CITY OF ROSEVILLE

COPY

STONERIDGE SPECIFIC PLAN

WILDFIRE SAFETY PLAN

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SIGNATURE PAGE

FOR THE

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I. PURPOSE AND SCOPE

Western Sierra Nevada foothill and valley communities are increasingly concerned about wildfire safety. Drought years coupled with dense, flammable vegetation and annual periods of severe fire weather insure the potential for periodic wildfires

The purpose of this plan is to assess the wildfire hazards and risks of the Stoneridge Specific Plan and its environs, and to identify measures to reduce these hazards and risks. There are moderate fuel hazards associated with the proposed development. Incorporation of fire hazard reduction measures into the design and maintenance of the future community will reduce the size and intensity of wildfires and help prevent catastrophic fire losses. The City Fire Department provided the basic guidelines and requirements for wildfire safety for this Specific Plan area. This plan builds on these basic guidelines and provides additional fire hazard reduction measures customized to the topography and vegetation of the development.

The scope of the Wildfire Safety Plan for the Stoneridge Specific Plan project recognizes the extraordinary natural features of the area and designs wildfire safety measures which are meant to compliment and become part of the community design. The Plan contains; measures for providing and maintaining defensible space along roads, around future homes and Open Space areas. Plan implementation measures for reduction of Fire Hazard Severity must be maintained annually in order to assure adequate wildfire protection for the future Community.

II. FIRE PLAN LIMITATIONS

The Wildfire Safety Plan for the Stoneridge Specific Plan development does not guarantee that wildfire will not threaten, damage or destroy natural resources or future homes or endanger residences. However, the full implementation and maintenance of the mitigation measures will greatly reduce the exposure of homes to potential loss from wildfire and provide defensible space for firefighters and residents. Specific items are listed for homeowner attention to aid in home wildfire safety. Wildfire safety requires the installation and maintenance of all the Wildfire Safety Plan measures.

III. EXECUTIVE SUMMARY

The Stoneridge Specific Plan is located within the northeastern area of the City of Roseville between Roseville Parkway and Sierra College Boulevard. The Plan proposes residential neighborhoods of varying densities (58% of the area), business and commercial uses, parks, schools, public facilities and open space (36% of the area). The Specific Plan encompasses 1089 acres and proposes 2882 Dwelling Units on 629 acres and approximately 460 acres of open space, commercial, parks etc.

Vegetation is primarily annual grasslands, Blue oak woodlands, Valley and Interior live oak riparian. The dominant land features are Secret, False and Miners Ravines and the intervening plateau ridges.

Fire protection is provided by the City of Roseville Fire Department. Seasonal periodic severe wildfire weather conditions are normal for this area. This combined with the flammable vegetation, topography and future intermixed residential use combine to create a moderate wildfire hazard potential.

Summary of the Plan Provisions are:

1. Fuel Management
    a. Open Space Areas
    b. Trails
    c. Parks
    d. Commercial, Businesses & Public
    e. Roads
    f. Home area landscaping
2. Structural Fire Safe Features
    a. Roofs
    b. Decks
    c. Fences
3. Other Fire Safe Features
    a. Home owner entity for maintenance and enforcement
    b. Five year reassessment
    c. Phase development
4. Assignment of responsibilities for the fire safe mitigation measures
5. Financial and Program Management

IV. STONERIDGE SPECIFIC PLAN-WILDFIRE SAFETY PLAN

The plan consists of:

1. A description of the Project area.
2. A description of the Project vegetation
3. Problem statements.
4. Fire behavior analysis.
5. Goals.
6. Wildfire mitigation measures.
7. Financial and Program Management Responsibilities.

1. PROJECT DESCRIPTION

The Stoneridge Specific Plan is approximately 1089 acres of vacant land located in the Northeast area of the City of Roseville. The western boundary is adjacent to existing urbanized neighborhoods and Commercial areas. The Specific Plan is bounded on the north by the City of Rocklin, on the west by Interstate 80 and Roseville Parkway, on the south by Olympus Drive and on the east by Sierra College Boulevard.

