Town of Windsor

Riparian Corridor Wildfire Fuel Management Plan



Prepared by the Town of Windsor
and Sonoma County Fire District

Last Revised June 2020

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INTRODUCTION

The Riparian Corridor Fuel Reduction Plan (Plan) was developed in response to the 2019 Kincade Fire, to set priorities for riparian corridor fuel reduction, and to provide decisionmakers and the public with a plan for managing fire hazards in riparian corridors in Windsor. The Plan describes the Town's approach to managing riparian corridor vegetation on Town-owned property to reduce the probability of wildfire ignition and reduce the intensity and rate of spread of wildfires.

The Plan was developed by Town staff from the Public Works Department, Community Development Department, and Town Manager's Office, together with the Sonoma County Fire District. The Plan describes ongoing Town practices including weed abatement and selective vegetative management in riparian corridors to reduce fire hazards and support co-benefits of public access, where appropriate, and riparian function. The Town routinely consults with the resource agencies California Department of Fish and Wildlife, and the North Coast Regional Water Quality Control Board before implementing fuel reduction actions.

Geographic Setting

Windsor is located approximately 58 miles north of San Francisco and 72 miles west of Sacramento, in Sonoma County between the cities of Santa Rosa to the south and Healdsburg to the north. It is located on mostly flat land, bordered by hills to the north, east, and west. US Highway 101 runs through the middle of the Town along its north-south axis. The Town is surrounded by the community separator lands of unincorporated county, which are characterized by agriculture and open space uses.

Windsor's 2019 population estimate is 26,801, representing approximately 6 percent of all Sonoma County residents. When compared to all of Sonoma County, the typical Windsor household is more likely to own their home (approximately 26 percent of Windsor households rent, compared to 40 percent of all Sonoma County households) and to have a higher household income.

The Town is traversed by several creeks that flow in the southwest direction to Mark West Creek, a tributary of the Russian River. Vegetated open creek channels can be a pathway and provide fuel during wildland fires. This Plan applies to riparian corridors within the Town limits including Windsor, East Windsor, Pool, Pruitt, Starr, Faught, Gumview, Sotoyome, and Airport creeks and their tributaries. The Study Area consists of the Town of Windsor Town Limits and shown in Figure 1. The Town was divided into three priority zones including:

- **Zone 1** – Northeastern portion of town (Foothill Park) along Windsor Creek and East Windsor Creek
- **Zone 2** – US Highway 101 to the east and south of downtown

- **Zone 3** – West and southwest of Highway 101

Riparian corridor fuel management is necessary to protect structures adjacent to open, vegetated stream channels. Highest risk areas are situated on the east side of Town where over 1,200 habitable structures are adjacent to or nearby riparian corridors, including Oak Creek, Shamrock Mobile Home Park, Summer Tree Park, Vintage Hills, Vinecrest, Foothill, Elsbree, and Lakewood Glen neighborhoods.

Sonoma County Fire District

Fire protection services are provided to the Town of Windsor and surrounding areas by the Sonoma County Fire District (District). The District provides all-risk emergency services, fire prevention, community risk reduction, and investigation services to an area in excess of 195 square miles and a population of more than 79,000. The District serves a unique and diverse population and landscape, including high-density urban areas, rural housing and ranch lands, and populated and unpopulated wildland-urban interface (WUI) lands. The District also serves the US Highway 101 corridor, SMART high-speed rail service, the Russian River recreational area, and are the primary responder to the Sonoma County Airport and the surrounding Airport Business Park for all emergency medical service, fire suppression, crash rescue, fire prevention, and fire investigation services.

