKEHOLDERS Fire Department, Property Owners, Fire Safe Marin, Marin County Fire, Code Enforcement

TIMELINE Existing outreach and education materials will continue to be used. Increased public outreach, expos, and support for homeowners will depend on staff and funding levels.

OUTCOMES Fewer structures in San Rafael will be susceptible to wildfire ignition

22. Improve development and implementation of Vegetation Management Plans (VMPs) and create new Resilient Landscape Templates (RLTs).

ACTION	Create Resilient Landscape Templates that offer suggestions for homeowners to achieve beautiful, fire resistant, drought tolerant, and carbon sequestering landscaping. Align VMP process with plan objectives and County VMP updates. Information will include information on fire resistant, drought resistant and carbon sequestering native plants.
WHAT THIS MEANS	<p>SRFD will consider updating the VMP and inspection process. This will include more streamlined and automated forms and review process. The VMPs will be reviewed for areas of improvement and consistency with County and other jurisdictions plans.</p> <p>The City will consider establishing new Resilient Landscape Templates (RLT) designed for property owners rather than landscape architects. The RLTs will help property owners understand what species to remove and avoid and which to maintain and plant. VMPs and RLTs will serve as a resource for reoccurring seasonal work and enforcement with minimal maintenance effort.</p>
RATIONALE	RLTs will serve as a resource to help residents achieve beautiful and less fire prone landscaping. An improved and more accessible VMP process will focus on new construction, remodels, and commercial space. Less fire prone landscaping will help keep the whole community safe by reducing the chances of ignition and fire spread. An improved system will be necessary to support the additional VMPs submitted because of ordinance changes.
CONCERNS	Developing a comprehensive, but simple system will be a challenge and require input from multiple stakeholders and staff.
STAKEHOLDERS	Fire Department, Code Enforcement, Property Owners, Digital Services and Open Government, Marin County, FIRESafe Marin
TIMELINE	Updates to streamline and coordinate the VMP template with the County can begin with additional staffing. The creation of San Rafael RLTs will build off templates from other jurisdictions but require additional staff time and resources to complete.
OUTCOMES	Property owners have resources to more easily comply with updated wildfire mitigation efforts while maintaining beauty and environmental consciousness.

23. Increase the number of completed vegetation and fire mitigation inspections in San Rafael and provide property owners with RLTs.

<i>ACTION</i>	Complete vegetation and fire mitigation inspections for those requesting variations or exemptions to vegetation and building code standards. Annual inspections will be used to assure properties not in full compliance with vegetation and home hardening standards maintain a safe environment.
<i>WHAT THIS MEANS</i>	Additional opportunities to have residents, landscapers and property owners complete a vegetation and fire mitigation inspection will be explored. The City will develop a new RLT process to help property owners achieve beautiful, sustainable, and fire defensible space. An annual fee-based inspection will be required for any property requesting an exemption from vegetation standards. VMPs will still be required under existing ordinances. Property owners completing the work outlined in the inspection, VMP or RLTs may receive City support for vegetation removal, such as participation in ‘free chipper’ days.
<i>RATIONALE</i>	Increasing inspections and establishing RLTs will help reduce and remove fuels. RLTs help property owners understand how landscaping choices impact the threat of wildfire. Expanded submission requirements will help the City educate and support more property owners. Increasing the number of inspections and RLTs required will increase public education and provide property owners with a path towards more beautiful, less fire prone, drought resistant, and carbon sequestering landscaping. Residents will have an increased opportunity to meet with a fire mitigation expert and better understand steps they can take to reduce wildfire risk.
<i>CONCERNS</i>	The current inspection process will be streamlined to accommodate an increase in number of required inspections while minimizing impact to property owners. Staff effort will be required to create new RLTs to help property owners adjust their landscape. Staff time to complete, document, track, and follow up on inspections and any potential violations or enforcement actions.
<i>STAKEHOLDERS</i>	SRFD, Community Development, Homeowners and Property Management companies
<i>TIMELINE</i>	Inspection related ordinance changes will be incorporated into fire and building code updates late in 2019. Development of RLT’s can begin with availability of staff and resources. Update to vegetation standards will be reflected on the updated templates.
<i>OUTCOMES</i>	Additional inspections and new RLTs will be submitted from contractors, residents, and property owners. Additional opportunities for outreach, education, and vegetation inspections.