The Plan incorporates residential neighborhoods of varying densities, business-professional and commercial uses, parks, schools open space and public facilities. Fifty eight percent of the area (629 acres) will be dedicated to homes (2882 dwelling units). Thirty six percent of the area (460 acres) will be non-residential (commercial, parks, school, fire station and open space). The majority of the non-residential acres will be Open Space aggregating 252 acres. There will also be an extensive network of Bike Trails. The main ingress and egress to the proposed area will be Secret Ravine Parkway which will link Sierra College Boulevard with East Roseville Parkway.

The key topographic features are the three ravines: Secret, False and Miners Ravine, that traverse the property flowing to the southwest. Miner's Ravine flows yearlong. Project elevation's range from 225 to 375 feet. Slopes are moderate ranging from 5% On the ridges to 26% in Miners Ravine.

The majority of the residential lots will be "mass pad graded". Homes will be constructed by the developer, with fire resistant roofing, stucco siding and landscaped front yards. Structural and wildland fire protection will be provided by the City of Roseville Fire Department.

2. PROJECT VEGETATION (FUELS)

For wildfire planning purposes the vegetation is classified as follows:

(a) ground fuels - annual grasses with scattered down trees and limbs
(b) overstory - scattered oaks and a few other broad leaf trees
(c) riparian - areas of Valley, Blue and Interior Live Oak with associated species of willow, cottonwood, ash etc.

The vegetation on the plateaus between the three main ravines is primarily annual grasses. There is not a continuous fuel ladder from the ground fuels to the overstory trees.

3. PROBLEM STATEMENTS

A. Extensive grass fuels in the Open Space areas will ignite easily and have a rapid rate of spread.

Fire history has demonstrated that grass and other light fuels are a threat to other vegetation as well as people. There is a strong tendency for the public, and even some firefighters, to discount the serious nature of wildfires in the grass lands of California. For instance, a grass stand of 1 ton per acre has approximately 8000 Btu's per acre. A study conducted on 100 fires where 31 fighters lost their lives, revealed many of the fires burned in light fuels such as grass. Fire in the grass fuels is the Open Space areas is the most serious wildfire problem for this project.

B. Portions of the project area has moderate slopes, which can cause a fast rate of wildfire spread.

Wildfires rate of spread increase dramatically as slope increases. The steepest slopes are the side slopes of the ravines.

C. Risk of fire starts will increase with development.

The greatest risk from fire ignitions will be in the Open Space areas as use of these areas by future residents and other publics will increase.

D. Provisions must be made to maintain all Fuel Treatments.

The wildfire protection values of fuel modification are rapidly lost if not maintained.

E. Typical home design and siting often does not recognize adequate wildfire mitigation measures.

A review of many wildfires has conclusively shown that most home losses occur when: (1) there is inadequate clearing of flammable vegetation around a house, (2) roof's are not fire resistant, (3) homes are sited in hazardous locations, (4) firebrand ignition points and heat traps are not adequately protected and (5) there is lack of water for suppression.

F. Fire prevention must be considered as an essential part of fire safety for the development.

4. FIRE BEHAVIOR ANALYSIS

Proper planning requires an estimate of how wildfire would behave within the project area. This was accomplished through study of a standard Fire Behavior Fuel Model 1, Grass. Fire spread in this Model is governed by the fine, very porous and continuous herbaceous fuels that have cured. Fires are surface fires that move rapidly through the cured grass and associated material. This model with winds of 6 mi/hr, fuel moisture content of 2 percent indicates a rate of spread of 202 chains (13332 feet) per hour and flame lengths of 7 feet (Run A, Miners Ravine). Run B, in False Ravine, with a 6mph wind had a similar rate of spread and flame length. See Appendix C. for details on BEHAVE Runs. The consultants incorporated the model outputs in the design of the fuel treatments.

5. GOALS

A. Modify the high hazard vegetation fuels.
B. Reduce the size and intensity of wildfires.
C. Ensure defensible space is provided around all structures.
D. Design fuel treatments so that minimum of tree removal is necessary.
E. Ensure fuel treatment measures are maintained.
F. Identify Fire Safe structural features.