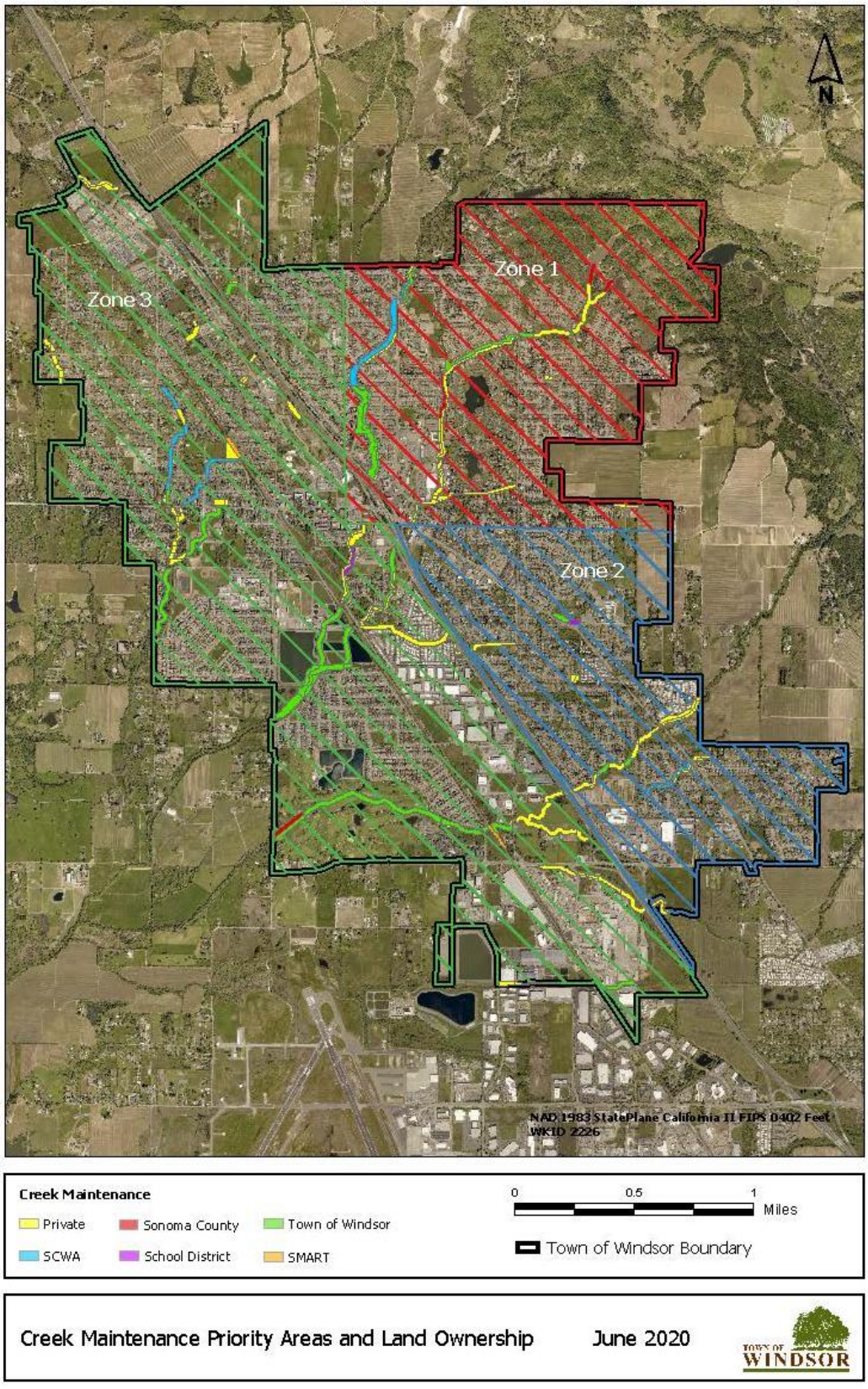
Local Hazard Mitigation Plan

In February 2018 the Town of Windsor adopted a five-year update of the Local Hazard Mitigation Plan (LHMP) that identifies the natural hazards faced by the Town of Windsor and measures to mitigate these hazards. The Wildfire Hazard Assessment of the LHMP was updated in June 2019 to respond to lessons learned in the 2017 Nuns and Tubbs fires. A revised hazard assessment, based on updated CalFire maps, and new mitigation measures were included in the updated LHMP, adopted by the Council on June 19, 2019.

This Plan is consistent with the following LHMP mitigation actions:

- **Measure 1:** Identify and map areas within and proximate to a high to moderate fire severity zone and require fire-wise building design and fire-wide landscaping materials and design in these areas for new construction, additions, and retrofits.
- **Measure 7:** Work with other agencies, residents, and HOAs to reduce fuel loads, such as the removal of vegetation in Foothill and Shiloh Ridge parks.
- **Measure 8:** Identify and map areas most at risk of Wildfire based on proximity to the Wildland Urban Interface (WUI) and moderate/high fire severity, prevailing winds, and age of construction, and focus initial outreach and education on areas and populations identified as most at risk.