24. Improve the public’s fire risk awareness with sign improvements and installation

<i>ACTION</i>	Install new and improve existing signage at all open space access areas and along roads in high fire-risk areas.
<i>WHAT THIS MEANS</i>	Signs will be installed across City open space explaining fire danger and risks associated with being in the open space. New signage will be installed in areas of high fire risk to help keep public alert and avoid risky fire behavior. Staff will need to survey all open space access points, and high fire risk areas to determine sign needs. Signs will be consistent and use images to better convey messages regardless of English literacy level. Consider clam shell signs that can be opened during fire season to avoid sign blight.
<i>RATIONALE</i>	Educate public and visitors. Support increased enforcement. Provide consistent messaging. Improve aesthetics and readability of signs.
<i>CONCERNS</i>	Aesthetic concerns of signs in natural areas. Potential to create culture of fear.
<i>STAKEHOLDERS</i>	Fire Department, Public Works, Police Rangers, residents
<i>TIMELINE</i>	Survey work can be completed within 90 days. With funding, message and signs can be developed within 90 days, with installation to occur shortly thereafter. If funding is available, the project could be completed before the peak 2021 fire season. If utilizing grant funding, the project may be delayed, but could be completed before May of 2021.
<i>OUTCOMES</i>	Reduction in fire risky behavior by public due to increased awareness of wildfire risk.

25. Reduce fire risk and keep visitors using short-term rentals safe

<i>ACTION</i>	Ordinance change. Develop guidance for short-term rental units to reduce the risk posed by and to visitors. Require all short-term rental units to post emergency procedures, information on signing up for emergency alerts, and fire safety information. All short-term rentals would be required to have an annual fee-based inspection and correct any code violations.
<i>WHAT THIS MEANS</i>	Efforts to better inform visitors of wildfire risk will be incorporated into interactions with short-term rental units. Visitors, potentially unfamiliar with the area or wildfire risk, will be informed about the emergency procedures and can register for emergency alerts during their stay. Outreach should be conducted with all short-term rentals, to improve property owner and renter wildfire awareness and general safety. Direct outreach to VRBO, AirBnB and similar companies will be considered.

RATIONALE	Short-term rentals represent a unique fire risk for a variety of reasons. Those using short-term rentals may be from out of the area and unfamiliar with wildfire risk and safety procedures. The information helps assure the safety of visitors and provide important fire prevention information to visitors unfamiliar with wildfire risks and necessary ignition precautions. Requiring an annual fee-based inspection will help assure the property is safe, unlikely to ignite from a careless visitor, and support enforcement of vegetation standards for property owners.
CONCERNS	Increased cost of compliance could reduce the number of short-term rentals. Potential for increased cost of permit processing and code enforcement.
STAKEHOLDERS	Fire Department, Code Enforcement, property owners renting space, visitors
TIMELINE	In Progress in coordination with Community Development.
OUTCOMES	Incorporate fire safety, disaster preparedness, and emergency notification information into any regulations or guidance provided to short-term rentals

26. Hire additional staff dedicated to vegetation management and disaster mitigation

ACTION	Convert the existing part-time employee to full-time, fixed-term. Hire three additional seasonal employees to support inspections, project management, and public education in the summer of 2020 and spring of 2021.
WHAT THIS MEANS	Increased staff levels will allow for a more strategic approach to vegetation management and fire mitigation while staff continues to offer inspections. There are currently 1.5 Vegetation management specialists.
RATIONALE	Additional staff is needed to meet the demand for strategic fuel removal, fire road improvements, increased outreach/education, increased number of VMPs and RLTs, and vegetation inspections. Ongoing maintenance will potentially require less seasonal staffing to assure parcels and public space remain free of hazardous fuel loads. Additional full-time, fixed term staff can also help support volunteer efforts in open space, following Novato model..
CONCERNS	Funding the position may require voters to approve additional revenue stream(s), which likely will mean FY 2020 at earliest. Fixed-term and seasonal positions result in higher rates of turnover.
STAKEHOLDERS	Fire Department, residents, businesses, public, DPW

TIMELINE	With the support of the MWPA, temporary staff have been hired. Additional planning and recruitment will begin in late 2020 to hire year-round staff.
OUTCOMES	Increased inspections, enforcement, fuel reduction project coordination, and customized vegetation plans. Additional staff support for communities working on Firewise designation and chipper days.

27. Increase Police Ranger staffing

ACTION	Provide for one full-time fixed-term police Ranger in addition to the two part-time police rangers currently employed to patrol open spaces.
WHAT THIS MEANS	Increased ranger capability will allow for year-round open-space patrolling for fire hazards and code violations in open spaces. Law Enforcement will continue coordination with City- and County-wide efforts. Additional funding should be allocated to SRPD to support additional evacuation drills, which was identified as an important area of improvement in the 2017 Lessons Learned report.
RATIONALE	A full-time ranger will allow for increased patrols, more active enforcement of code violations, a more dynamic reduction in potential ignition sources in open spaces, and the ability to support evacuation planning.
CONCERNS	Legal constraints may impact code enforcement and policy development. Recruitment and retention.
STAKEHOLDERS	Police Department, Public Works
TIMELINE	With the support of MWPA funding, 1.5 Rangers are in place. Additional efforts will be considered for additional staff.
OUTCOMES	Increased law enforcement presence and enforcement of open space regulations. Additional staff time available to support evacuation drills.