G. Help homeowners protect their homes from wildfire.
H. Provide access for emergency fire equipment to the Open Space areas.
I. Assign responsibilities for preparation of fire prevention plan.
J. Ensure that each sub unit of the development has 2 points of access for emergency purposes.

6. WILDFIRE MITIGATION MEASURES

Wildfire mitigation measures are designed to accomplish the Goals by providing and maintaining Defensible Space and treating high hazard fuel areas. Fire hazard severity is reduced through these mitigation measures. The Wildfire Safety Plan places emphasis on the Open Space areas where the greatest risk to adjacent structures exists. fuel treatments

A Fuel Management

1. Open Space Areas

There are 252 acres of Open Space. The Open Space areas are mainly the three ravines and their side slopes up to the plateaus. Structures are planned for the plateau areas above the ravine slopes. This combination of slope, fuel and structure placement presents a moderate wildfire problem. None of the fuel treatments described below are applicable to wet land areas.

a. **A 40 foot wide ribbon of fuel treatment separating housing development from the Open Space areas will be established and maintained. (20 feet of Firescaping from the home to the property line and 20 feet of fuel treatment from the property line outward into the Open Space areas. See specifications in Appendix A & B and map in Appendix for schematic locations.)**
b. **Two Grass Treatment Strips, 40 feet wide, that cross False and Miners ravines will be constructed and maintained during the wildfire season (June to November). These treatment strips may be irrigated or treated to the specifications in Appendix A. See map in Appendix for schematic locations.**
c. **Bike Trails – The trails are of sufficient width (14 feet) to create a break in fuel continuity.**
   (1) **Fuel treatment outward from each side of the trail will be a 5 foot strip, treated to the specification in Appendix A. This will create a 24 foot fuel reduction zone.**
   (2) **No additional treatment is required in the Open Space areas when trail and trail treatment are within 12 feet of lot boundaries.**

2. Parks

a. **Undeveloped Parks, Commercial, Public Areas. As these areas are accessed by phase, residential development, perimeter fuel treatment must be provided, inward for 40 feet, to the specifications in Appendix A, until these areas are developed.**
b. **It is recommended that Parks landscaping avoid plantings of easily ignited plants that are high in oils such as pines, junipers, encalyptus, cypress, cedars, etc.**

3. Commercial, Business, Public Areas

a. **These designated areas should be reviewed for wildfire safety measures when design/build plans are available. It is not anticipated that any extensive fuel modification will be necessary adjacent to the commercial developments**

assuming these areas will be landscaped and irrigated.

4. Roads
   - **a. In all landscaped parkways and medians avoid planting pyrophiytes (easily ignited plants) that are high in oils or resins such as pines, junipers, eucalyptus and cypress, cedar etc.**
   - **b. All project roads that are in or border the Open Space areas will have the fuel treated for 10 feet outward from the top of the cut bank and/or toe of the fill slope to the specifications in Appendix A.**
   - **c. Treat cut banks and fill slopes as necessary to prevent encroachment of brush and minimize erosion and siltation of slopes.**
   - **d. Roads without sidewalks and curbs shall have all vegetation removed from ditches, 3 feet up the cut bank and shoulders annually by June 1.**

5. Home Area Landscaping
   - **a. Back and side yards that border Open Space areas must be landscaped to Firescaping Standards in Appendix B by the homeowner within 1 year of occupancy. This requirement should be added to the CC&R's.**

Fuel modifications required above must be maintained to the treatment standards specified

B. Water.

The project will be served by a hydrant system. Locations of hydrants will be determined by the City Fire Department.

C. Structural Home Fire Safe Requirements

Homes can be designed to be architecturally pleasing and reasonably fire safe.