Figure 1. Creek Maintenance Priority Areas and Land Ownership



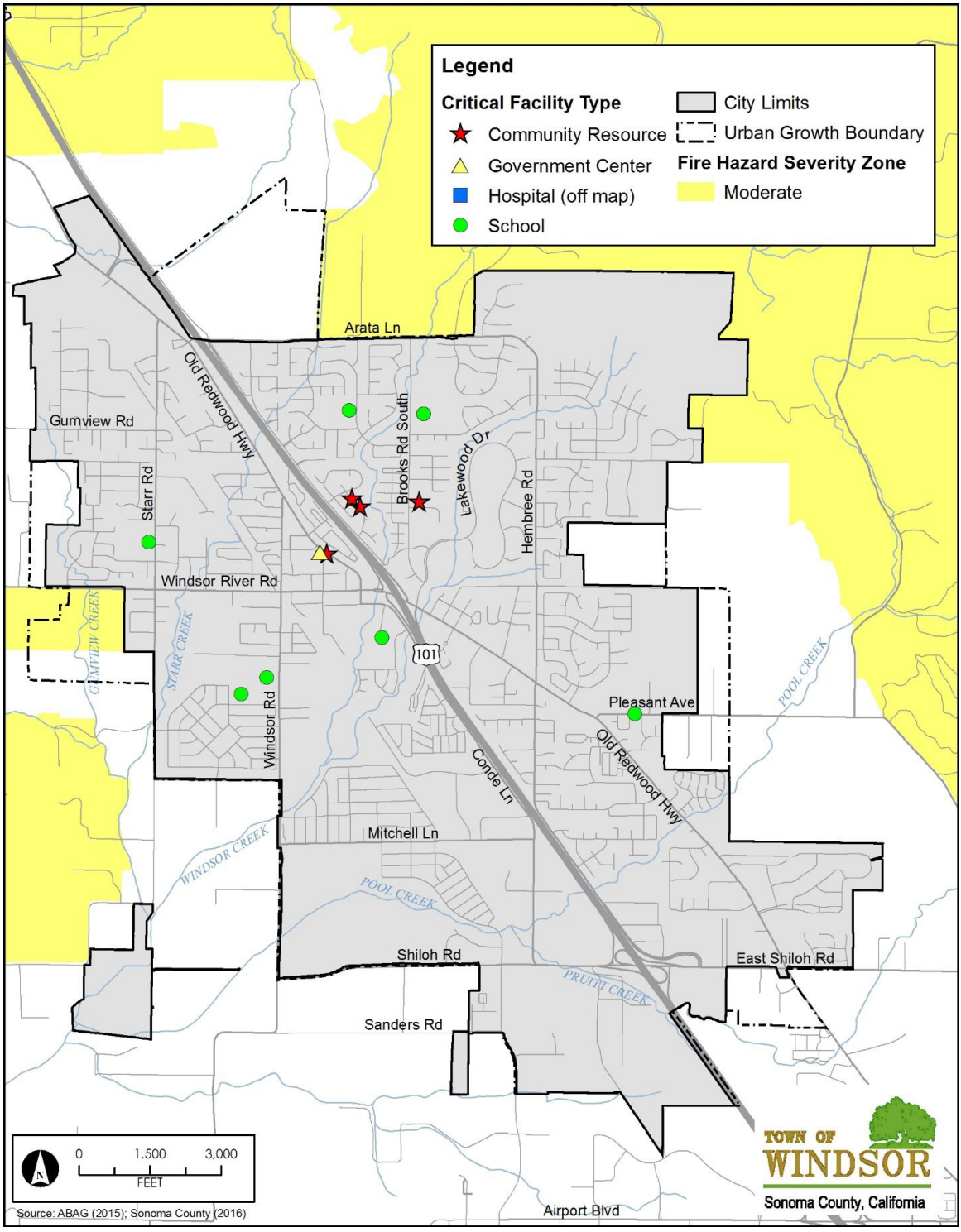
History of Wildfire

Wildfires are a natural feature of many of California's ecosystems, and many habitats in the state have adapted to regular fire cycles. However, human activities have changed the types of ground cover in the state, suppressed natural fires (allowing fuel to build up), and expanded development into fire-prone areas. As a result, wildfires are now the most common type of disaster in the state.

There are no wildfire hazard severity zones within the limits of the Town itself, however, Foothill Regional Park is a wildland area within the Town limits and a wildfire severity zone is adjacent to the Town in this northeastern area. The western Town limits also adjoin a wildfire severity zone as mapped by CalFire. The area south of Windsor River Road near Gumview Creek, which is outside of the Town limits but within the urban growth boundary, is considered a moderate fire hazard severity zone. There are also areas of moderate fire hazard severity along the Town's northeastern border. Figure 2 shows the fire hazard severity zones around Windsor. While the fire hazard severity zones indicate a general sense of where wildfires are more likely to occur, it is possible for a wildfire to occur outside of one of these zones. Although Windsor is outside of a fire hazard severity zone, the proximity of these areas means that wildfires may still occur in the Town.

Prior to 2017, there were no historical records of wildfires occurring in Windsor, although some wildfire events have occurred nearby. The largest, the Hanley Fire, occurred in 1964. It burned 55,960 acres east of Windsor, south to Santa Rosa and as far east as Calistoga in Napa County. Other smaller fires occurred near Foothill Regional Park in 1950, on Porter Creek east of Windsor in 1996, and near the Geysers in 2004. The Tubbs Fire was a wildfire in Northern California during October 2017 that burned 36,807 acres. At the time, the Tubbs Fire was the most destructive wildfire in California history, burning parts of Napa, Sonoma, and Lake counties, inflicting its greatest losses in the city of Santa Rosa. The October 2019 Kincaid Fire burned 77,758 acres and threatened over 90,000 structures and caused widespread evacuations throughout Sonoma County, including the communities of Geyserville, Healdsburg, and Windsor. The fire burned area in the northeast portion of Town adjacent to Foothill Park. The fire was the largest of the 2019 California wildfire season, and the largest wildfire ever to occur in Sonoma County.