Notifications and Evacuation

28.Reduce hazardous fuels along roadways

<i>ACTION</i>	Develop a policy to clearly direct the enforcement of current State regulations and SRMC relating to vegetation clearance along public roadways. Updates to SRMC may also be needed to update, clarify and uniformly apply standards.
<i>WHAT THIS MEANS</i>	Stronger and more consistent enforcement and abatement of vegetation along roadways with a focus on pre-identified primary and secondary evacuation routes. Consideration will be given to shade and maintaining San Rafael as a “Tree City USA”. Fuel removal will target continuous fuels between the ground and canopy and dead and dying vegetation. Healthy hardwood and native trees will generally be excluded from these efforts. Highly flammable shrubs near roadways may require removal. Removal efforts will include education for residents about the various areas of responsibilities and public right of ways.
<i>RATIONALE</i>	Reduces the risk of fire ignition along roadways. Improves potential evacuation routes by limiting the fire fuel along roadways. Creates additional fuel breaks to stop and slow the spread of wildfire. Increased responder safety through improved visibility and decreased roadside fuel. Removing continuous fuels from along roadways will reduce potential fire tunnels and fire spreading from the ground into the canopy.
<i>CONCERNS</i>	Residents may be resistant to removing vegetation along roadways serving as a privacy fence for their property. Disposal of large amounts of woody biomass.
<i>STAKEHOLDERS</i>	Fire Department, Public Works, property owners
<i>TIMELINE</i>	A policy clarifying implementation of existing standards can be drafted within 60 days. Enforcement can begin immediately. Fall and Winter are slower times for vegetation inspections, allowing for a concentrated effort relating to clearance along roadways. Community support, including chipper days, cannot begin until additional funding is secured. Additional evaluation is needed to determine what, if any, SRMC changes may be needed.
<i>OUTCOMES</i>	San Rafael will have safe evacuation routes and less changes of roadside ignitions.

29. Establish a residential hillside “parking box” program

<i>ACTION</i>	<p>Establish a residential hillside “parking box” program on narrow roadways in hillside areas. Parking will only be permitted in “boxed” areas which are established in areas that allow emergency vehicles safe access and public safe egress. Install sign clearly explaining the parking restrictions for residents and visitors.</p>
<i>WHAT THIS MEANS</i>	<p>An ordinance change will establish the parking box program and require that in designated areas, street parking will only be permitted in designated parking boxes. A fire engine will drive through high problem areas to determine where street parking can safely be designated. DPW will then mark the parking boxes, and enforcement will occur via parking tickets and/or towing. Parking will only be permitted on roadways with a clear space of 10’ for access and a parking area that is a minimum of 8’ wide by 15’ in length. In designated areas, the parking box ordinance will replace the six feet from center parking ordinance. Ways to support property owners attempting to build off-street parking pads in the impacted areas will be considered, such as waived permit fees or exemptions. Parking for open space will also be reviewed to assure parking areas are adequately defined to assure emergency access and egress.</p>
<i>RATIONALE</i>	<p>SRMC section 5.40.080 currently prohibits parking on narrow streets unless six (6) feet from center is maintained unobstructed. This standard is confusing, hard to enforce, and does not guarantee fire engines and other large vehicles can safely access all areas of San Rafael. The “parking box” concept is easy to observe and understand for both residents and visitors. The program will assure emergency traffic can respond to daily calls for assistance and in a large-scale emergency. The easy to understand system will also make enforcement, particularly on red flag days, easier.</p>
<i>CONCERNS</i>	<p>Loss of parking spaces in impacted areas. Traffic congestion during implementation.</p>
<i>STAKEHOLDERS</i>	<p>Fire Department, Public Works, Parking Enforcement, Residents</p>
<i>TIMELINE</i>	<p>Within 180 days, a draft ordinance and proposed pilot project will be developed. Implementation would be dependent on funds, staff, and project prioritization. Implementation will include extensive resident outreach, and the community presentations.</p>
<i>OUTCOMES</i>	<p>Narrow roads in San Rafael will have clearly defined safe parking areas, allowing for emergency vehicle access and public evacuation.</p>