- **a. All homes will have Class A, fire resistant roofing assembly (Class A treated wooden shingles are not acceptable) and fire resistant siding (e.g. stucco, brick, stone, concrete etc.).**
- **b. All homes on lots bordering the perimeter of the Open Space areas:**
  - **1.) Decks, over 4 feet in height, above the ground, and cantilevered over the natural slope will be constructed of fire resistant material. An acceptable alternative would allow combustible material providing the open space under the deck is fully enclosed with fire resistant material (i.e. concrete, metal, stucco, stone).**
  - **2.) Back and side yard fences shall be of fire resistant material.**

D. Road Circulation

- **a. Each sub unit must have two points of ingress/egress. The details of access for each sub unit are provide for in the Specific Plan and in the final maps.**

E. Other Fire Safe Practices

- **a. A Service District must be created with authority for maintaining and enforcing fuel treatment mitigation measures if home owners fail to implement or maintain. Covenants, Conditions and Restrictions must be developed to ensure the enforcement of the structural Fire Safe requirements.**

b. The Developer/Service District will enter into an agreement with the City of Roseville to assure the wildfire prevention functions, pre and post construction, are provided by the Service District or the Roseville Fire Department. This includes monitoring the completion of all requirements in the fire plan.

c. Every 5 years the Fire Department and the Open Space managing entity must review the Open Space areas to determine if additional fuel hazard reduction work is necessary due to vegetation changes or other factors.

d. The Stoneridge development will occur in several phases. As one phase is developed that area-perimeter must have fuel treatment separating it from adjacent undeveloped areas. A 40 foot wide strip, with the fuel treated to specifications in Appendix A, must be provided as each phase progresses. For example, Phase 2A will require fuel treatment along borders or portions borders with aeras14, 21, 15, 33, 36, 37, 49 and 50 until these areas are developed (See Phase map in Appendix.)

7. FINANICAL AND MANAGEMENT RESPONSIBILITY

A. Developer

1. Initial fuel modification work in Open Space areas, adjacent to trails, roads along boundaries of undeveloped commercial, public areas and parks.
2. Formation of Service District for maintenance of fuel treatments and enforcement of Fire Safety Plan.
3. Prepare CC&R's for Class A roofing, fire resistant siding and cantilevered decks.
4. Fuel treatment for each phase of development.

B. Lot Owner

1. Lot Firescaping and maintenance.
2. Compliance with structural Fire Safe elements (e.g. roofs, siding, decks).

C. Service District

1. Maintenance of roadside fuels (if roads are private) and fuel treatments for Grass Treatment Strips, Open Space areas, parks and trails.
2. Monitoring and enforcement of Fire Safe CC&R's.
3. The Service District, in cooperation with the City of Roseville, will prepare a Wildfire Prevention Plan. The Plan, among other things, will assign responsibilities for all prevention activities and will address closure of bike trials during periods of extreme fire danger, signing, and annual monitoring of fuel treatments.
4. Participate in the five year review of the adequacy of fuel treatments for the Open Space areas.

D. City of Roseville

1. Participate in the five year review of the adequacy of fuel treatments for the Open Space areas.
2. Maintenance of road side fuels if roads are public.
3. Determine fire hydrant locations.
4. Provide a Fire Safe brochure for all homeowners.
5. Provide inspections to assure all elements of the Fire Plan are accomplished.

APPENDIX A

STONERIDGE SPECIFIC PLAN

FUEL TREATMENT SPECIFICATIONS

for

GRASS / OAK WOODLAND VEGETATION

Within The Designated Fuel Treatment Areas

1. Leave all live trees
2. Remove all dead trees
3. Prune all live trees of dead and green branches for 8 to 10 feet from ground level, except that no more than 1/3 of the crown is removed.
4. Multi stem live oak trees: remove all dead stems and limbs, cut off stems that are arching downward to the ground at 8 to 10 feet above the ground.
5. Remove all brush
6. Remove all down logs and limbs over 2 inches in diameter.
7. Annually June 1, reduce the grass to a 2 inch stubble by mowing or chemically treating, or disking or combination of treatments to form the Grass Treatment Strips, and other areas of designated reduced fuels.

Appendix B.

STONERIDGE SPECFIC PLAN

FIRESCAPING STANDARDS

(Lot Back and Side Yards Bordering Open Space Areas)

Firescaping is an approach to landscaping to help protect homes from wildland fires. The goal is to create a landscape that will slow the advance of a wildfire and create a Defensible Space that provides the key point for fire fighting agencies to defend the home. This approach has a landscape zone surrounding the home containing a balance of native and exotic plants that are fire and drought resistant, help control erosion, and are visually pleasing. Firescaping is designed not only to protect the home but reduce damage to oaks and other plants.