Figure 2. Windsor Fire Hazard Zones



Source: Town of Windsor Local Hazard Mitigation Plan

Note: The North of Arata Lane area was annexed into the Town of Windsor in 2019 (see Figure 1)

How to Use the Plan

The Riparian Corridor Fuel Reduction Plan is intended to establish priorities for riparian corridor fuel reduction to reduce fire risk while protecting riparian habitat. The Plan is a blueprint for riparian fuel management on Town-owned lands. The Plan outlines a methodology for prioritizing fuel reduction activities and identifies fuel treatment strategies, timing, and approval process. The Town intends this to be a living document, to be updated as needed from time to time.

GOALS

The purpose of this Plan is to identify fire risks within the Town of Windsor associated with riparian vegetation, map and prioritize areas for fuel reduction treatment, and describe ongoing fuel management responsibility, authority, and practices within the Town.

The goal of fuel treatment activities is to modify fire behavior to reduce environmental damage and aid in suppressing wildfires. The specific goals of the Fuel Management Plan are to:

- Reduce fire hazards on and adjacent to riparian corridors in the Town of Windsor's wildland-urban interface.
- Maintain and enhance ecological values for plant and wildlife habitat consistent with General Plan policies and Resource Agency requirements.
- Preserve aesthetic landscape values for landowners and the public.
- Provide a vegetation management plan which is cost-effective to the Town on a continuous basis.

The Town of Windsor’s Local Hazard Mitigation Plan established the following five general hazard mitigation priorities that provide an overarching framework for this Plan:

- Provide a safe and healthy environment for all Windsor residents, businesses, employees, and visitors.
- Minimize the risks to lives and properties due to hazards.
- Maintain a high level of emergency preparedness to respond to human-caused or natural disasters.
- Provide for the rapid resumption of impacted economic activity and community services.
- Ensure the effective procurement of grants and other funding sources.

WILDFIRE HAZARD ASSESSMENT

Fuel Management Overview

Wildfire risk depends on numerous factors, including weather, vegetation, and local topography. Wildfires may be caused by lightning, various accidents, sparks from power lines, or arson. Wildfires can be divided into wildland fires and wildland-urban interface (WUI) fires. Wildland fires burn exclusively in natural environments and generally do not pose a significant threat to lives or property. WUI fires, however, occur near the border between developed and wildland areas. Even small WUI fires can be extremely damaging, depending on the density of the development and the complexity of the topography.

The wildlands of California are naturally fire-prone. Past land and fire management practices have had the effect of increasing the intensity, rate of spread, as well as the annual acreage, burned on these lands. While most of the natural communities of plants and animals have adapted to natural fire conditions, these natural communities are now at risk from catastrophic wildfire primarily due to the hazardous fuel conditions. Communities located adjacent to these wildlands, including those within wildland-urban interface (WUI) and rural areas, are also at risk.

Following the 2019 Kincade Fire the Town, together with Sonoma County Fire District, convened a series of meetings to develop a plan to manage riparian fuel load to reduce fire risk. The Riparian Corridor Fuel Reduction Planning Team is comprised of staff from the Sonoma County Fire District, Windsor Police Department, Public Works Department, and Community Development Department.

Town of Windsor Riparian Corridor Wildfire Hazard Assessment

Maps and satellite images were studied to identify riparian corridors. Riparian corridors are vegetated zones along open creek channels that can serve as a path for wildland fires in some circumstances. The riparian corridors were mapped, and land ownership determined. Adjacent land uses were surveyed to identify areas where residential uses are adjacent to riparian corridors. Three fuel reduction zones were delineated based on riparian corridor proximity to the WUI, identified ember cast zones, and density of residential development (Figure 2).

- **Zone 1 - High Priority** = Residential areas and critical facilities adjacent to the WUI and Ember Cast Zone
- **Zone 2 - Medium Priority** = Residential areas and critical facilities NOT adjacent to the WUI and Ember Cast Zone
- **Zone 3 - Low Priority** = Areas adjacent to open space or other non-critical/non-residential use

The area and length of creek channels in each of the three Wildfire Priority Zones are summarized in Table 1. The main types of understory vegetation in these areas are grasses, ruderal vegetation, shrubs, blackberries, and poison oak. Trees are typically deciduous riparian species, dominated by oak, willow, and pepperwood with some bay, maple, and cottonwood. Fire District personnel photographed areas within the zones that provide examples of riparian vegetation encroaching into adjacent residential and recreational uses. These photographs (Appendix B) help identify areas where fuel management could reduce fire risk. They also provide a visual reference for typical fuel management issues to address.