30. Improve public emergency alerting capabilities and policies

ACTION	In coordination with Marin County, develop a proactive policy for the use of Wireless Emergency Alerts (WEA) during emerging situations. Establish templates that clearly communicate risk, requested action, and sources for follow-up information. Enhance internal capabilities.
WHAT THIS MEANS	<p>Currently, the City of San Rafael relies on Marin County for non-opt-in messaging. The City’s internal ability to message is limited to SRPD’s Nixle subscription, which only reaches those who opt-in for messaging. This item has two interacting parts; 1) a clear policy for when and how San Rafael can request the County to issue emergency alerts on its behalf and; 2) Staff’s recommendation to upgrade the internal ability to send messages that do not require users to opt-in. In both situations, policies, templates, and coordination will be needed.</p> <p>Considerations will also be given to other alerting methods including NOAA weather radios, sirens, or coordinated community efforts. Sirens may be considered to alert residents in open space of an active threat. Sirens are not designed to be heard indoors and therefore will not be considered for citywide implementation as a primary alerting tool. Plans and policies will be developed to better inform the public of red flag and high fire risk days and any associated access changes, such as closures of open space. Plans will also improve coordination between alerting authorities and all news providers, including TV, Radio, and print. Expansion of Neighborhood Response Groups will strengthen connections and peer-to-peer communication.</p>
RATIONALE	<p>Assure policy and templates in place empower WEA message to be sent if threat exists. Reduce the likelihood that a message will be delayed or won’t be sent. Reduce risk of loss of life. WEA messaging was NOT issued during the North Bay fires of 2017 or the Butte County Camp Fire in 2018. Internally the City needs to improve its messaging capabilities, including access, training, and policies, to assure communication with residents in times of crisis. While broad-based alerting tools, such as sirens or coordinated church bell rings can be considered, it is imperative that each individual register for alerts and have a local alerting redundancy, such as a weather radio. Improvements to emergency notifications and Red Flag warnings is a consistent theme in the <i>2017 Lessons Learned</i> report. Senate Bill 833 and Assembly Bill 1877 established new alert, warning, and planning requirements for State, county, and local officials.</p>
CONCERNS	<p>Over-messaging can reduce the impact of an essential message. Incomplete or inaccurate messaging may cause panic or undue traffic congestion during evacuation. Messaging may overreach to nonimpacted areas. Coordination between County and City alerting authorities is necessary. Develop plan and strategies to meet the needs of those with Access and Functional Needs (AFN) to include mobility limitations and communication or language barriers.</p>
STAKEHOLDERS	County OES, MCSO, SROES, SRPD, SRFD, Residents

TIMELINE	In progress. A streamlined policy will rely on agreement from Marin County Sheriff's Office. Updating the Nixle subscription can be done within days of an identified funding source. Ongoing public outreach to encourage residents to opt-in to alerting systems.
OUTCOMES	San Rafael has ability to message all residents in the event of an emergency.

31. Increase capability for early fire warnings and detection

ACTION	Increase San Rafael's access and control to partner technology, including cameras with heat detection and micro-weather stations. Install two additional cameras to cover the highest fire risk areas in San Rafael. Assure detected wildfires are promptly reported to the National Weather Service to promote weather radio announcements.
WHAT THIS MEANS	PG&E has and continues to install cameras and micro-weather stations to monitor fire and fire weather conditions. Only a limited number of County Fire employees can currently control the view on the cameras. The live stream of the existing cameras is publicly available at http://www.alertwildfire.org/northbay/ . To increase the camera coverage of San Rafael, new cameras may be installed on San Rafael Hill and San Pedro Ridge. San Rafael Fire staff could have direct control of the view and zoom of these additional cameras.
RATIONALE	Cameras will allow for increased ability to monitor open space, which in turn could mean early wildfire identification and response, increased knowledge of weather conditions impacting fire spread, and increased firefighter safety. The ability to directly control cameras monitoring San Rafael increases internal capabilities and reduces the delay and reliance on third parties.
CONCERNS	Access to monitoring technology is determined through partnerships. Ownership and space on existing towers impact possible installation locations.
STAKEHOLDERS	PG&E, Fire Department, Marin County Fire
TIMELINE	Discussions to install new cameras and/or gain further access to existing camera are ongoing. Installation of new cameras would require funding and an agreement with the site owners in the desired locations. Improved coordination with wildfire monitoring partners and new technology would be in place in the Summer of 2019.
OUTCOMES	San Rafael has direct access to early warning technology and improved response times.