The zone extends from the house to the lot property lines in all directions and has a traditional look of irrigated shrubs, flower gardens, trees and lawns. All dead trees, brush, concentrations of dead ground fuels (tree limbs, logs etc. exceeding 1 inch in diameter) are removed. All trees are pruned up to 8 - 10 feet above the ground, but no more than 1/3 of the crown. The plants in this zone are generally less than 18 inches in height, must be slow to ignite from wind blown sparks and flames. Such plants produce only small amounts of litter and retain high levels of moisture in their foliage year around. Native trees are permitted inside the Zone, but foliage may not be within 10 feet of the roof or chimney. Grass and other herbaceous growth within this zone must be irrigated or if left to cure must be mowed to a 2 inch stubble, disked, chemically treated or removed. Such treatment must be accomplished by June 1, annually. This zone has built in fire breaks created by driveways, sidewalks etc.

Stone

BEHAVE
STONERIDGE
RUN C, FALSE RAVINE

DIRECT
1--FUEL MODEL ---------- 1 -- SHORT GRASS, 1 FT (30 CM)

2--1-HR FUEL MOISTURE, % -- 2.0
7--MIDFLAME WINDSPEED, MI/H 2.0 4.0 6.0 8.0 10.0
8--TERRAIN SLOPE, % ------- 12.0
9--DIRECTION OF WIND VECTOR 180.0
DEGREES CLOCKWISE
FROM UPHILL
10--DIRECTION OF SPREAD ---- DIRECTION OF MAXIMUM SPREAD
CALCULATIONS TO BE CALCULATED
DEGREES CLOCKWISE
FROM UPHILL

(V4.1)

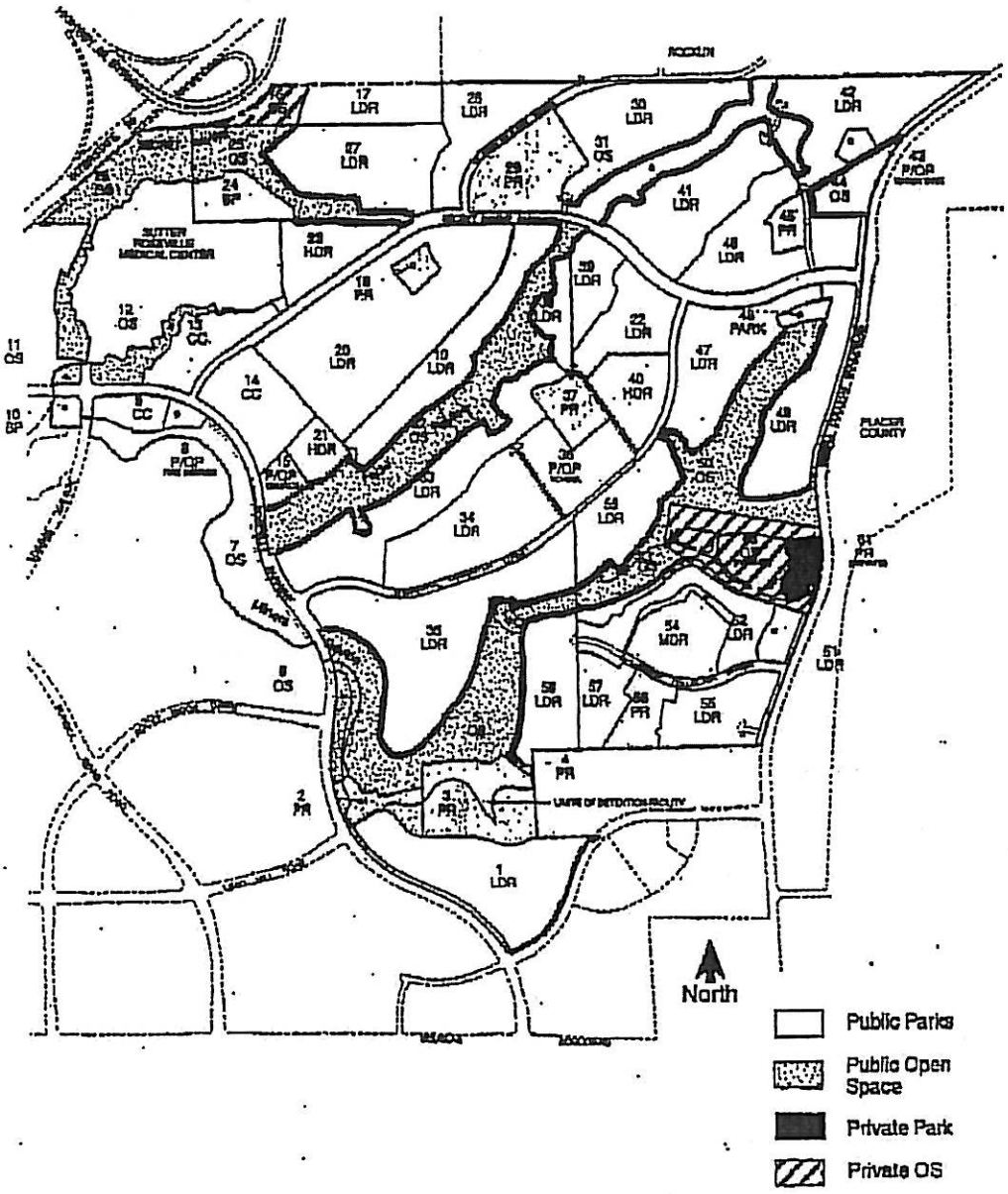
MIDFLAME WIND SPREAD DIREC (MI/H)	I	RATE OF SPREAD (CH/H)	HEAT PER UNIT AREA (BTU/SQFT)	FIRELINE INTENSITY (BTU/FT/S)	FLAME LENGTH (FT)	REACTION INTENSITY (BTU/SQFT/M)	EFFECT WIND (MI/H)	MAX) (DEG)
2.0	I	23.	116.	48.	2.7	1057.	1.8	180.
4.0	I	87.	116.	184.	5.0	1057.	3.9	180.
6.0	I	197.	116.	420.	7.2	1057.	5.9	180.
8.0	I	356.	116.	757.	9.5	1057.	8.0	180.
10.0	I	564.	116.	1199.	11.7	1057.	10.0	180.