Table 1. Summary of Riparian Corridor Wildfire Priority Zone Characteristics

Zone	Area (acres)	Creeks	Channel Length (miles)
1	1,064	Windsor Creek East Windsor Creek	3.5
2	943	Pool Creek Faught Creek Pruitt Creek East Windsor Creek	1.5
3	2,345	Pool Creek Windsor Creek East Winsor Creek Airport Creek Starr Creek Gumview Creek Sotoyome Creek	8.0

FUEL TREATMENT METHODS

Hazardous fuels are live and dead vegetation that has accumulated and increases the likelihood of unusually large wildland fires. When fire encounters areas of heavy fuel loads (continuous brush, downed vegetation, or small trees) it can burn these surface and ladder fuels and may quickly move from a ground fire into a crown fire. Fuel treatment strategies are aimed at managing riparian corridor vegetation on Town-owned property to reduce the probability of wildfire ignition and reduce the intensity and rate of spread of wildfires. Hazardous fuel reduction generally requires the reduction of surface and ladder fuels. It may also require thinning out dense tree stands, preserving mature sized trees. It can be accomplished using fire, biological methods, chemical and/or mechanical treatments to remove or modify fuels in wildland areas.

Fire managers have long recognized the risks of damage to the environment, housing, and infrastructure from wildland fire and have acted to reduce wildland hazardous fuels, by thinning, prescribed burning, and other vegetation treatments. Reducing fire intensity through vegetation management can substantially aid in wildland fire containment and control while creating safety zones for firefighter and resident's safety.

Fuel treatments are intended to lower the risk of catastrophic wildfires by managing vegetation to modify/reduce hazardous fuels. The goal of fuel treatment projects is to modify fire behavior to reduce environmental damage and aid in suppressing wildfires. Benefits from fuel treatments include; prevent loss of lives, reduce fire suppression cost, reduce private property losses, and protect natural resources (control of unwanted vegetation, including invasive species, improvement of rangeland for livestock grazing, improvement of fish and wildlife habitat, enhancement and protection of riparian areas and wetlands, and improvement of water quality) from devastating wildfire.

Fuel reduction does not involve cutting down all trees and shrubs or creating a bare ground. Fuel reduction means reducing grass, shrubs, ornamental plants, dead and dying plants, ivy, and other overgrown vegetation so that a fire can't easily transfer from the ground to nearby structures or up into trees. Providing separation between vegetation or reshaping vegetation by trimming can provide emergency personnel a point of defense from which they can protect a structure from an approaching wildfire or protect the forest from an escaping structure fire.

Methodology

At the beginning of the fire season, starting in March, staff identifies priority projects for upcoming summer fuel reduction treatment along Town-owned riparian corridors. A field meeting with the Department of Fish and Wildlife (CDRW) staff and representatives from Sonoma Water or other affected landowner is conducted to determine appropriate fuel reduction mitigation actions and agree on best management actions to protect riparian

habitat and water quality. Staff also coordinates with other riparian corridor landowners, private and public, responsible for riparian corridor areas under their ownership.

The Public Works Street Division takes the lead coordinating and performing annual weed abatement and fuel load reduction along creek access pathways. The Streets Division also secures contract services to assist in completing this work. Typically, weed abatement, fuel load reduction, and creek channel cleaning work are contracted with the County of Sonoma, Department of Corrections, Supervised Adult Corrections program (SAC) to augment Town staff. In addition, staff work with several contract tree service providers to help reduce heavy wood loading within the creek riparian corridors. The Towns tree service contractors have certified arborists on staff and have biologists available to train Town employees, monitor in the field, and to direct mitigation activities if needed.

Weed abatement and light fuel load reduction maintenance is routine and staff performs these activities starting in spring following an established annual route. The Town is divided into four zones. Staff work to complete work in each zone then moves to the next until all riparian areas in the Town have been treated. This approach has been effective in the consistent abatement of lighter fuels. However, heavier wood and ladder fuel reduction is primarily focused within Zone 1 and Zone 2 (Figure 1) with continued attention, although limited, within Zone 3.

PLAN IMPLEMENTATION

This Plan pertains to riparian corridors and surrounding areas and is focused on Town-owned creek channels. The Town works in cooperation with private landowners and other public agency landowners to manage fire risk. When riparian vegetation is adjacent to structures it overlaps with the Fire District's Fuel Reduction Zone, which is defined as the area within a 100-foot radius of all structures, or to the property line. The Fire District's Fire Reduction Standards are provided in Appendix A and serve as a guide for Town Riparian Corridor Fuel Management activities and can assist other landowners to manage fire hazards.

The Town's fuel management program is designed to avoid any alterations to the bed, bank, and channel of the watercourse. The staff consults with CDFW staff to determine appropriate fuel management treatment that can be safely performed while protecting riparian corridor habitat functions. Plan activities occur in ephemeral tributaries and are not identified as fish-bearing streams. Routine vegetation management is conducted with specified best management practices and permits from resources agencies are not required. In the unlikely event that additional actions would be required for fire fuel management, any such treatment would be considered special projects and would be performed outside of this Plan. Staff would consult with the resources agency and conduct an appropriate environmental review.