32. Review and expand evacuation plans, incorporating areas of refuge, and support neighborhood evacuation drills.

ACTION	Review Countywide evacuation plans and expand existing plans to address San Rafael’s unique needs, neighborhoods and resources, including possible water evacuations.
WHAT THIS MEANS	Additional evacuation planning will establish additional redundancies and potentially reduce the burden on a single egress artery during an emergency. These efforts will consider evacuating to areas of refuge during a fast-moving wildfire. Maps of evacuation routes and potential safe areas will be shared with residents. Expanded plans will better address the unique needs of the AFN community, to include limited mobility, communication and language limitations, and transportation independence. Coordination with Waze, Google Maps, and other GPS providers will be considered. City resources, including the Fire Department, Police Department, and OES will help neighborhoods develop individualized evacuation plans and support community organized evacuation drills.
RATIONALE	San Rafael has multiple areas with limited egress options, due to water, open space and narrow roads. San Rafael should review alternate options for evacuation, including establishing agreements with Golden Gate Transit and Dutra to support a water evacuation. Providing residents with more detailed information about existing and expanded evacuation plans would allow residents to be better informed and prepared.
CONCERNS	Evacuations are dynamic and situation dependent, making comprehensive planning ineffective. Efforts may create false sense of security or avoidance of individual planning.
STAKEHOLDERS	Fire Department, Police Department, Golden Gate Transit, Dutra, Marin County, Residents
TIMELINE	Planning efforts are ongoing and community focused mapping is underway. Water evacuation planning can be established with collaboration from partners. Updated evacuation plans will be incorporated into the City Emergency Operations Plan (EOP).
OUTCOMES	Improved public awareness of evacuation routes and areas of refuge.

33. Assure safe and resilient critical infrastructure

ACTION	In partnership with utility providers, determine best method(s) to reduce fuels around critical infrastructure such as power poles, power lines, and other combustible infrastructure. Work to remove fuels from roadways and primary escape routes. Work with all utility providers to assure they are protecting their infrastructure from wildfires and have redundancies in place to reduce gaps in service delivery.
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WHAT THIS MEANS	The City will initiate an effort to identify the best approaches to vegetation management activities around critical infrastructure. This will include coordination with PG&E and Marin Municipal Water District (MMWD). Potential ordinance changes will be evaluated. Efforts will focus on reducing likelihood of damage to infrastructure, assuring access to infrastructure, and reducing likelihood of infrastructure contributing to a wildfire. Education and outreach efforts will help inform residents of the process to maintain vegetation near the power lines that connect their homes to the utility poles.
RATIONALE	Reduce the risk of fire ignition and protect critical infrastructure from fire. Share burden of protecting infrastructure with property owners and utility providers. Reduce the likelihood and impacts of utility outages and road closures during a disaster.
CONCERNS	Property owner confusion regarding the responsibility of maintaining clearance around the service lines from the pole to the structure. Esthetics of vegetation and tree trimming and removal. Difficult to determine which homeowner is responsible for the cost of tree trimming. Jurisdictional issues may create challenges.
STAKEHOLDERS	Fire Department, Public Works, Community Development, property owners, PG&E
TIMELINE	In Progress. Guidelines for fuel reduction around critical infrastructure are being established and coordinated with utilities. Outreach and education can begin within 30 days of policy being finalized, dependent on staff time. Programs to support residents will be dependent on securing additional funding.
OUTCOMES	San Rafael critical infrastructure will be better protected and less likely to contribute to a wildfire.

34. Assure that appropriate staff can send and receive emergency alerts

ACTION	Establish schedule to assure that all appropriate San Rafael staff members routinely issue Everbridge test messages. Maintain current database of all staff contact information to assure communication with staff during an emergency.
WHAT THIS MEANS	Staff with Everbridge/alerting capability will be required to send test messages at least quarterly to assure access and proficiency. Staff will have templates and training materials to help develop proficiency. Citywide effort is needed to assure correct cell phone numbers are on file and can be used to reach City staff in an emergency. Routine message tests will help maintain an accurate database. Tools include Everbridge (managed by Marin County OES) and upgraded Nixle.
RATIONALE	All staff with the authority to issue alerts must be able to log in and navigate the system to send time-sensitive information. A centralized system to communicate with staff in an

	emergency is necessary to confirm staff safety and communicate closures and requested actions.
CONCERNS	Potential to issue test messages broadly. Lack of participation. Ongoing database management is time consuming.
STAKEHOLDERS	San Rafael Staff with emergency alert capabilities (about 10 people), Department Directors, Human Resources, All City staff
TIMELINE	A ‘how to’ guide is already created. Once City management agrees to the value of the tests, a routine test schedule can be developed and implemented. Maintaining an accurate alerting database is an ongoing process that will require an established process. Tests in Nixle are dependent on system update.
OUTCOMES	Designated City staff will be confident in their ability to internally message during an emergency. All staff will be able to receive messages in an emergency.