BEHAVE
STONERIDGE
RUN A, MINERS RAVINE

DIRECT
1—FUEL MODEL ——————— 1 — SHORT GRASS, 1 FT (30 CM)
2—1-HR FUEL MOISTURE, % — 2.0
7—MIDFLAME WINDSPEED, MI/H 2.0 4.0 6.0 8.0 10.0
8—TERRAIN SLOPE, % ——— 6.0
9—DIRECTION OF WIND VECTOR 60.0
DEGREES CLOCKWISE
FROM UPHILL
10—DIRECTION OF SPREAD —— DIRECTION OF MAXIMUM SPREAD
CALCULATIONS TO BE CALCULATED
DEGREES CLOCKWISE
FROM UPHILL

(V4.1)

MIDFLAME WIND (MI/H)	I	RATE OF SPREAD (CH/H)	HEAT PER UNIT AREA (BTU/SQFT)	FIRELINE INTENSITY (BTU/FT/S)	FLAME LENGTH (FT)	REACTION INTENSITY (BTU/SQFT/M)	EFFECT. WIND (MI/H)	MAX SPREAD DIREC (DEG)
2.0	I	27.	116.	57.	2.9	1057.	2.0	58.
4.0	I	91.	116.	193.	5.1	1057.	4.0	59.
6.0	I	202.	116.	428.	7.3	1057.	6.0	60.
8.0	I	360.	116.	766.	9.5	1057.	8.0	60.
10.0	I	568.	116.	1207.	11.8	1057.	10.0	60.



LEGEND
(Schematic Fuel Treatment Locations)

April 7, 1999

40 Foot Fuel Treatment Strip, Open Space
(Item A1a, Page 5)

40 Foot Fuel Treatment Strip, Ravines
(Item A1b, Page 5

40 Foot Fuel Treatment Strip, Parks etc.
(Item A2a, Page 5)

10 Foot Fuel Treatment, Roads
(Item A4b, Page 5)