The Town routinely inspects riparian corridors, identifying vegetation that poses a fire risk and clears vegetation and debris from Town-owned riparian zones. Scheduled work is based on observation of the highest priority need area. Town Public Works Department coordinates with Sonoma County Flood Control and Public Works departments to maintain Sonoma Water-owned lands. Town staff employs the County of Sonoma's Supervised Adult Corrections (SAC) and the project team meets at the beginning of the job to review the plan and to receive refresher training on CDFW requirements. A Town employee oversees all fuel reduction activities at each location, taking photographs of conditions throughout the creek reach before and after work is conducted. Town staff makes the final decision as to what debris (trees or vegetation) needs to be removed and what habitat features are to remain intact. Under no circumstances is the creek bed disturbed. Riparian tree canopy is maintained to provide shade and other habitat functions.

Work typically begins with weed abatement in late Spring (May and June) with heavy equipment and hand crews. In 2018 the Town implemented an Integrated Pest Management Policy that limits the use of pesticides. In some locations, vegetation grows back quickly in the spring and a second or third weed abatement treatment is required.

Once flows have stopped in the creek, usually in summer, staff and the SAC crew inspect creeks to identify major channel blockages that could block flows, increasing flood hazards. Dead and fallen limbs and logs are removed from the creek bed. Fallen trees and limbs along the channel banks and on the top of the bank are also assessed for removal.

Consistent with CDFW, single logs and downed trees that provide bank stabilization and habitat are retained. Biomass is typically chipped and use it as mulch to retain soil moisture at the Corp Yard or other Town property. Table 2 provides a summary of the Town's fuel management implementation actions.

Table 2. Town Fuel Management Implementation Actions

Management Action	Frequency	Location	Treatment
Creek and Storm Ditch Fuel Reduction	• Inspect all creeks at the beginning of fire season. • Prioritize creek reaches and identify treatment. • Initiated when creek bed is dry. • Treatment may be repeated one or two times during the fire season. • Observe environmental regulations for performing work in creeks.	All Town-owned creeks are leaned annually, including the following creeks and their tributaries: • Windsor Creek • East Windsor • Pool Creek • Pruitt Creek • Starr Creek • Faught Creek • Gumview Creek • Sotoyome Creek • Airport Creek	• Reduce fuel load, consistent with resource agency restriction. • Evaluates the need for fuel reduction in all creeks in Town. • Remove fallen trees only if they will cause an obstruction. • Trim trees only if a canopy can be maintained. • Do not disturb creek bed. • Provide photo-documentation (before and after photos of all work).
Fire Management Weed Abatement	• Weed abatement occurs throughout the town every year, and in typical years at two or three times.	All frontage roads, along Old Redwood Highway within the Town limits, including: • Conde Lane • Mitchell Lane • Shiloh Road • Hembree Lane • Los Amigos Road • Trails Limited areas of Town receive more frequent or intense treatment	• Tractors to mow or weed whacker if area is not accessible by tractor.

Best Management Practices

- Vegetation management is prohibited in the wetted channel (we wait until streams are dry to perform work)
- Vegetation removal is with hand tools; if a chain saw is needed to perform work, a tarp is used to contain any wood chips/debris
- No motorized vehicles are allowed in the channel
- Vegetation should not be removed from channel banks
- Large woody debris (downed logs and root wads) in the channel and banks should remain in place
- Debris jams (fallen trees) that block the channel causing obstruction are removed
- Vegetation management should be conducted in a manner that protects riparian habitat and water quality, including tree canopies that provide shade to the channel
- Vegetation removal is either conducted outside the bird nesting season (February 1 to August 15) or protection for nesting birds is provided
- Nesting bird mitigation consists of a field survey for bird nests by a qualified biologist prior to starting work and implementing appropriate avoidance buffers

In limited cases, to protect public safety and minimize fire hazard, vegetation management activities may require notification to CDFW for activities that substantially change or use any material from the bed, channel, or bank of a stream or creek (per Fish and Game Code 1602). The notification requirement applies to any river, stream, or lake, including those that are dry for periods of time as well as those that flow year-round. CDFW staff will review the annual work plan and provide recommendations. CDFW staff also routinely attend a pre-project site visit to review proposed fuel reduction activities in the field.

Annual Plan

A riparian corridor fuel reduction plan is developed each year based on priority creek reaches identified during spring inspections, evaluation of public input, and based on available funding. The Town's budget cycle is currently a biennial process and riparian fuel reduction projects are budgeted every two years. The budget includes staff allocations and contracts for the SAC crew and arborist services.

The Town also has a robust public outreach program to private property owners to inform land managers about upcoming fire fuel management projects, Fire District fuel reduction standards, and riparian corridor habitat value. Outreach tools include the Town's website, responding to public comment, and public information and education (Appendix A).

Budget

The need for fuel reduction actions continues to increase as more residential development is constructed along creek corridors, as native and landscape vegetation matures, and as

climate change increases fire hazards. The Town is committed to working with other public agencies that own creek corridors and private landowners to maintain safe fuel loads.