35. Assure that City staff can communicate during an emergency

ACTION	Determine and implement the best method to assure City staff with assigned emergency response duties can use cell phones and landlines. This will require a combination of Wireless Priority Service (WPS), First Net, and Government Emergency Telecommunications Service (GETS).
WHAT THIS MEANS	Complete a cost-benefit analysis of using WPS, Verizon First Responder, and GETS options. Register all Fire, PD, DPW field staff, building inspectors, and EOC staff with WPS and/or Verizon priority accounts. A policy for personal cell phones registered on the system will need to be established.
RATIONALE	The ability to communicate via cell phone after a disaster is negatively impacted by infrastructure damage and peak usage. There are tools available to help cell phone providers prioritize responder traffic. Acting now will limit the impact on communications during an emergency.
CONCERNS	Staff time to implement. Data management and maintenance of multiple tools.
STAKEHOLDERS	Impacted agency staff, Digital Services and Open Government
TIMELINE	WPS access can be requested immediately with cell phone account information. More research is needed to understand the new Verizon responder accounts and potential costs. GETS access can be requested immediately after determining additional needs. Usage policy can be developed within 120 days.

OUTCOMES City staff will have redundant and prioritized methods for communication in an emergency

36. Assure that residents can evacuate through garage doors if power is out

ACTION Develop program to encourage the implementation of garage door battery backup systems. Consider cost share programs with low- income individuals.

WHAT THIS MEANS San Rafael Code Enforcement will need to start enforcing updated safety requirements for automatic garage doors. San Rafael Fire will begin incorporating garage door functionality into evacuation and wildfire preparedness material. San Rafael could consider applying this standard to rental properties and/or encouraging battery back-up installation on legacy garage doors. The City may consider a retroactive requirement or other method to increase back-up battery systems.

RATIONALE Power failures, impacting the functionality of automatic garage doors, can make evacuation by car impossible during an emergency. Effective, July 1, 2019, Senate Bill 969 requires all new and replacement automatic garage doors to have a backup battery or other means that assures the garage door can open in the event of a power failure. The new law does not have a retroactive requirement. Public education is necessary to alert people of the risk and relatively low-cost solutions available, as not everyone has the physical ability to open a garage door manually. Garage door failure was noted in the *2017 Lessons Learned* report.

CONCERNS The update to Health & Safety Code Section 19891 and addition to Section 19892 do not retroactively apply or protect people with existing garages. Outreach can help inform, but not require adherence to stronger safety requirements. Assure outreach addresses the needs of those with Access and Functional needs, including limited mobility.

STAKEHOLDERS Fire Department, Code Enforcement, Property owners.

TIMELINE The Senate Bill requires that garage door installations and replacements on or after July 1, 2019 meet the new requirements. Education and outreach about this new requirement should begin immediately.

OUTCOMES Increased community awareness and implementation of garage door backup batteries or other means assuring evacuation is possible in a power outage.

37. Prevent potential entrapments by requiring 2 gates in any fence in designated areas, including “flagpole” style lots

<i>ACTION</i>	Ordinance change. Update building code to require new and replacement fences have two gates. Existing fences within designated single-lane access parcels must install 2 gates.
What this means	Designated parcels will be required to have more than one means and direction of egress in the event of a wildfire or other emergency. Fences over a designated height would be required to have two gates installed, accessing different cardinal directions. This will include new fences and replaced fences. Staff will consider programs to help low-income residents install an additional gate in areas with limited egress.
Rationale	This will help assure that multiple escape routes exist in the most vulnerable areas and provide ease of access for firefighters.
Concerns	Cost burden for property owners not currently up to the new code. Enforcement.
Stakeholders	Fire Department, Code Enforcement, property owners
Timeline	An updated ordinance, incorporating stakeholder input, can be brought to City Council within 160 days. Updates may be incorporated into planned code updates.
Outcomes	Fenced properties will have additional means of egress, benefiting them, and potential neighbors during an evacuation.

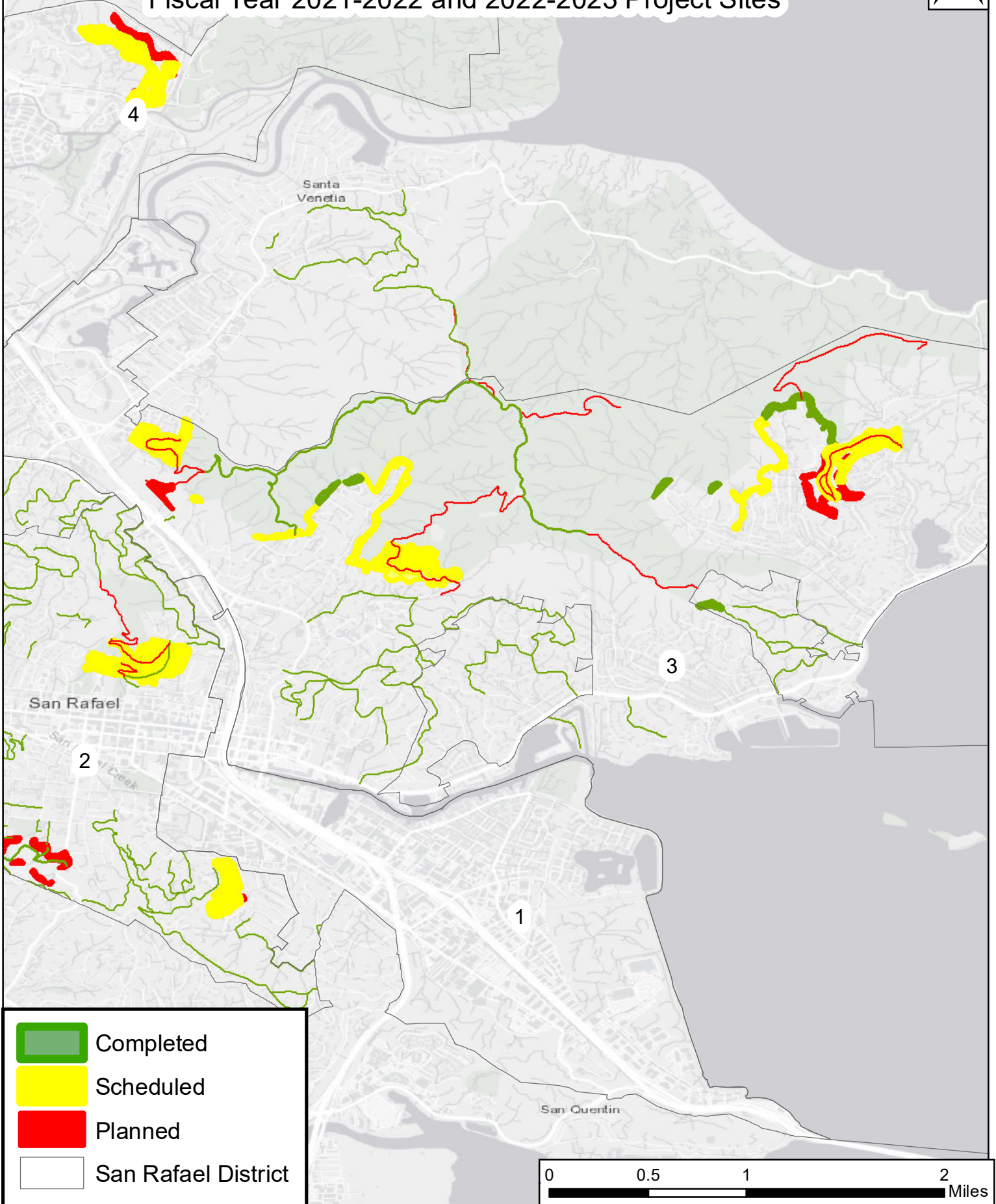
38. Maintain and expand coordination of wildfire prevention and response planning with Marin County, other Marin jurisdictions, Marin County Fire, Marin Wildfire Prevention Authority, FIRESafe MARIN, and neighboring landowning partners.

<i>ACTION</i>	Continue and expand the collaborative work throughout Marin County to address the risk of wildfire. Review and consider any wildfire mitigation plan proposed by Marin County, Marin Wildfire Prevention Authority and other land-managing neighbors. Assure prevention efforts address needs of unincorporated areas.
WHAT THIS MEANS	Coordinate mitigation work, and fire road repairs in bordering areas and both within and across the 5 established MWPA zones within the County. Explore opportunities for collaboration that provide benefits of scale and efficiency. Any future guidance or regulations

	brought forth by the County will be reviewed and considered for local adoption. Coordinate countywide fire and building code updates with County and other cities and towns.
RATIONALE	Wildfire and disaster do not respect jurisdictional boundaries. A fire starting in one jurisdiction can spread and impact many others. Continuing and expanding current collaboration will help assure efforts are as effective as possible. Similar fire and building ordinances will help simplify outreach and education while allowing for unique local adjustments. When practical, sharing resources may reduce costs through economies of scale.
CONCERNS	Challenges of consensus building. Speed of implementation. Impact on direct local control, responsibility and accountability.
STAKEHOLDERS	San Rafael Fire Department, Marin County, Marin County Fire, MWPA, FIRESafe MARIN, SRAs and CSAs
TIMELINE	Ongoing. Updates to fire and building codes would be in effect in 2021.
OUTCOMES	Provide effective wildfire mitigation to San Rafael. Benefit from economy of scale and collaboration and the use of Measure C funding allocations for agency specific, defensible space and/or core allocations.