Fuel reduction maintenance is carried out through the Town's Street Division with a budget funded through the General Fund. Budgets have provided, and continue to provide, support to arborist services, ditch and creek maintenance access pathway cleaning, creek channel cleaning, trimming and removal of trees, and cleanup of any homeless encampments. Although there is a budget to support routine light fuel reduction in these areas, additional funding is needed to address heavier wood and ladder fuel reduction in high priority areas, especially within Zones 1 and 2 (Figure 1), where riparian corridors are adjacent to dense residential development. Cost estimates for work needed to address existing riparian areas are listed in Table 3. The relatively higher cost in Zone 3 is due to the larger land area with significantly more creek miles, extremely heavy fuel loading, and difficult access to the riparian corridor. The Town continues to work with the Sonoma County Fire District to pursue outside funding, including grant funding, to support and enhance fuel management activities.

Table 3. Comprehensive Riparian Corridor Fuel Management Budget (2020 Estimate)

Activities	Priority Zone	Cost Estimate
• Mowing • Weed abatement • Ladder fuel management (tree thinning and removal, where necessary) • Biologist survey/monitoring • Chipping and debris removal	1	$175,000
	2	$200,000
	3	$340,000

APPENDIX A

Vegetation Management Guidelines 2019 - Sonoma County Fire District

SONOMA COUNTY FIRE DISTRICT

Honesty ♦ Respect ♦ Integrity

- ✓ Remove all Branches within 10 feet of any stovepipe or chimney outlet.
- ✓ Remove leaves, needles or other vegetation on roofs, gutters, decks, porches, stairways, etc.
- ✓ Remove all dead or dying trees, branches, shrubs, or other plants adjacent to or overhanging buildings.
- ✓ Prune lower branches of trees to a height of 6 to 15 feet or 1/3 tree height for trees under 18 feet.
- ✓ Remove all dead or dying grass, leaves, needles or other vegetation.
- ✓ Remove or separate live flammable ground cover and shrubs.
- ✓ Climbing vines must be maintained free of dead or dying material or removed from trees and structures.
- ✓ Mow dead or dying grass to a maximum of 4 inches in height. Trimmings may remain on the ground.
- ✓ Live flammable ground cover less than 18 inches in height may remain, but overhanging and adjacent trees must be pruned to a height of 6 to 15 feet.
- ✓ Reduce fuels in accordance with the Continuous Tree Canopy Standard (see back).
- ✓ Reduce fuels in accordance with the Horizontal Spacing Standard (see back).
- ✓ Logs and stumps embedded in the soil must be removed or isolated from structures and other vegetation.
- ✓ Remove all dead or dying brush or trees, and all dead or dying tree branches within 15 feet of the ground.
- ✓ Clear all flammable vegetation, trash and other combustible materials 10 feet from around and above propane tanks.
- ✓ Address numbers shall be displayed in contrasting colors.
- ✓ Equip chimney or stovepipe openings with a metal screen having openings between 3/8 inch and 1/2 inch.
- ✓ Maintain minimum roadside clearance of 10 feet horizontal, 15 feet vertical, more may be required.
- ✓ Clear 18 feet around and 15 feet above fuels (e.g. woodpiles, lumber, scrap, etc.).
- ✓ Remove flammable materials stored under decks and similar overhangs of structures.
- ✓ Clear vegetation 10 feet from sides and 15 feet above driveways and turnaround areas.

Explanation of Terminology

Fuel Reduction Zone: The area within a 100-foot radius of all structures, or to the property line. Fuel reduction does not mean cutting down all trees and shrub or creating a bare ring of earth across the property!

Fuel reduction means reducing grass, shrubs, ornamental plants, dead and dying plants, ivy, and other overgrown vegetation so that a fire can't easily transfer from the ground to nearby structures or up into trees. Providing separation between vegetation and/or reshaping vegetation by trimming can provide emergency

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personnel a point of defense from which they can protect a structure from an approaching wildfire or protect the forest from an escaping structure fire.

Continuous Tree Canopy Standard:

To achieve defensible space while keeping a larger stand of trees with a continuous tree canopy, adhere to the guidelines below:

- Prune lower branches of trees to a height of 6 to 15 feet from the top of the vegetation below, or 1/3 to ½ of the tree height for trees under 30 feet.
- Remove all ground fuels greater than four inches in height. Single trees or other vegetation may be kept if they are well spaced, well pruned, well maintained, free of all dead material, and will not spread fire to other vegetation or structures.

Horizontal Spacing Standard:

- Beyond 30 feet from structures, grass should not exceed four inches in height. In situations where these fuels are isolated from other fuels or where necessary to stabilize soil, grasses may reach a height of 18 inches.
- Clearance between shrubs should be 4 to 40 feet, depending on the slope of the land and size and type of vegetation. Check the chart below for an estimation of clearance distance. Any questions regarding requirements for a specific property should be addressed to your local fire official.