MWPA Wildfire Mitigation Projects Western San Rafael

Fiscal Year 2021-2022 and 2022-2023 Project Sites



Completed



Scheduled



Planned

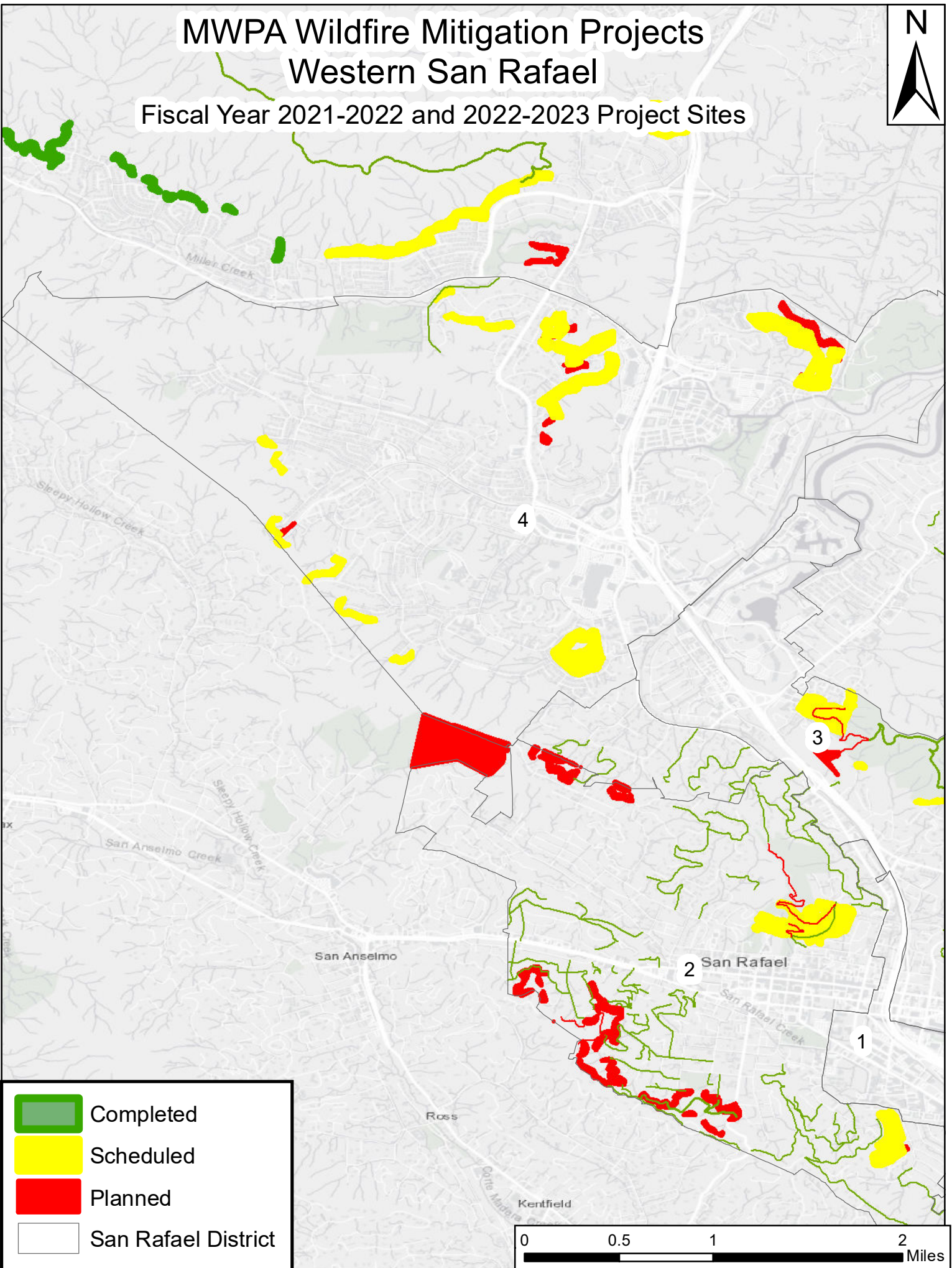


San Rafael District



MWPA Wildfire Mitigation Projects Western San Rafael

Fiscal Year 2021-2022 and 2022-2023 Project Sites



Completed



Scheduled



Planned



San Rafael District