Minimum Horizontal Spacing Guidelines		
Slope	Shrubs, Ground Covers & Other Ornamental Plants Space required between clumps of ground cover, plants, bushes, shrubs, seedlings or sapling trees, etc.	Trees Space required between tree canopies or groups of trees.
Flat or gentle slope (0% to 20%)	2 times the height of the plant	10 feet
Moderate slope (20% to 40%)	4 times the height of the plant	20 feet
Steep slope (greater than 40%)	5 times the height of the plant	30 feet

Roadside Clearance: Areas within 10 feet on each side of portions of highways and private streets which are improved, designed or ordinarily used for vehicular traffic are to be cleared of flammable vegetation and other combustible growth. Exceptions are single specimens of trees, ornamental shrubbery, or cultivated ground cover such as green grass, ivy, or similar plants used as ground covers, provided that they do not form a means of readily transmitting fire.

Please remember these are MINIMUM STANDARDS and may not be enough to provide you the much needed defensible space. Going above and beyond these requirements is highly encouraged! Please be a good neighbor and consider reducing fuels on your property, even in areas far from your homesite. If your property line is close to a neighbors home, do them and us a favor and reduce the hazardous vegetation adjacent to their homes as well, it's the right thing to do.

Sonoma County Fire has a free residential chipper program which operates from spring until fall. You cut vegetation and pile it according to program guidelines, we'll send a chipper and crew to chip it for free! Visit sonomacounty.ca.gov/Fire-Prevention/Chipper-Program or call (707) 565-6070

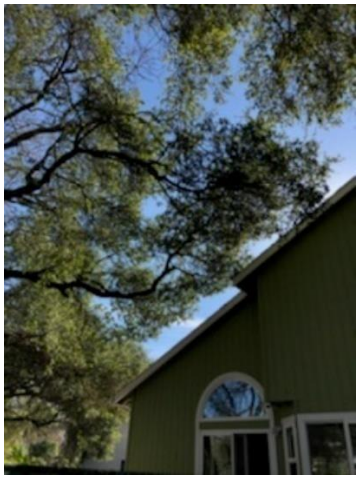
APPENDIX B

Riparian Corridor Fire Hazard Photographs

Riparian Corridor Fire Hazard Photographs

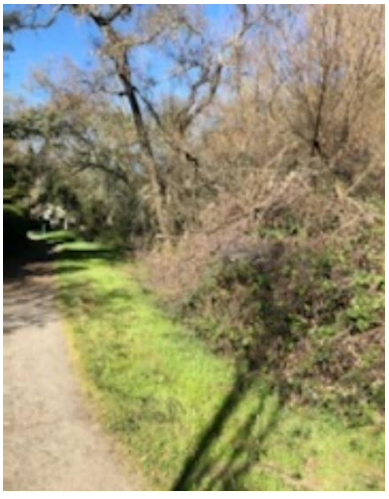


1. Elsbree to Foothill: trees within 10 feet of the property line

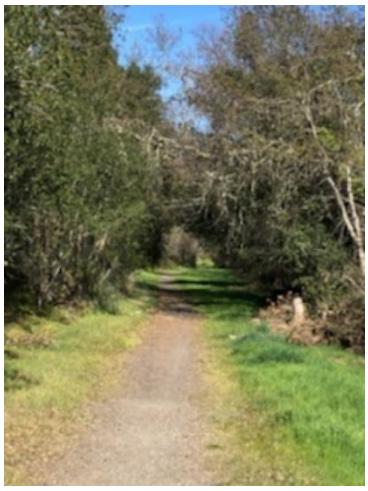






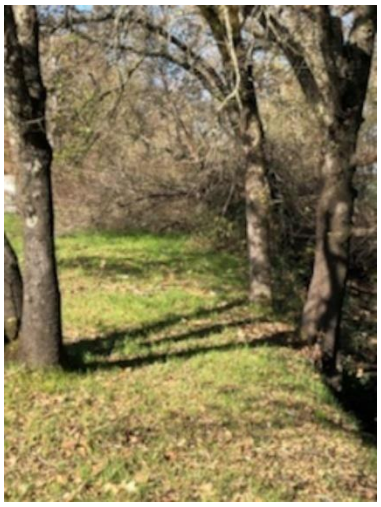


2. Lakewood to Hembree, both sides of creek: tree limbs within 10 feet of structure

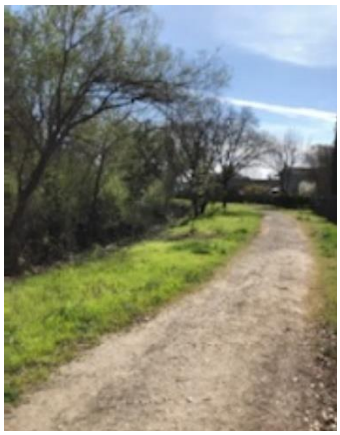




3. From Foothill Park, Windsor Creek Trail



4. Lakewood to Old Redwood Highway



5. Lazy Creek to Natalie: East side of Creek needs thinning